

### Question 1

Fred explained to his family how the doctor's advice would help prevent cardiovascular disease, but he made a mistake in his explanation. Which of the following statements is false?

- A) A diet high in saturated fats is associated with a higher risk of heart disease.
- B) A diet high in saturated fats tends to increase LDL levels.
- C) Exercise increases the body's production of LDL.
- D) Smoking will increase the body's production of LDL.

Answer: <https://biology-forums.com/index.php?topic=1883981>

### Question 2

Bacteria that are unable to survive in the presence of oxygen are called

- A) obligate anaerobes.
- B) obligate aerobes.
- C) facultative anaerobes.
- D) aerotolerant anaerobes.

Answer: <https://biology-forums.com/index.php?topic=1882972>

### Question 3

The endosymbiosis hypothesis proposes that

- A) two separate cells worked cooperatively and one benefited from the other.
- B) a small cell lived inside a larger cell to the benefit of both cells.
- C) a large cell engulfed and digested a smaller cell, exposing its enzymes for use by the larger cell.
- D) two cells merged into one cell, improving the enzyme function of the new cell.

Answer: <https://biology-forums.com/index.php?topic=1882873>

### Question 4

Which of the following by-products of metabolism is the most toxic?

- A) carbon monoxide
- B) ammonia
- C) urea
- D) lactic acid

Answer: <https://biology-forums.com/index.php?topic=1881985>

### Question 5

Organisms that are prokaryotes are in the domains

- A) Bacteria and Archaea.
- B) Plantae and Animalia.
- C) Eukarya and Archaea.
- D) Fungi and Bacteria.

Answer: <https://biology-forums.com/index.php?topic=1884091>

### Question 6

Which of the following is an invertebrate chordate?

- A) lancelets
- B) snakes
- C) sharks
- D) sea urchins

Answer: <https://biology-forums.com/index.php?topic=1883769>

### Question 7

In multicellular organisms, the coordination of cellular activities relies on

- A) cell receptors that detect transcription factors.
- B) the availability of certain "key" nutrients as cells divide.
- C) operons.
- D) cell-to-cell signaling and signal transduction pathways.

Answer: <https://biology-forums.com/index.php?topic=1883261>

### Question 8

What is the main adaptive advantage of the C4 and CAM photosynthesis strategies over the C3 strategy?

- A) They help the plant synthesize glucose efficiently under dry conditions.
- B) They allow the plant to fix carbon under conditions of low CO<sub>2</sub>.
- C) They allow the plant to fix carbon in cool conditions.
- D) They make it possible for the plant to use the Calvin cycle at night.

Answer: <https://biology-forums.com/index.php?topic=1883039>

### Question 9

A disaster such as a meltdown in a nuclear power plant requires close examination of potential impacts on organisms. Which of the following would be useful to biologists in such a situation?

- A) Use a molecular clock to compare genes of a species that lives near the nuclear plant with those of the same species thousands of miles away.
- B) Measure continental drift to determine if the disaster had accelerated movement of continents.
- C) Use radiometric dating to determine if new species are forming.
- D) Examine the mutation rate of species in the area.

Answer: <https://biology-forums.com/index.php?topic=1883551>

### Question 10

Biologists are studying two species whose DNA is known to differ by 10%. Knowledge of which of the following would be least important in calibrating a molecular clock to determine how rapidly evolution has proceeded with these two species?

- A) the fossil record of these two species
- B) a geological event that separated the species at a particular time.
- C) the function of each of these regions of DNA
- D) the time of divergence of closely related species

Answer: <https://biology-forums.com/index.php?topic=1883552>

### Question 11

Our sense of taste results from receptors organized into taste buds

- A) in the upper portions of nasal passages.
- B) on the tongue.
- C) that are also responsible for smell.
- D) with long cilia that are constantly in motion.

Answer: <https://biology-forums.com/index.php?topic=1882232>

### Question 12

Which of the following organisms best illustrates K-selection?

- A) the production of thousands of eggs every spring by frogs
- B) mice that produce three litters of 10-15 babies in the course of a summer
- C) a polar bear producing one or two cubs every three years
- D) a species of weed that quickly spreads into a region of cleared trees

Answer: <https://biology-forums.com/index.php?topic=1882629>

### Question 13

Which of the following would a biologist describe as microevolution?

- A) the formation of new species
- B) the extinction of species
- C) dramatic biological changes, such as the origin of flight, within a taxon
- D) a change in the gene pool of a population from one generation to the next

Answer: <https://biology-forums.com/index.php?topic=1883435>

### Question 14

If recombinant DNase I is added to a vial of respiratory secretions from a cystic fibrosis patient, which of the following results would indicate that the recombinant DNase I is functional?

- A) The secretions become thicker and more viscous.
- B) The secretions become less viscous.
- C) There is no effect on the secretions.
- D) This experiment could not tell you if the DNase was functional or not.

Answer: <https://biology-forums.com/index.php?topic=1883373>

### Question 15

Which of the following would violate the assumptions of the molecular clock?

- A) comparison of genes of a species that lives deep in the ocean with relatives that live on the surface and are exposed to strong mutation-inducing ultraviolet radiation
- B) comparison of genes for homologous structures across many species
- C) comparison of many genes in many species of insects that undergo metamorphosis
- D) assuming that organisms in competitive environments have the same rate of mutation as those in noncompetitive environments
- Answer: <https://biology-forums.com/index.php?topic=1883550>

### Question 16

- A peanut farmer decides that she can make more money growing cotton and so plants her fields with cotton. The terrific yield of her fields is so encouraging that she continues to plant cotton for several more years, but each year her cotton yield decreases. What advice could you give her to increase her yield?
- A) Use a little less fertilizer each year since the soil is becoming overfertilized.
- B) Plant peanuts in alternate years since this crop rotation will provide extra nitrogen to the soil.
- C) Leave the fields unplanted in alternate years so the soil can recover.
- D) Plant a different crop every year since different crops deplete different soil nutrients.
- Answer: <https://biology-forums.com/index.php?topic=1882427>

### Question 17

- Myosin is a contractile protein found in muscles that is composed of three pairs of subunits, two heavy chains, and two pairs of two different types of light chains, for a total of six subunits. Myosin contains what level(s) of protein structure?
- A) primary
- B) primary and secondary
- C) primary, secondary, and tertiary
- D) primary, secondary, tertiary, and quaternary
- Answer: <https://biology-forums.com/index.php?topic=1882817>

### Question 18

- In some areas, fluoride is added during the municipal water treatment process in order to help
- A) prevent goiter.
- B) prevent the growth of bacteria.
- C) prevent the development of mental retardation.
- D) reduce tooth decay.
- Answer: <https://biology-forums.com/index.php?topic=1882754>

### Question 19

- Thanks to a new conservation program, a population with only 200 individuals at the beginning of the year is growing exponentially. The population has a per capita birth rate of 0.5 per year and a death rate of 0.2 per year. What is the growth rate during the year? What will the population be at the end of the year?
- A) growth rate = 60 per year; population = 260
- B) growth rate = 6 per year; population = 206
- C) growth rate = 260 per year; population = 60
- D) growth rate = 30 per year; population = 230
- Answer: <https://biology-forums.com/index.php?topic=1882639>

### Question 20

- Which of the following is an example of predation?
- A) a lizard's camouflage
- B) a hawk swooping down quickly to capture, kill, and eat a prairie king snake
- C) a goldfinch feeding on the seeds of a thistle plant
- D) the vivid colors of the poison-arrow frog in Costa Rica
- Answer: <https://biology-forums.com/index.php?topic=1882657>

### Question 21

- Hyperthyroidism treatment in cats usually involves antithyroid medication or the use of radioactive iodine to destroy the abnormal (overactive) tissue growing in the thyroid gland. Surgery to remove the abnormal tissue is generally not advised, as the surgery could also accidentally destroy parathyroid tissue. The parathyroid gland releases a hormone called PTH that increases blood calcium levels. Based on your knowledge of homeostasis, predict why surgery is ill-advised.
- A) A lack of PTH will cause blood calcium levels to drop to abnormally low levels.
- B) A lack of PTH will cause blood calcium levels to rise to abnormally high levels.
- C) Positive feedback will compensate for any problems caused by negative feedback.

D) Surgery will not be a problem because homeostasis will find other ways to regulate blood calcium.

Answer: <https://biology-forums.com/index.php?topic=1883892>

### Question 22

Which of the following organisms was the first to introduce oxygen into Earth's atmosphere?

- A) cyanobacteria
- B) early protozoans
- C) plants
- D) green algae

Answer: <https://biology-forums.com/index.php?topic=1883579>

### Question 23

Which of the following statements regarding chemical reactions is false?

- A) Chemical reactions involve the making and breaking of chemical bonds.
- B) Some chemical reactions create electrons; others destroy them.
- C) The reactants contain the same number of atoms as the products.
- D) Although the atoms of a reaction's reactants and products are identical to each other, their molecular formulas differ.

Answer: <https://biology-forums.com/index.php?topic=1882758>

### Question 24

While wading in the ocean, you look down into the water and notice an umbrella-shaped, translucent animal. It swims by pulsing its body, and long tentacles trail behind it. One of them brushes your leg. Ouch! You feel a burning sensation where it touched you. To what phylum does this creature probably belong?

- A) Porifera
- B) Cnidaria
- C) Platyhelminthes
- D) Mollusca

Answer: <https://biology-forums.com/index.php?topic=1883743>

### Question 25

The tallest plant on Earth is

- A) a 500-foot kelp living off the coast of California.
- B) a 379-foot redwood tree in California.
- C) a 740-foot white oak tree in Illinois.
- D) a giant seed fern in southern Peru.

Answer: <https://biology-forums.com/index.php?topic=1882311>

### Question 26

How do mineral ions get into the xylem cells of a plant root by way of the intracellular route?

- A) They percolate between root cells to the xylem and then enter a xylem vessel.
- B) They are actively taken in to the xylem of root hairs.
- C) They are taken up by root hair cells and transferred from cell to cell via plasmodesmata.
- D) They move in solution through cell walls of the endodermis.

Answer: <https://biology-forums.com/index.php?topic=1882388>

### Question 27

Whether there is a net flow of fluid into or out of a capillary at a given point along its length depends upon

- A) whether the fluid contains nutrients or wastes.
- B) whether or not the fluid contains oxygen.
- C) the balance between blood pressure and osmotic pressure.
- D) the needs of the tissue.

Answer: <https://biology-forums.com/index.php?topic=1881867>

### Question 28

If independent assortment did not occur, which of the following would be true?

- A) Genes for two different traits would be inherited together as a pair.
- B) Meiosis II would not be required to produce gametes, as meiosis I would be sufficient.
- C) A dihybrid cross of heterozygous individuals would yield four different phenotypes.
- D) Each sperm and egg would carry more than one allele for a specific gene.

Answer: <https://biology-forums.com/index.php?topic=1883153>

### Question 29

A material that must be ingested in preassembled form because the animal cannot synthesize it is

- A) an end product.
- B) adenosine triphosphate.
- C) glucose.
- D) an essential nutrient.

Answer: <https://biology-forums.com/index.php?topic=1883950>

### Question 30

Where do transcription and translation occur in prokaryotic cells?

- A) on the plasma membrane
- B) in the nucleus
- C) in the cytoplasm
- D) in chromatophores

Answer: <https://biology-forums.com/index.php?topic=1883193>

### Question 31

Compared to the endocrine system, the nervous system

- A) has a faster response, but the signal does not last as long.
- B) has a slower response and a signal that does not last as long.
- C) has a faster response with a longer-lasting signal.
- D) has a slower response with a longer-lasting signal.

Answer: <https://biology-forums.com/index.php?topic=1882035>

### Question 32

Sex-linked conditions are more common in men than in women because

- A) men acquire two copies of the defective gene during fertilization.
- B) men need to inherit only one copy of the recessive allele for the condition to be fully expressed.
- C) the sex chromosomes are more active in men than in women.
- D) the genes associated with the sex-linked conditions are linked to the Y chromosome, which determines maleness.

Answer: <https://biology-forums.com/index.php?topic=1883149>

### Question 33

Tapeworms are similar to fungi in that

- A) they have cell walls made of chitin.
- B) they are sessile autotrophs.
- C) they feed by absorption.
- D) they inhabit marine, damp terrestrial, and freshwater habitats.

Answer: <https://biology-forums.com/index.php?topic=1883745>

### Question 34

Alginates are used in many everyday products, including toothpaste and soap. When added to water, they form a thick gel that binds or emulsifies liquids. Alginates come from a group of multicellular stramenopiles that have one pigment that masks all others and therefore gives these organisms a distinctive, dark color. Alginates are derived from

- A) green algae.
- B) brown algae.
- C) water molds.
- D) dinoflagellates.

Answer: <https://biology-forums.com/index.php?topic=1883640>

### Question 35

The cells that produce hair made of protein contain a lot of \_\_\_\_\_, while the cells that produce the oils that coat the hair contain a lot of \_\_\_\_\_.

- A) smooth endoplasmic reticulum; lysosomes
- B) rough endoplasmic reticulum; smooth endoplasmic reticulum
- C) smooth endoplasmic reticulum; rough endoplasmic reticulum
- D) microbodies; lysosomes

Answer: <https://biology-forums.com/index.php?topic=1882861>

### Question 36

Plants use sugars as

- A) a fuel for photosynthesis.
- B) a starting material for the Calvin cycle.
- C) a source of electrons for chemiosmosis.
- D) a fuel for cellular respiration and a starting material for making other organic molecules.

Answer: <https://biology-forums.com/index.php?topic=1883040>

### Question 37

You want to use radioactively labeled oxygen to trace carbon fixation in a plant. You should incorporate the radioactively labeled oxygen into

- A) O<sub>2</sub>.
- B) CO<sub>2</sub>.
- C) H<sub>2</sub>O.
- D) C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>.

Answer: <https://biology-forums.com/index.php?topic=1883045>

### Question 38

Suppose that during the embryonic development of a hand, homeotic gene expression is altered such that the dorsal-ventral axis is switched. What is the most likely outcome of this scenario?

- A) The palm and back of the hand will be switched.
- B) The pinky and thumb would be switched.
- C) The shoulder and hand would be switched.
- D) The foot and hand would be switched.

Answer: <https://biology-forums.com/index.php?topic=1882112>

### Question 39

The three tissue systems of a mature plant root complete their development in the root zone of

- A) elongation.
- B) cell division.
- C) differentiation.
- D) vascularization.

Answer: <https://biology-forums.com/index.php?topic=1882333>

### Question 40

Along with having a variable number of toes, some kittens from Jake and Lucy's litter had a white spot on their nose. In fact, out of the 16 kittens, all 10 males had the white spot, but none of the 6 females had the white spot. Jake has a white spot on his nose, but Lucy does not. What can you conclude from this information?

Cats normally have a total of 18 toes, 5 on each front paw and 4 on each back paw. But some cats express the dominant phenotype for polydactyly, which results in the development of extra toes on one or more paws. Jake, a Canadian tabby cat, has 28 toes and is recognized by the Guinness Book of World Records as the cat with the most toes.

Suppose that Jake mates with a female cat, Lucy, who has 18 total toes. Over several years, they have multiple litters and a total of 16 kittens (10 males and 6 females). The total number of toes on each kitten ranges from 21 to 25.

- A) A sex-linked gene that controls the expression of the white spot is found on the Y chromosome.
- B) A sex-linked gene that controls the expression of the white spot is found on the X chromosome.
- C) The genes for the white spot and for polydactyly are linked.
- D) The genes for the white spot and for polydactyly are not linked.

Answer: <https://biology-forums.com/index.php?topic=1883169>

### Question 41

Imagine that we mate two black Labrador dogs with normal vision and find that three of the puppies are like the parents, but one puppy is chocolate with normal vision and another is black with PRA (progressive retinal atrophy, a serious disease of vision). We can conclude that

- A) both of the parents are homozygous for both traits.
- B) the same alleles that control coat color can also cause PRA.
- C) the alleles for color and vision segregate independently during gamete formation.
- D) the alleles for color and vision segregate dependently during gamete formation.

Answer: <https://biology-forums.com/index.php?topic=1883118>

### Question 42

The transfer of a phosphate group to a molecule or compound is called

- A) carboxylation.
- B) ionization.
- C) phosphorylation.
- D) hydrogenation.

Answer: <https://biology-forums.com/index.php?topic=1882935>

### Question 43

Which of the following is a member of the domain Archaea?

- A) gram-positive bacteria
- B) methanogens
- C) spirochetes
- D) chlamydias

Answer: <https://biology-forums.com/index.php?topic=1883576>

### Question 44

A person who is 5' 7" and weighs 170 pounds would be considered

- A) normal.
- B) overweight.
- C) obese.
- D) extremely obese.

Answer: <https://biology-forums.com/index.php?topic=1883978>

### Question 45

Most angiosperms are dicots, and most dicots are

- A) cycads.
- B) gymnosperms.
- C) eudicots.
- D) mosses.

Answer: <https://biology-forums.com/index.php?topic=1882313>

### Question 46

During gas exchange, body cells

- A) take up CO<sub>2</sub> from red blood cells.
- B) release O<sub>2</sub> to red blood cells.
- C) increase in size to accommodate the reuptake of O<sub>2</sub>.
- D) release CO<sub>2</sub> and take up O<sub>2</sub>.

Answer: <https://biology-forums.com/index.php?topic=1883998>

### Question 47

Some restriction enzymes do not leave sticky ends when cutting DNA molecules; rather, they cut a restriction site down the middle and leave "blunt-ended" DNA molecules, which do not have any single-stranded nucleotide extensions. Which of the following is not a likely outcome when trying to insert a gene into a plasmid when have both been cut with the same "blunt-ended" restriction enzyme?

- A) The gene might be inserted into the plasmid by forming hydrogen bonds.
- B) The gene might be inserted into the plasmid multiple times in a row.
- C) The gene might insert into the plasmid in the proper (forward) orientation.
- D) The gene might insert into the plasmid in the wrong (backward) orientation.

Answer: <https://biology-forums.com/index.php?topic=1883361>

### Question 48

Which of the following options best depicts the flow of information when a gene directs the synthesis of a cellular component?

- A) RNA DNA RNA protein
- B) DNA RNA protein
- C) protein RNA DNA
- D) DNA tRNA mRNA protein

Answer: <https://biology-forums.com/index.php?topic=1883184>

### Question 49

The insect body plan includes many groups of serially repeated units. For example, there are typically three pairs of legs, one on each of the three segments of the thorax. Which of the following options best describes how these pairs of legs develop and evolve?

- A) A single gene controls the development of all six legs. Thus within a species, all three pairs of legs are identical.

- B) The leg pairs all influence each other during development. Gene products move by diffusion from one segment to the other. Therefore, it is impossible to alter the development and form of one pair of legs without causing similar changes in the other two pairs of legs.
- C) The body parts develop in a modular fashion. Therefore, a genetic change could alter the development of one pair of limbs without noticeably changing the rest of the insect's body plan.
- D) The leg pairs grow under the control of an ancient set of highly conserved genes. Therefore, all insects have more or less identical legs. Other parts of the insect body plan can evolve somewhat more freely.

Answer: <https://biology-forums.com/index.php?topic=1883763>

### Question 50

The majority of plant species today are

- A) angiosperms.  
B) bryophytes.  
C) gymnosperms.  
D) seedless vascular plants.

Answer: <https://biology-forums.com/index.php?topic=1883659>

### Question 51

Human social behavior appears to be

- A) exclusively a product of our genes.  
B) determined by the environment.  
C) a product of our genes, external influences, and environment.  
D) unrelated to genetics.

Answer: <https://biology-forums.com/index.php?topic=1882597>

### Question 52

The molecules responsible for membrane transport are

- A) steroids.  
B) phospholipids.  
C) carbohydrates.  
D) proteins.

Answer: <https://biology-forums.com/index.php?topic=1882916>

### Question 53

If the atomic mass of uranium is 92, how many neutrons does an atom of uranium-235 have in its nucleus?

- A) 92  
B) 143  
C) 146  
D) 235

Answer: <https://biology-forums.com/index.php?topic=1882786>

### Question 54

What is the source of energy that provides the boost for electrons during photosynthesis?

- A) light  
B) NADPH  
C) cellular respiration  
D) ATP

Answer: <https://biology-forums.com/index.php?topic=1883010>

### Question 55

A pair of sex chromosomes found in a human male is most like

- A) a pair of blue jeans.  
B) a bride and groom.  
C) a knife, fork, and spoon.  
D) identical twins.

Answer: <https://biology-forums.com/index.php?topic=1883065>

### Question 56

The adaptive immune system is capable of mounting specific responses to particular microorganisms because

- A) lymphocytes are able to change their antigen specificity as required to fight infection.  
B) stem cells determine which type of B and T cells to make.

C) the body contains an enormous diversity of lymphocytes, each with the ability to respond to a different antigen.  
D) stem cells make different antigen receptors depending on the invading microorganism.  
Answer: <https://biology-forums.com/index.php?topic=1881927>

### Question 57

In a flowering plant, the cells that give rise to sperm undergo meiosis in the  
A) ovaries.  
B) sepals.  
C) anthers.  
D) stigma.  
Answer: <https://biology-forums.com/index.php?topic=1882345>

### Question 58

Which of the following statements would Darwin have disagreed with?  
A) Species change over time.  
B) Living species have arisen from earlier life-forms.  
C) Descent with modification occurs through inheritance of acquired characteristics.  
D) Descent with modification occurs by natural selection.  
Answer: <https://biology-forums.com/index.php?topic=1883380>

### Question 59

Which of the following statements regarding antigens and antibodies is false?  
A) An antibody usually recognizes and binds to an antigenic determinant.  
B) A single antigen may stimulate the immune system to make several distinct antibodies to it.  
C) Most antigens are proteins or large polysaccharides on the surfaces of viruses or foreign cells.  
D) Each antibody has only one antigen-binding site.  
Answer: <https://biology-forums.com/index.php?topic=1881928>

### Question 60

Which of the following is important in the digestion of lipids?  
A) pepsin  
B) amylase  
C) bile salts  
D) trypsin  
Answer: <https://biology-forums.com/index.php?topic=1883935>

### Question 61

A human population will achieve zero population growth if  
A) no couple has more than two children.  
B) couples have an average of about 2.25 children each (to account for some children who do not survive to reproduce).  
C) no couple has more than one child.  
D) the birth rate equals the intrinsic rate of increase  $r$ .  
Answer: <https://biology-forums.com/index.php?topic=1882622>

### Question 62

Nectarivores drink flower nectar that is a sugary sweet liquid. Nectarivores are an example of \_\_\_\_\_.  
A) filter feeders  
B) bulk feeders  
C) fluid feeders  
D) carnivores  
Answer: <https://biology-forums.com/index.php?topic=1883916>

### Question 63

Which of the following possible uses of reproductive cloning is still considered by most to be an unresolved ethical issue?  
A) the production of genetically identical animals for experimentation  
B) cloning mammals for the production of potentially valuable drugs  
C) the production of organs in cloned pigs for transplant into humans  
D) the reproductive cloning of humans  
Answer: <https://biology-forums.com/index.php?topic=1883270>

### Question 64

What is the likely origin of chloroplasts?

- A) mitochondria that had a mutation for photosynthesis
- B) photosynthetic prokaryotes that lived inside eukaryotic cells
- C) prokaryotes with photosynthetic mitochondria
- D) eukaryotes that engulfed photosynthetic fungi

Answer: <https://biology-forums.com/index.php?topic=1883001>

### Question 65

It is essential for heart muscle cells to beat in a coordinated fashion. The cell junctions that would best facilitate this are

- A) occluding junctions.
- B) anchoring junctions.
- C) tight junctions.
- D) gap junctions.

Answer: <https://biology-forums.com/index.php?topic=1882881>

### Question 66

Which part of this diagram of the human brain depicts the cerebellum?

- A) part A
- B) part B
- C) part C
- D) part D

Answer: <https://biology-forums.com/index.php?topic=1882198>

### Question 67

The expression of the tryptophan operon is controlled by

- A) a repressor that is active when it is alone.
- B) a repressor that is inactive when it binds to lactose.
- C) a repressor that is active when it binds to tryptophan.
- D) an activator that turns the operon on by binding to DNA.

Answer: <https://biology-forums.com/index.php?topic=1883244>

### Question 68

High levels of which of the following hormones can suppress the body's immune system?

- A) glucagon
- B) mineralocorticoids
- C) glucocorticoids
- D) antidiuretic hormone

Answer: <https://biology-forums.com/index.php?topic=1882062>

### Question 69

Some herbivore-plant interactions evolved through a series of reciprocal evolutionary adaptations in both species. This process is called

- A) herbivory.
- B) coevolution.
- C) selection.
- D) trophism.

Answer: <https://biology-forums.com/index.php?topic=1882664>

### Question 70

Which of the following statements best describes how flight and feathers are related in the evolution of birds?

- A) The first flying birds did not have feathers, which evolved later.
- B) Feathers and flight evolved at the same time.
- C) The first feathered ancestors to birds did not fly but may have used their feathers for insulation and display.
- D) Feathers are soft and do not leave fossils or fossil traces, so it is unknown which organisms first had feathers.

Answer: <https://biology-forums.com/index.php?topic=1883808>

### Question 71

Lysozyme is an enzyme that breaks down bacterial cell walls and is found in your tears, mucus, and saliva. A mutation occurs in the gene for lysozyme that results in a lysine (a positively charged amino acid) being substituted for an arginine (also a positively charged amino acid). Do you think that the mutant lysozyme will function similarly to the normal lysozyme?

- A) no, because all changes in protein primary sequence result in functional differences
- B) no, because changing lysine to arginine will cause the protein to denature
- C) yes, because both lysine and arginine are positively charged so the tertiary structure and therefore function should be similar
- D) yes, because protein function stays the same no matter what mutations occur

Answer: <https://biology-forums.com/index.php?topic=1882810>

### Question 72

Animals that are segmented and have jointed appendages and an exoskeleton are members of the phylum

- A) Platyhelminthes.
- B) Annelida.
- C) Cnidaria.
- D) Arthropoda.

Answer: <https://biology-forums.com/index.php?topic=1883754>

### Question 73

The human spine acts like a weight-bearing column. Compare this to the spine of a horse, which acts like an elastic suspension bridge. Which organism would you predict to experience more back pain and why?

- A) the horse, because its spine is less evolutionarily advanced
- B) the horse, because its spine supports more organ systems than human spines
- C) the human, because in order to walk upright, the spine is compressed
- D) the human, because of longer neurons

Answer: <https://biology-forums.com/index.php?topic=1883861>

### Question 74

The largest blood vessel in the human body is the

- A) superior vena cava.
- B) pulmonary vein.
- C) aorta.
- D) pulmonary artery.

Answer: <https://biology-forums.com/index.php?topic=1881846>

### Question 75

When a B cell first interacts with its particular antigen, the B cell

- A) dies after destroying the antigen.
- B) engulfs the antigen and digests it.
- C) differentiates and develops into a clone of antibody-producing effector cells.
- D) alters the chemical configuration of the antigen.

Answer: <https://biology-forums.com/index.php?topic=1881929>

### Question 76

The Himalayas are an example of a mountain range that formed as a result of

- A) the collision of two continental plates.
- B) the separation of two continental plates.
- C) the buildup of sediments and conversion to rock.
- D) volcanic eruptions.

Answer: <https://biology-forums.com/index.php?topic=1883510>

### Question 77

Which of the following statements about tunicates indicates that these animals are chordates?

- A) Larvae show segmentation, radial symmetry, and a pseudocoelom.
- B) Larvae have a dorsal hollow nerve cord, a post-anal tail, pharyngeal slits, and a notochord.
- C) Larvae and adults both have a true coelom.
- D) Tunicates have tube feet and a water vascular system.

Answer: <https://biology-forums.com/index.php?topic=1883771>

### Question 78

Which of the following is an example of exaptation?

- A) Wings are longer in some birds than others.
- B) Human middle ear bones are derived from ancestral gill arch tissue.
- C) Wings of bats and wings of birds are homologous.
- D) Mutation rates can increase at higher temperatures.

Answer: <https://biology-forums.com/index.php?topic=1883549>

### Question 79

The body cells of a turkey have 80 chromosomes each. How many chromosomes would be found in a male turkey's sperm cells?

- A) 160
- B) 80
- C) 40
- D) 20

Answer: <https://biology-forums.com/index.php?topic=1882087>

### Question 80

Which of the following is a disadvantage of cloning as a propagation technique?

- A) Cloning produces monocultures that can potentially be wiped out by a single disease.
- B) Cloning is more expensive and more difficult than growing from seeds.
- C) Cloning is time-consuming, with slow results.
- D) Cloned organisms are dangerous and unpredictable.

Answer: <https://biology-forums.com/index.php?topic=1882361>

### Question 81

Which of the following statements about the nitrogen cycle is true?

- A) The nitrogen cycle requires different types of bacteria.
- B) Nitrogen gas is converted to nitrates in plant leaves.
- C) Nitrogen cannot be cycled through living organisms.
- D) When plants and animals die, nitrogen is removed from the nitrogen cycle.

Answer: <https://biology-forums.com/index.php?topic=1882691>

### Question 82

Which of the following groups has a series of similar segments that make up most of the body?

- A) millipedes
- B) crustaceans
- C) scorpions
- D) insects

Answer: <https://biology-forums.com/index.php?topic=1883757>

### Question 83

The plant genus *Pinus* reaches optimal growth when it grows with the fungal genus *Suillus*. The \_\_\_\_\_ of the fungus give *Pinus* water and mineral nutrients, while *Pinus* gives the fungus sugars and organic macromolecules. *Pinus* and *Suillus* have a \_\_\_\_\_ relationship.

- A) hyphae; symbiotic
- B) spores; symbiotic
- C) chitin; eukaryotic
- D) fruit; endothermic

Answer: <https://biology-forums.com/index.php?topic=1883710>

### Question 84

Natural populations of lemurs are found in

- A) Borneo.
- B) North Africa.
- C) New Zealand.
- D) Madagascar.

Answer: <https://biology-forums.com/index.php?topic=1883813>

### Question 85

A decrease in \_\_\_\_\_ is followed by the gradual degradation of the corpus luteum.

- A) LH
- B) FSH
- C) estrogen

D) progesterone

Answer: <https://biology-forums.com/index.php?topic=1882093>

### Question 86

It is difficult to tell if a mushroom sticking out of the ground is a living, reproducing organism. Which of the following would be the best evidence to demonstrate that mushrooms are living, reproducing organisms?

- A) flagellated sperm
- B) pollen
- C) lignin
- D) spore production and dispersal

Answer: <https://biology-forums.com/index.php?topic=1883716>

### Question 87

An insectivorous bird has the choice of eating (1) meadow beetles, which are abundant and large but expose the bird to hawk predation, (2) under-a-rock beetles, which are large and fatty but hard to obtain, or (3) under-a-leaf beetles, which are easy to obtain but small. The bird has nestlings to feed. As an optimal forager, it will

- A) concentrate on under-a-leaf beetles because they are easy and safe.
- B) concentrate on under-a-rock beetles because they are energy-rich.
- C) eat one kind of beetle at a time (first under-a-leaf, then meadow, then under-a-rock), switching to a new kind when the old kind becomes scarce.
- D) eat all three kinds of beetles, balancing the energy spent and the risks incurred against the energy gained.

Answer: <https://biology-forums.com/index.php?topic=1882580>

### Question 88

A physician diagnoses a patient with a bacterial infection and determines that the patient is not immune to the bacteria. He delivers a shot of blood plasma that contains antibodies to his patient. The physician is transferring

- A) lymph nodes.
- B) the cell-mediated immune response.
- C) antigen receptors.
- D) the humoral immune response.

Answer: <https://biology-forums.com/index.php?topic=1881965>

### Question 89

About how much of the energy in the producers of an ecosystem will be available to secondary consumers in this ecosystem?

- A) 100%
- B) about 50%
- C) about 10%
- D) about 1%

Answer: <https://biology-forums.com/index.php?topic=1882685>

### Question 90

A population of fungi in a yard produces 10 mushrooms in year 1, 20 in year 2, and 40 in year 3. If this trend continues, by year 5 there will be \_\_\_\_\_ mushrooms.

- A) 40
- B) 80
- C) 160
- D) 320

Answer: <https://biology-forums.com/index.php?topic=1882617>

### Question 91

In a hypotonic solution, an animal cell will

- A) lyse.
- B) experience turgor.
- C) neither gain nor lose water.
- D) shrivel.

Answer: <https://biology-forums.com/index.php?topic=1882914>

### Question 92

Sympatric speciation commonly occurs through \_\_\_\_\_ in plants but is more likely to occur through \_\_\_\_\_ in animals.

- A) polyploidy; habitat differentiation and sexual selection
- B) habitat differentiation and sexual selection; polyploidy

C) asexual reproduction; chromosome duplications  
D) self-pollination; polyploidy and other genetic mechanisms  
Answer: <https://biology-forums.com/index.php?topic=1883457>

### Question 93

An organism that can fly and has an exoskeleton must be  
A) a member of the Chordata.  
B) an echinoderm.  
C) an insect.  
D) a polychaete.  
Answer: <https://biology-forums.com/index.php?topic=1883760>

### Question 94

A mature ovary, specialized as a vessel that houses and protects seeds, is a  
A) fruit.  
B) ovule.  
C) cotyledon.  
D) seed coat.  
Answer: <https://biology-forums.com/index.php?topic=1882354>

### Question 95

A rabbit population consists of animals that are either very dark on top or very light on top. The color pattern is not related to sex. No rabbit shows intermediate coloration (medium darkness). This pattern might result from  
A) disruptive selection.  
B) directional selection.  
C) stabilizing selection.  
D) sexual selection.  
Answer: <https://biology-forums.com/index.php?topic=1883408>

### Question 96

Which of the following processes is most similar to the process of cleavage?  
A) slicing up a pie into eight pieces  
B) stringing beads onto a string  
C) inflating a balloon  
D) melting a stick of butter in a hot pan  
Answer: <https://biology-forums.com/index.php?topic=1882101>

### Question 97

Which of the following processes occurs when a salamander regenerates a lost limb?  
A) The homeotic genes of the regenerating limb are expressed.  
B) Certain cells in the limb dedifferentiate, divide, and then redifferentiate to form a new limb.  
C) A new salamander develops from the lost limb.  
D) The homeotic genes of the regenerating cells turn off.  
Answer: <https://biology-forums.com/index.php?topic=1883267>

### Question 98

Crossing over \_\_\_\_\_ genes into assortments of \_\_\_\_\_ not found in the parents.  
A) recombines unlinked; genes  
B) recombines linked; alleles  
C) combines unlinked; alleles  
D) combines linked; genes  
Answer: <https://biology-forums.com/index.php?topic=1883138>

### Question 99

The relationship between a plant and mycorrhizal fungi is best described as  
A) parasitic.  
B) competitive.  
C) mutualistic.  
D) commensal.  
Answer: <https://biology-forums.com/index.php?topic=1882418>

### Question 100

Which of the following substances is cycled between organic matter and abiotic reservoirs?

- A) fat
- B) carbon
- C) protein
- D) nucleic acid

Answer: <https://biology-forums.com/index.php?topic=1882687>

### Question 101

Which stage of the life cycle shown is the sporophyte?

- A) stage A
- B) stage B
- C) stage C
- D) stage D

Answer: <https://biology-forums.com/index.php?topic=1883646>

### Question 102

In a hybrid zone, \_\_\_\_\_ can occur if the reproductive barrier between two species is weak, as seen among cichlids in the murky waters of modern Lake Victoria.

- A) reinforcement
- B) fusion
- C) allopatric speciation
- D) reproductive isolation

Answer: <https://biology-forums.com/index.php?topic=1883465>

### Question 103

Urine flows from the collecting duct into the

- A) ureter.
- B) urethra.
- C) renal pelvis.
- D) distal tubule.

Answer: <https://biology-forums.com/index.php?topic=1881998>

### Question 104

The maximum number of individuals a habitat can support is called its

- A) reproductive potential.
- B) carrying capacity.
- C) community size.
- D) density-dependent factor.

Answer: <https://biology-forums.com/index.php?topic=1882615>

### Question 105

If the time it takes to go around the loop is 1 second, what is the cardiac output in units of liters per minute?

- A) 3.9 L/min
- B) 4.2 L/min
- C) 7.0 L/min
- D) 8.1 L/min

Answer: <https://biology-forums.com/index.php?topic=1881909>

### Question 106

Which of the following statements about the humoral immune response is true?

- A) The humoral immune response defends against bacteria and viruses by activating T cells.
- B) The humoral immune response defends primarily against bacteria and viruses present in body fluids.
- C) The humoral immune response plays a major role in protecting the body from cancerous cells.
- D) The humoral immune response is the result of macrophages producing antibodies.

Answer: <https://biology-forums.com/index.php?topic=1881926>

### Question 107

To obtain optimal production in a small garden, one should

- A) plant seeds in rows with minimal spacing between rows.
- B) plant seeds in clumps with large spaces between clumps.
- C) plant seeds in a uniform pattern throughout the garden.
- D) sow seeds randomly throughout the garden.

Answer: <https://biology-forums.com/index.php?topic=1882611>

### Question 108

Prehensile tails are found among

- A) Old World monkeys.
- B) most hominoids.
- C) New World monkeys.
- D) all primates.

Answer: <https://biology-forums.com/index.php?topic=1883816>

### Question 109

When two different populations in a community benefit from their relationship with each other, the result is called

- A) herbivory.
- B) mutualism.
- C) parasitism.
- D) competition.

Answer: <https://biology-forums.com/index.php?topic=1882655>

### Question 110

Which of the following is an advantage of using managed relocation?

- A) Scientists will be able to accurately predict how many members of a species will survive the relocation because they can start the process with a definite number of members being moved.
- B) Purposefully moving species will allow scientists to put specific numbers of organisms in different areas so that the species population always maintains an even distribution of organisms across the area.
- C) All species moved will be saved from extinction.
- D) Governments will not face the large costs of maintaining conserved areas for corridors.

Answer: <https://biology-forums.com/index.php?topic=1882751>

### Question 111

Which of the following substances could be a cofactor?

- A) a protein
- B) a polypeptide
- C) a zinc atom
- D) a ribosome

Answer: <https://biology-forums.com/index.php?topic=1882943>

### Question 112

The chief function of root hairs is to

- A) decrease the anchoring power of roots.
- B) increase the surface area for absorption of water and minerals.
- C) provide a direct passageway from the soil to the vascular cylinder.
- D) provide a home for symbiotic bacteria.

Answer: <https://biology-forums.com/index.php?topic=1882318>

### Question 113

The advantage of being able to clone the gene for human insulin is that

- A) there are too few cows, pigs, and horses to provide an adequate supply of their insulin.
- B) human insulin is less likely to cause harmful side effects than cow, pig, or horse insulin.
- C) cow, pig, or horse insulin cannot keep a diabetic alive for more than three months.
- D) using human insulin increases the probability that, in the future, the person suffering from diabetes can be weaned from a dependence on insulin.

Answer: <https://biology-forums.com/index.php?topic=1883324>

### Question 114

Which of the following statements about archaea is false?

- A) Some archaea have mitochondria like those of eukaryotic cells.
- B) Archaea are abundant in the oceans.
- C) Some archaea are adapted to extreme environments such as extremely salty or extremely hot habitats.
- D) Some archaea live in the digestive tracts of cattle.

Answer: <https://biology-forums.com/index.php?topic=1883577>

### Question 115

Flame retardants are an example of

- A) lipid-soluble hormones.
- B) endocrine disrupters.
- C) progestins.
- D) androgens.

Answer: <https://biology-forums.com/index.php?topic=1882074>

### Question 116

Adaptation to terrestrial life involved major evolutionary changes. The change from gill breathing to lung breathing was accompanied by important changes in the

- A) reproductive system.
- B) cardiovascular system.
- C) manufacture of blood cells.
- D) association of blood and interstitial fluid.

Answer: <https://biology-forums.com/index.php?topic=1881836>

### Question 117

Which of the following statements about movement corridors is true?

- A) Movement corridors can connect otherwise isolated habitat patches.
- B) Movement corridors can promote inbreeding in declining populations.
- C) Movement corridors are detrimental to species that migrate between habitats seasonally.
- D) Movement corridors can prevent the spread of disease.

Answer: <https://biology-forums.com/index.php?topic=1882724>

### Question 118

In a certain type of nuclear reactor, uranium-238 can be converted to plutonium-239, another radioactive element (with an atomic number of 94) that can be used to power nuclear reactions. Which of the following statements regarding uranium-238 and plutonium-239 is false?

- A) An atom of plutonium-239 contains one more proton than an atom of uranium-238.
- B) An atom of plutonium-239 contains 145 neutrons.
- C) An atom of uranium-238 has a smaller mass than an atom of plutonium-239.
- D) An atom of plutonium-239 contains two more protons and one fewer neutron than an atom of uranium-238.

Answer: <https://biology-forums.com/index.php?topic=1882787>

### Question 119

After glycolysis but before the citric acid cycle,

- A) pyruvate is oxidized.
- B) a carbon atom is added to pyruvate to make a four-carbon compound.
- C) coenzyme A is cleaved off pyruvate.
- D) glucose is split, producing two molecules of pyruvate.

Answer: <https://biology-forums.com/index.php?topic=1882960>

### Question 120

Which of the following statements regarding a common cellular activity is false?

- A) Cells respond to the environment.
- B) Cells develop and maintain complex organization.
- C) Cells regulate their internal environment.
- D) New cells are derived from cellular components like organelles.

Answer: <https://biology-forums.com/index.php?topic=1884088>

### Question 121

Information on latitude and longitude is provided to migrating animals through

- A) olfactory clues.
- B) celestial observation.
- C) magnetic information.
- D) spatial learning.

Answer: <https://biology-forums.com/index.php?topic=1882599>

### Question 122

Water moves out of filtrate in the nephron tubule into the interstitial fluid by

- A) capillary action.
- B) refinement.
- C) secretion.
- D) osmosis.

Answer: <https://biology-forums.com/index.php?topic=1882002>

### Question 123

The production of estrogen and progesterone is drastically decreased in women experiencing menopause. This can cause women to experience poor sleep, night sweats, thinning of bones, and brief moments of feeling hot. What is another biological effect of low amounts of these hormones in women?

- A) being no longer able to maintain normal nerve cell development
- B) being no longer able to reproduce successfully
- C) being likely to become anemic
- D) being likely to experience joint swelling

Answer: <https://biology-forums.com/index.php?topic=1882068>

### Question 124

*Dunaliella salina* is a bacterium that is able to live in aqueous solutions with such high salt concentrations that the salt cannot fully dissolve. *D. salina* is an example of a/an

- A) extreme thermophile.
- B) extreme halophile.
- C) methanogen.
- D) proteobacteria.

Answer: <https://biology-forums.com/index.php?topic=1883643>

### Question 125

Most people afflicted with recessive disorders are born to parents who were

- A) both affected by the disease.
- B) not affected at all by the disease.
- C) slightly affected by the disease, showing some but not all of the symptoms.
- D) subjected to some environmental toxin that caused the disease in their children.

Answer: <https://biology-forums.com/index.php?topic=1883123>

### Question 126

The body's innate defenses against infection include

- A) several specific antibodies.
- B) barriers such as dead skin cells and mucus.
- C) increased production of certain hormones and changes in microcirculation.
- D) memory cells.

Answer: <https://biology-forums.com/index.php?topic=1881911>

### Question 127

Which arrow in this schematic view of the nephron shows reabsorption?

- A) arrow A
- B) arrow B
- C) arrow C
- D) arrow D

Answer: <https://biology-forums.com/index.php?topic=1882024>

### Question 128

If you found a fossilized dinosaur bone, what could be done to determine the age of the fossil?

- A) Extract and sequence DNA from the bone.
- B) Look at pieces of the bone under a microscope.
- C) Analyze the isotopes of carbon in the fossil.
- D) Compare the appearance of the bone to other fossilized bones.

Answer: <https://biology-forums.com/index.php?topic=1882756>

### Question 129

Which of the following is a function of tracheids?

- A) food storage
- B) photosynthesis
- C) production of sex cells
- D) water conduction

Answer: <https://biology-forums.com/index.php?topic=1882328>

### Question 130

Which of the following options correctly lists the varieties of life in the order that they appear in the geologic record, from earliest to most recent?

- A) reptiles, land arthropods, plants and fungi on land, flowering plants
- B) land arthropods, plants and fungi on land, flowering plants, reptiles
- C) plants and fungi on land, land arthropods, reptiles, flowering plants
- D) plants and fungi on land, land arthropods, flowering plants, reptiles

Answer: <https://biology-forums.com/index.php?topic=1883504>

### Question 131

In which of the following human blood vessels is the blood pressure lowest?

- A) arteries in the head
- B) arterioles in the legs
- C) capillaries in the feet
- D) veins in the head

Answer: <https://biology-forums.com/index.php?topic=1881859>

### Question 132

If wolves were now removed from Yellowstone National Park,

- A) elk populations would increase.
- B) deer populations would decrease.
- C) the vegetation would remain unchanged.
- D) vegetation would increase, providing shelter for smaller animals.

Answer: <https://biology-forums.com/index.php?topic=1882733>

### Question 133

The Heimlich maneuver is performed to forcibly

- A) elevate the diaphragm.
- B) depress the diaphragm.
- C) squeeze the ribs.
- D) compress the intestines.

Answer: <https://biology-forums.com/index.php?topic=1883922>

### Question 134

The main ingredient of crude oil is

- A) diatoms.
- B) dinoflagellates.
- C) bacteria.
- D) algae.

Answer: <https://biology-forums.com/index.php?topic=1883614>

### Question 135

Which of the following statements regarding circulatory systems is true?

- A) The smallest blood vessels in the body are veins.  
B) A circulatory system is necessary in any animal whose body is too large or too complex for vital chemicals to reach all parts of the body by diffusion.  
C) Materials are exchanged directly between the blood and body cells.  
D) Veins carry blood away from the heart to body organs and tissues.

Answer: <https://biology-forums.com/index.php?topic=1881831>

### Question 136

A racehorse cannot stand on one leg, but when it runs it rarely has more than one leg on the ground. Why is a running horse more stable than a standing one?

- A) Its legs tilt so the hooves fall in line with its center of gravity.  
B) Its momentum gives it stability.  
C) Its internal organs act like a gyroscope.  
D) It uses its neck for balance the way a tightrope walker uses a pole.

Answer: <https://biology-forums.com/index.php?topic=1882254>

### Question 137

Watching salt crystals form as ocean water evaporates, a student says, "Look more and more crystals are appearing. The ocean water is alive!" Which of the following statements is an accurate evaluation of the student's remark?

- A) The student is correct: Crystals are ordered structures and they are reproducing, so the ocean water is alive.  
B) The student is correct because crystals are formed by processing energy from the sun to create new structures, so ocean water is alive.  
C) The student is incorrect because the solution is processing energy from the sun rather than gaining energy from other organisms, so the ocean water is not alive.  
D) The student is incorrect because all of the crystals reproduce the same kind of crystals with no variation to provide adaptation, so the ocean water is not alive.

Answer: <https://biology-forums.com/index.php?topic=1884102>

### Question 138

The location of the heart's pacemaker is a specialized region of cardiac muscle called the

- A) atrioventricular node.  
B) sinoatrial node.  
C) Purkinje fibers.  
D) left ventricle.

Answer: <https://biology-forums.com/index.php?topic=1881851>

### Question 139

A systematist includes a lizard in a phylogenetic analysis of relationships among bird families. In this analysis, the lizard would be treated as

- A) the ingroup.  
B) the outgroup.  
C) a derived group.  
D) an analogous group.

Answer: <https://biology-forums.com/index.php?topic=1883535>

### Question 140

While playing soccer in your backyard, you disrupt a small fire ant mound. The fire ants emerge and bite your feet. Your feet begin to show swollen, raised areas around the bites. What is happening?

- A) Your innate internal defenses have been activated.  
B) Your adaptive defenses have been activated.  
C) Blood flow to the affected area decreases.  
D) You are experiencing passive immunity.

Answer: <https://biology-forums.com/index.php?topic=1881944>

### Question 141

Protein synthesis requires the use of mRNA, which

- A) is made in the nucleolus.  
B) must be made by the ribosomes.  
C) is translated by the ribosomes into the amino acid sequences of proteins.  
D) carries the message to the nucleus to synthesize new DNA during cell division.

Answer: <https://biology-forums.com/index.php?topic=1882855>

### Question 142

You have obtained a frog from a species closely related to the frogs used in the preceding study. If the frog weighs 30 grams, what do you expect its oxygen consumption in 1 hour to be?

Many amphibians (including many frogs, toads, and salamanders) spend the early part of their lives in water but live on land as adults. The adults of many species return to water to breed and lay their eggs. Frogs have small lungs and supplement their oxygen intake by breathing through the skin. Although large frogs have more total surface area than smaller frogs, the larger frogs have a lower surface area/volume ratio (less skin surface relative to their total body volume). To keep their respiratory surfaces moist, frogs are generally found in wet or very moist locations.

In an experiment designed to investigate oxygen consumption in relation to body size, frogs from five different species were weighed and placed in a respirometer (a machine that measures oxygen consumption) for 1 hour. The table shows the results of the experiment.

- A) 0.30 cc
- B) 1.00 cc
- C) 1.50 cc
- D) 2.00 cc

Answer: <https://biology-forums.com/index.php?topic=1884079>

### Question 143

Which of the following statements regarding freshwater fish is true?

- A) Freshwater fish frequently drink to obtain salt ions.
- B) Freshwater fish use their gills to actively take up salt ions.
- C) Freshwater fish lose water through their gills by osmosis.
- D) Freshwater fish do not produce urine.

Answer: <https://biology-forums.com/index.php?topic=1881982>

### Question 144

The most reliable way to stimulate branching in a plant is to

- A) apply auxin to the axillary buds.
- B) remove the terminal bud.
- C) give short-day light treatments.
- D) add extra fertilizer.

Answer: <https://biology-forums.com/index.php?topic=1882452>

### Question 145

In the logistic growth model, as population size increases, birth rates

- A) remain constant and death rates increase.
- B) decline but death rates remain steady.
- C) and death rates increase.
- D) decline and/or death rates increase.

Answer: <https://biology-forums.com/index.php?topic=1882625>

### Question 146

A demographic tool used to predict a population's future growth is

- A) a Type III survivorship curve.
- B) a demographic transition.
- C) age structures.
- D) a Type I survivorship curve.

Answer: <https://biology-forums.com/index.php?topic=1882634>

### Question 147

Which of the following statements about enzymes is false?

- A) They increase the rate of chemical reactions.
- B) They function as chemical catalysts.
- C) They regulate virtually all chemical reactions in a cell.
- D) They are monomers used to build proteins.

Answer: <https://biology-forums.com/index.php?topic=1882794>

### Question 148

What kind of entity is a lichen?

- A) an association between a fungus and a brown alga
- B) an association between a multicellular protist related to the brown algae and a bacterium
- C) an association between a fungus and cyanobacteria or green algae
- D) an association between a bryophyte and a fungus

Answer: <https://biology-forums.com/index.php?topic=1883708>

### Question 149

One of the most important branch points in the evolution of animals and their nervous systems was the appearance of

- A) radial symmetry.
- B) bilateral symmetry.
- C) the spinal column.
- D) specialized cells for transmitting signals.

Answer: <https://biology-forums.com/index.php?topic=1882162>

### Question 150

Researchers are trying to make a genetically modified (GM) pig that expresses bovine (cow) growth hormone to make it grow bigger. They isolated the bovine growth hormone gene, cut it and a plasmid with the same restriction enzyme, and mixed them together. They inserted the mixture into pig zygotes, but only normal pigs, not GM pigs, grew. What did they likely do wrong?

- A) They are trying to make a GM animal, which is impossible.
- B) They forgot to add DNA ligase after mixing the plasmid and gene together.
- C) They should have used different restriction enzymes to cut the plasmid and the gene.
- D) They forgot to use PCR and make multiple copies of the growth hormone gene.

Answer: <https://biology-forums.com/index.php?topic=1883352>

### Question 151

The pattern of distribution for a certain species of kelp is clumped. The pattern of distribution for a population of snails that live on the kelp would be

- A) clumped.
- B) homogeneous.
- C) random.
- D) uniform.

Answer: <https://biology-forums.com/index.php?topic=1882608>

### Question 152

The  $^{14}\text{C}:^{12}\text{C}$  ratio can be used to date fossils that are up to approximately how old?

- A) 100 million years
- B) 7 million years
- C) 75,000 years
- D) 7,500 years

Answer: <https://biology-forums.com/index.php?topic=1883498>

### Question 153

Mitochondria differ from chloroplasts in that mitochondria

- A) convert light energy from the sun to chemical energy, whereas chloroplasts convert one form of chemical energy to another.
- B) contain three different membrane-bound compartments, whereas chloroplasts contain two.
- C) contain membrane folds called cristae, whereas chloroplasts contain disk-like vesicles in stacks called grana.
- D) are not found in plants, whereas chloroplasts are not found in animals.

Answer: <https://biology-forums.com/index.php?topic=1882872>

### Question 154

When body temperature is too high, which of the following occurs?

- A) The brain sends out distress signals.
- B) Blood vessels in the skin dilate.
- C) Capillaries contract.
- D) The internal lining of the intestine increases in surface area.

Answer: <https://biology-forums.com/index.php?topic=1883891>

### Question 155

Based on this graph, what is the relationship between metabolic rate and body temperature?

- A) When metabolic rate drops, so does body temperature.
- B) When metabolic rate drops, body temperature rises.
- C) When metabolic rate drops, body temperature remains constant.
- D) There is no relationship between metabolic rate and body temperature.

Answer: <https://biology-forums.com/index.php?topic=1882993>

### Question 156

One hypothesis explaining animals' abilities to detect a magnetic field and use it to navigate is that sensory cells detect electrical fluctuations influenced by Earth's magnetic field. Which of the following pieces of evidence, if it were true, would support this hypothesis?

- A) Sensory cells of an organism known to use magnetic fields to navigate show an increase in action potential firing when in the presence of electrical fluctuations.
- B) Sensory cells of an organism known to use magnetic fields to navigate show a decrease in action potential firing when in the presence of electrical fluctuations.
- C) Sensory cells of an organism known to use magnetic fields to navigate show a greater density of negative ions on the outside of its plasma membrane.
- D) Sensory cells of an organism known to use magnetic fields to navigate produce greater amounts of enzymes sensitive to electrical fluctuations.

Answer: <https://biology-forums.com/index.php?topic=1882236>

### Question 157

The tortoiseshell pattern on a cat

- A) usually occurs in males.
- B) is the result of a homozygous recessive condition.
- C) results from X chromosome inactivation.
- D) is a result of alleles on the Y chromosome.

Answer: <https://biology-forums.com/index.php?topic=1883251>

### Question 158

A hypothetical community on a barren mid-Atlantic island consists of two fish-eating seabirds (the booby and the noddy), the fungi and microorganisms that live on the birds' dung, a tick that feeds on these two birds, a cactus, a moth that feeds on cast-off feathers, a beetle that lives on dung organisms, and spiders that eat the other arthropods. There are no other plants and no lichens. Which of the following choices incorrectly pairs a member of this assemblage with its position in the trophic structure?

- A) fungidetritivores
- B) boobyprimary consumer
- C) mothdetritivore
- D) cactusproducer

Answer: <https://biology-forums.com/index.php?topic=1882671>

### Question 159

A keystone species that is a predator will

- A) maintain the species diversity in a community.
- B) harvest prey species down to extinction.
- C) help many of its prey reproduce.
- D) reduce the diversity of the community.

Answer: <https://biology-forums.com/index.php?topic=1882676>

### Question 160

Put the following steps of the light reactions in the correct order:

1. Light excites an electron from photosystem I.
2. Light excites an electron from photosystem II.
3. Electrons reduce NADP+ to NADPH.
4. Electrons pass through an electron transport chain, which generates a H+ gradient used to make ATP.

- A) 1, 2, 3, 4
- B) 1, 4, 2, 3
- C) 2, 4, 1, 3
- D) 2, 3, 1, 4

Answer: <https://biology-forums.com/index.php?topic=1883046>

### Question 161

Which of the following groups includes both spiders and horseshoe crabs?

- A) millipedes
- B) crustaceans
- C) chelicerates
- D) insects

Answer: <https://biology-forums.com/index.php?topic=1883758>

### Question 162

Which of the following statements regarding a DNA double helix is true?

- A) The amount of adenine is equal to the amount of uracil, and the amount of guanine is equal to the amount of cytosine.
- B) The amount of adenine is equal to the amount of guanine, and the amount of thymine is equal to the amount of cytosine.
- C) The amount of adenine is equal to the amount of cytosine, and the amount of guanine is equal to the amount of thymine.
- D) The amount of adenine is equal to the amount of thymine, and the amount of guanine is equal to the amount of cytosine.

Answer: <https://biology-forums.com/index.php?topic=1883177>

### Question 163

If it were determined that condor reproduction along the coast is being harmed by DDT in the condors' foods, which of the following actions would be most useful to improve the situation?

- A) Provide carcasses of animals without DDT that the condors can eat.
- B) Move all condors away from the area where DDT exists.
- C) Monitor DDT use in the area where reproduction is failing.
- D) Remove all eggs from condor nests in the coastal population so that there will be no hatchlings with DDT.

Answer: <https://biology-forums.com/index.php?topic=1882558>

### Question 164

Amino acids can be distinguished from one another by

- A) the number of R groups found on the amino acid molecules.
- B) the chemical properties of their R groups.
- C) the type of bond between the R group and the rest of the amino acid molecule.
- D) the chemical properties of their amino and carboxyl groups.

Answer: <https://biology-forums.com/index.php?topic=1882792>

### Question 165

The ability to change phenotype in response to local environmental conditions is called

- A) genetic drift.
- B) mutation.
- C) alteration of generations.
- D) phenotypic plasticity.

Answer: <https://biology-forums.com/index.php?topic=1882721>

### Question 166

Tay-Sachs disease results from the malfunction of

- A) mitochondria.
- B) lysosomes.
- C) endoplasmic reticulum.
- D) nucleoli.

Answer: <https://biology-forums.com/index.php?topic=1882865>

### Question 167

Which of the following structures is/are used by prokaryotes for attaching to surfaces?

- A) flagella
- B) nucleoid
- C) anchoring junctions
- D) capsule

Answer: <https://biology-forums.com/index.php?topic=1882848>

### Question 168

The human cerebral cortex accounts for what percentage of the total mass of the brain?

- A) 20%
- B) 40%
- C) 60%
- D) 80%

Answer: <https://biology-forums.com/index.php?topic=1882181>

### Question 169

At what point on the graph is the most tension generated?

- A) point A
- B) point B
- C) point C
- D) point E

Answer: <https://biology-forums.com/index.php?topic=1882307>

### Question 170

The lac operon in *Escherichia coli*

- A) prevents lactose-utilizing enzymes from being expressed when lactose is absent from the environment.
- B) prevents lactose intolerance.
- C) prevents lactose-utilizing enzymes from being expressed when lactose is present in the environment.
- D) promotes the expression of lactose-utilizing enzymes when lactose is absent from the environment.

Answer: <https://biology-forums.com/index.php?topic=1883241>

### Question 171

Why don't the grafted hybrids produce apples with a blend of traits from the scion and the rootstock?

All apples in the United States, regardless of variety or where they're purchased, are produced by cloning. For more than 2,000 years, apple growers around the world have used a type of cloning called grafting to produce larger, better-tasting apples. Why has cloning become the primary method of apple growing? Apples grown from seeds usually don't produce apples with the same taste and appearance as that of the parent tree because there's a high degree of genetic variability among the seeds. Making identical genetic copies of the preferred fruit is the only way to get reliable apple quality. In grafting, the shoots and branches of the desired fruit, called a scion, are attached onto the trunk and root system of a previously existing tree, called the rootstock. Both components of the graft are needed because the rootstock controls gene expression in the scion, triggering production of apples that match the cloned scion.

- A) The rootstock suppresses activation of the scion genes, which alters fruit production.
- B) The rootstock is unable to perform photosynthesis and so can't produce fruit.
- C) Transplanted nuclei from scion cells regulate gene expression in the rootstock.
- D) The rootstock regulates gene expression in the scion but contributes no genetic information for fruit production.

Answer: <https://biology-forums.com/index.php?topic=1883302>

### Question 172

The neurotransmitter found at the synapse between nerves and human skeletal muscle cells is

- A) acetylcholine.
- B) epinephrine.
- C) dopamine.
- D) serotonin.

Answer: <https://biology-forums.com/index.php?topic=1882285>

### Question 173

In which of the following biomes would you expect to find the highest abundance of large, grazing mammals?

- A) chaparral
- B) temperate grassland
- C) desert
- D) temperate forest

Answer: <https://biology-forums.com/index.php?topic=1882537>

### Question 174

In a large population of plants, notches in the leaves are caused by a dominant allele N and lack of notches by a recessive allele n. Over many generations the proportion of plants in the population with notched leaves increases. What is the most likely cause?

- A) Dominant alleles generally increase in frequency over time.
- B) The recessive alleles were all masked by the dominant alleles.
- C) Directional selection favored plants with notched leaves.
- D) Genetic drift caused a steady movement toward a greater proportion of plants with notched leaves.

Answer: <https://biology-forums.com/index.php?topic=1883419>

### Question 175

The tertiary structure of a polypeptide refers to

- A) its size.
- B) the presence of pleated sheets.
- C) the amino acids of which it is made.

D) the overall three-dimensional structure.

Answer: <https://biology-forums.com/index.php?topic=1882799>

### Question 176

Conjugation, transformation, and transduction are all ways that bacteria

- A) reduce their DNA content.
- B) increase the amount of RNA in the cytoplasm.
- C) increase their genetic diversity.
- D) alter their oxygen requirements.

Answer: <https://biology-forums.com/index.php?topic=1883214>

### Question 177

TRH is a type of \_\_\_\_\_ hormone secreted by the \_\_\_\_\_.

- A) steroid; thyroid gland
- B) releasing; hypothalamus
- C) peptide; thymus
- D) releasing; anterior pituitary

Answer: <https://biology-forums.com/index.php?topic=1882051>

### Question 178

When a lepidopterist examined museum specimens of a particular moth species, she noticed that the variation in color was distributed as shown in the first graph. She was surprised because her data indicated the distribution of colors shown in the second graph. Which of the following hypotheses about the cause of this shift in the range of genetic variation is the most likely to be supported by examination of the distribution of colors in a collection assembled at a time between that of the collection of the museum specimens and her current specimens?

- A) Darker moths tend to lay more eggs than light moths.
- B) Birds prefer to eat lighter moths rather than darker moths.
- C) The bark of the tree on which moths landed became darker over time.
- D) Darker moths were more likely to survive and have more offspring over time.

Answer: <https://biology-forums.com/index.php?topic=1884109>

### Question 179

Choose two of the following events in protist evolution and then put them in the correct order in which they occur according to current science. 1} Mitochondria evolved through primary endosymbiosis. 1} Chloroplasts evolved through secondary endosymbiosis. 1} Mitochondria and then chloroplasts evolved through primary endosymbiosis. 1} Protozoans were incorporated into several other groups of protists through secondary endosymbiosis. 1} Chloroplasts and then mitochondria evolved through primary endosymbiosis. 1} Algae were incorporated into several other groups of protists through secondary endosymbiosis.

- A) 1, 2
- B) 3, 4
- C) 1, 6
- D) 2, 6

Answer: <https://biology-forums.com/index.php?topic=1883634>

### Question 180

It is possible to synthesize proteins in vitro (in a test tube) without the use of living cells. If starting from a mature mRNA transcript, which of the following components would not be needed to do this?

- A) adenine molecules
- B) amino acids
- C) tRNAs
- D) ribosomes

Answer: <https://biology-forums.com/index.php?topic=1883224>

### Question 181

Compared to a solution of pH 3, a solution of pH 1 is

- A) 100 times more acidic.
- B) 10 times more acidic.
- C) 10 times more basic.
- D) 100 times more basic.

Answer: <https://biology-forums.com/index.php?topic=1882764>

### Question 182

You lose track of your friend in a store and start looking for her. Which of the following strategies represents the use of a search image?

- A) You ask a woman if she has seen anyone around this part of the store.
- B) You think about what color clothing your friend is wearing and look for that color.
- C) You go to the department in the store where your friend most likes to shop.
- D) You return to the last place you saw your friend.

Answer: <https://biology-forums.com/index.php?topic=1882579>

### Question 183

Which of the following characteristics tends to limit bryophytes and seedless vascular plants to habitats that are relatively moist?

- A) absence of cuticle
- B) presence of flagellated sperm
- C) presence of free-living, independent zygotes and early embryos
- D) presence of lignified vascular tissues

Answer: <https://biology-forums.com/index.php?topic=1883660>

### Question 184

Molecular data can be used to assess relationships among the major groups of living organisms whose common ancestors lived millions or billions of years ago. Similar techniques can be used to assess relationships among populations within a species. How can molecular techniques be useful for such varied comparisons?

- A) Studying the relationships among different populations of a single species can be just as effective as studying the relationships of major biological groups if you look at a lot more genes.
- B) The same data can be used for any comparison with equal efficiency.
- C) Faster-evolving gene sequences provide better data for comparisons among close relatives, whereas very slowly evolving sequences work best for distantly related taxa.
- D) The relationships between very different groups such as bacteria and whales are assessed using mtDNA sequences, whereas rRNA sequences are used for very closely related groups.

Answer: <https://biology-forums.com/index.php?topic=1883540>

### Question 185

Which of the following is a function of a tRNA molecule?

- A) recognizing the appropriate anticodons in mRNA
- B) transferring nucleotides to rRNA
- C) helping to translate codons into nucleic acids
- D) joining to only one specific type of amino acid

Answer: <https://biology-forums.com/index.php?topic=1883195>

### Question 186

Bats contain brown fat between their shoulder blades. How could this brown fat be an adaptation to torpor?

- A) Brown fat has many mitochondria, so it can produce more ATP.
- B) Brown fat can produce heat and ATP through fermentation.
- C) The mitochondria in brown fat can produce heat without making ATP.
- D) It is not an adaptation; white fat is what they need to produce heat.

Answer: <https://biology-forums.com/index.php?topic=1882995>

### Question 187

Which of the following descriptions best represents the gradual model of speciation?

- A) Speciation occurs regularly as a result of the accumulation of many small changes.
- B) An isolated population differentiates quickly from its parent stock as it adapts to its local environment.
- C) Speciation occurs under unusual circumstances and therefore transitional fossils are hard to find.
- D) Species undergo little change over long periods interrupted only by short periods of rapid change.

Answer: <https://biology-forums.com/index.php?topic=1883469>

### Question 188

The greatest number of organisms would be found in

- A) box A.
- B) box B.
- C) box E.
- D) box I.

Answer: <https://biology-forums.com/index.php?topic=1883559>

### Question 189

In evaluating the economic feasibility of genetically modified crops, which of the following is least likely to be a concern?

- A) resistance of the crop to disease
- B) amount of fertilizer needed for the crop
- C) amount of land available for the crop
- D) harm to humans caused by eating the crop

Answer: <https://biology-forums.com/index.php?topic=1882426>

### Question 190

Through digestion, polysaccharides are broken down into

- A) fatty acids.
- B) monosaccharides.
- C) glycerols.
- D) amino acids.

Answer: <https://biology-forums.com/index.php?topic=1883909>

### Question 191

How will a lower ocean pH caused by ocean acidification affect coral reefs?

- A) Coral reefs will grow faster because there are more carbonate ions available.
- B) Coral reefs will grow slower because there are fewer carbonate ions available.
- C) Coral reefs will grow faster because there are more bicarbonate ions available.
- D) Coral reefs will grow slower because there are fewer bicarbonate ions available.

Answer: <https://biology-forums.com/index.php?topic=1882771>

### Question 192

Glucocorticoids help reduce inflammation, but they can also cause liver cells to produce extra sugar. This could lead to high blood sugar levels and bring about steroid-produced \_\_\_\_\_.

- A) gigantism
- B) androgen insensitivity
- C) hyperthyroidism
- D) diabetes mellitus

Answer: <https://biology-forums.com/index.php?topic=1882067>

### Question 193

Which of the following types of organisms commonly demonstrates polyploidy?

- A) mammals
- B) reptiles
- C) flowering plants
- D) fish

Answer: <https://biology-forums.com/index.php?topic=1883074>

### Question 194

Substrates bind to an enzyme's \_\_\_\_\_ site.

- A) allosteric
- B) inhibitory
- C) phosphate
- D) active

Answer: <https://biology-forums.com/index.php?topic=1882940>

### Question 195

*Bos primigenius*, the name of the cow, represents

- A) the domain and kingdom names, which go in boxes A and B, respectively.
- B) the class and kingdom names, which go in boxes H and I, respectively.
- C) the genus and species names, which go in boxes A and B, respectively.
- D) the class and phylum names, which go in boxes H and I, respectively.

Answer: <https://biology-forums.com/index.php?topic=1883560>

### Question 196

In ocean acidification, dissolving CO<sub>2</sub> gas \_\_\_\_\_ the pH of the ocean.

- A) lowers
- B) does not affect
- C) raises
- D) triples

Answer: <https://biology-forums.com/index.php?topic=1882770>

### Question 197

Bacterial infections can cause a serious, potentially fatal systemic inflammatory response called

- A) anaphylaxis.
- B) pelvic inflammatory disease.
- C) septic shock.
- D) pneumonia.

Answer: <https://biology-forums.com/index.php?topic=1881919>

### Question 198

Chaparral vegetation occurs around much of the central valley of central and southern California. This biome is very similar to that found

- A) in the Australian interior.
- B) in the Mediterranean region.
- C) on the southeast coast of the United States.
- D) in central Asia.

Answer: <https://biology-forums.com/index.php?topic=1882533>

### Question 199

How many chromosomes are there in a maize embryo cell nucleus as compared to a maize endosperm cell nucleus?

- A) half as many
- B) two-thirds as many
- C) the same number
- D) twice as many

Answer: <https://biology-forums.com/index.php?topic=1882351>

### Question 200

Although birds and mammals descended from different ancestors, they both have a four-chambered heart. This is the result of

- A) the simplification of the cardiovascular system.
- B) the necessity for rapid movement of blood.
- C) convergent evolution.
- D) genetic aberrations that resulted from mistakes in somatic cell division.

Answer: <https://biology-forums.com/index.php?topic=1881839>

### Question 201

When a salmon leaves the river and moves out to sea, you would expect \_\_\_\_\_ to leave its body by osmosis and that excess \_\_\_\_\_ would need to be pumped out.

- A) salt; water
- B) water; salt
- C) salt; salt
- D) water; water

Answer: <https://biology-forums.com/index.php?topic=1882028>

### Question 202

The evolutionary explanations for behavior are called the

- A) evolutionary schematics.
- B) selected advantage.
- C) proximal causes.
- D) ultimate causes.

Answer: <https://biology-forums.com/index.php?topic=1882561>

### Question 203

Which of the following statements regarding the comparison of DNA microarrays and qPCR is false?

While DNA microarrays can be used to determine whether or not a gene is expressed in a cell, quantitative polymerase chain reaction (qPCR) can be used to measure the extent of gene expression in cells and tissues. To perform qPCR, mRNA is extracted from cells and reverse transcribed to complementary DNA (cDNA). Using fluorescent DNA molecules that recognize specific gene sequences and DNA polymerase, copies of the gene sequence of interest are made. After the copies are made, a fluorescent detector measures the intensity of the fluorescent signal, which is proportional to the number of mRNA transcripts in the cell and corresponds to the level of gene expression in the cell.

- A) Both methods use fluorescent DNA molecules and cDNA.
- B) Both methods can determine whether a gene has been turned on or not.
- C) Both methods use mRNA extracted from cells.
- D) Both methods can quantify the levels of gene expression in cells.

Answer: <https://biology-forums.com/index.php?topic=1883307>

### Question 204

Which of these models is best studied through a systems approach?

- A) model of O<sub>2</sub>/CO<sub>2</sub> exchange in a leaf
- B) model of arrangements of atoms in a molecule
- C) model of the biogeochemical cycling of nutrients
- D) model of skin color inheritance

Answer: <https://biology-forums.com/index.php?topic=1884110>

### Question 205

Which of the following enzymes does HIV use to synthesize DNA on an RNA template?

- A) ligase
- B) RNA polymerase
- C) reverse transcriptase
- D) DNA convertase

Answer: <https://biology-forums.com/index.php?topic=1883209>

### Question 206

A hot, dry summer will reduce crop yields in part because

- A) the stomata of the plants stay open to help cool the leaves.
- B) carbon dioxide uptake is reduced by the stomata closing to prevent excessive water loss.
- C) oxygen uptake is reduced by the stomata closing to prevent excessive water loss.
- D) carbon dioxide release is reduced by the stomata closing to prevent excessive water loss.

Answer: <https://biology-forums.com/index.php?topic=1882393>

### Question 207

Which of the following statements regarding food webs is true?

- A) A consumer eats only one type of producer.
- B) Detritivores consume dead organic matter from a specific trophic level.
- C) Several species of primary consumers may feed on the same species of producer.
- D) energy transfer moves from producer to consumer and back.

Answer: <https://biology-forums.com/index.php?topic=1882675>

### Question 208

Someone diagnosed with meningitis has inflamed membranes that cover and protect the brain and spinal cord. Meningitis is a result of pathogenic gram-negative bacteria that cause extreme infections when their bacterial cell wall dies and lipopolysaccharide (a lipid and polysaccharide) is released. The lipopolysaccharide is an example of a/an

- A) endotoxin.
- B) exotoxin.
- C) stomach microbiota.
- D) parasite.

Answer: <https://biology-forums.com/index.php?topic=1883639>

### Question 209

Through digestion, nucleic acids are broken down into

- A) fatty acids.
- B) glycerols.
- C) nucleotides.
- D) amino acids.

Answer: <https://biology-forums.com/index.php?topic=1883910>

### Question 210

Animals that maintain internal body temperature using heat generated by their own metabolism are called

- A) endotherms.
- B) ectotherms.
- C) reptiles.
- D) amphibians.

Answer: <https://biology-forums.com/index.php?topic=1881975>

### Question 211

Which of the following people conducted the experiments that demonstrated that DNA is the genetic material of bacteriophages?

- A) Watson and Crick
- B) Hershey and Chase
- C) Franklin
- D) Pauling

Answer: <https://biology-forums.com/index.php?topic=1883170>

### Question 212

According to the "new" revised phylogeny based on genetic analyses, annelids are a member of the Lophotrochozoa and are most closely related to which of the following groups?

- A) echinoderms
- B) molluscs
- C) cnidarians
- D) arthropods

Answer: <https://biology-forums.com/index.php?topic=1883774>

### Question 213

Which of the following processes is classified as a metabolic pathway?

- A) protein synthesis
- B) osmosis
- C) cell lysis
- D) passive diffusion

Answer: <https://biology-forums.com/index.php?topic=1882932>

### Question 214

In mammals, the presence of four limbs is \_\_\_\_\_, and hair is \_\_\_\_\_.

- A) a shared derived character; a shared ancestral character that places mammals in the tetrapod clade
- B) a shared ancestral character; a shared derived character unique to mammals
- C) a homologous feature; an analogous feature
- D) monophyletic; parsimonious

Answer: <https://biology-forums.com/index.php?topic=1883534>

### Question 215

Which of the following lists the events leading to leaf fall in deciduous trees in the correct order?

- A) formation of abscission layer, increase in ethylene levels, decrease in auxin levels
- B) shortening days, increase in ethylene production, formation of abscission layer
- C) shortening days, formation of abscission layer, decrease in ethylene levels
- D) decrease in ethylene levels, shortening days, formation of abscission layer

Answer: <https://biology-forums.com/index.php?topic=1882468>

### Question 216

Inhalation in humans is achieved by

- A) contraction of muscles in the lungs.
- B) relaxation of muscles in the lungs.
- C) relaxation of the diaphragm and chest muscles.

D) contraction of the diaphragm and chest muscles.

Answer: <https://biology-forums.com/index.php?topic=1884027>

### Question 217

The role of calcium in muscle contraction is to

- A) release ADP and phosphate from myosin.
- B) make it possible for ATP to bind to actin.
- C) make it possible for myosin to bind to actin.
- D) make it possible for ATP to bind to myosin.

Answer: <https://biology-forums.com/index.php?topic=1882288>

### Question 218

What is the proper order of events in the expression of a eukaryotic protein?

- A) DNA unpacking, mRNA transport through nucleus, mRNA splicing, protein modification
- B) DNA unpacking, mRNA splicing, translation, protein folding
- C) transcription, translation, addition of cap and tail to mRNA, DNA unpacking
- D) transcription, mRNA splicing, protein modification, translation

Answer: <https://biology-forums.com/index.php?topic=1883292>

### Question 219

Which highly reactive gas was probably absent from the Earth's primitive atmosphere?

- A) methane
- B) carbon dioxide
- C) O<sub>2</sub> (oxygen gas)
- D) water vapor

Answer: <https://biology-forums.com/index.php?topic=1883488>

### Question 220

All humans alive today have inherited their mitochondrial DNA from some individual female common ancestor. Studies indicate this woman probably lived about \_\_\_\_\_ years ago, when fossil evidence indicates that Homo sapiens was restricted to \_\_\_\_\_.

- A) 20,000; Africa
- B) 50,000; Africa and Asia
- C) 180,000; Africa
- D) 500,000; Africa, Asia, and Europe

Answer: <https://biology-forums.com/index.php?topic=1883835>

### Question 221

Which organ system removes nitrogen-containing waste products from blood?

- A) lymphatic system
- B) integumentary system
- C) muscular system
- D) urinary system

Answer: <https://biology-forums.com/index.php?topic=1883880>

### Question 222

Which of the following lists the set of plant macronutrients that make up about 98% of a plant's dry weight?

- A) carbon, oxygen, hydrogen, potassium, zinc, and copper
- B) carbon, nitrogen, potassium, manganese, sulfur, and phosphorus
- C) nitrogen, potassium, manganese, sulfur, copper, and phosphorus
- D) carbon, oxygen, hydrogen, nitrogen, sulfur, and phosphorus

Answer: <https://biology-forums.com/index.php?topic=1882405>

### Question 223

Many physiological conditions are related to particular proteins in cell membranes. The number of insulin receptors in membranes is related to the amount of insulin present around those cells. If the presence of increased insulin results in a decrease in receptors and a decrease in insulin results in an increase in insulin receptors, this would be an example of

- A) a metabolic pathway.
- B) negative or regulatory feedback.
- C) passive transport.
- D) competitive inhibition.

Answer: <https://biology-forums.com/index.php?topic=1882897>

### Question 224

Which of the following statements about Parkinson's disease is true?

- A) Parkinson's disease can be cured with injections of serotonin.
- B) Parkinson's disease results from the death of neurons in the cerebellum.
- C) Parkinson's disease is a motor disorder, affecting physical movements of the body.
- D) Parkinson's disease is age-related, decreasing in frequency as people age.

Answer: <https://biology-forums.com/index.php?topic=1882189>

### Question 225

Which of the following is an example of agonistic behavior?

- A) A dog raises its hackles, bares its teeth, and stands tall to appear threatening.
- B) A honeybee does a waggle dance to indicate the direction of food.
- C) A male ruffed grouse spreads its tail and beats its wings to attract a female.
- D) Ants mark their trails by releasing pheromones.

Answer: <https://biology-forums.com/index.php?topic=1882592>

### Question 226

How many sex chromosomes are in a human gamete?

- A) one
- B) two
- C) three
- D) four

Answer: <https://biology-forums.com/index.php?topic=1883143>

### Question 227

Habitats with many edges

- A) are the result of natural disasters.
- B) favor animals that prefer large, open ranges.
- C) often result from human activities.
- D) result in a significant increase in diversity.

Answer: <https://biology-forums.com/index.php?topic=1882725>

### Question 228

The aspect of conservation ecology concerned with returning degraded ecosystems (as nearly as possible) to their natural state is

- A) bioremediation.
- B) sustainable development.
- C) restoration ecology.
- D) landscape ecology.

Answer: <https://biology-forums.com/index.php?topic=1882734>

### Question 229

Bone marrow stem cells are sometimes used to treat certain blood cell diseases, such as

- A) leukemia.
- B) anemia.
- C) cardiovascular disease.
- D) hemophilia.

Answer: <https://biology-forums.com/index.php?topic=1881880>

### Question 230

You conduct a dihybrid cross. A \_\_\_\_\_ ratio would make you suspect that the genes are linked.

- A) 3:1
- B) 1:1:1:1
- C) 12:1:1:4
- D) 9:3:3:1

Answer: <https://biology-forums.com/index.php?topic=1883137>

### Question 231

Speciation without geographic isolation is called \_\_\_\_\_ speciation.

- A) sympatric
- B) allopatric
- C) incomplete
- D) diversifying

Answer: <https://biology-forums.com/index.php?topic=1883453>

### Question 232

The core theme of biology, which explains both the unity and diversity of life, is

- A) genetics.
- B) ecology.
- C) evolution.
- D) metabolism.

Answer: <https://biology-forums.com/index.php?topic=1883376>

### Question 233

Shoot branching is controlled mainly by the interaction of

- A) auxins and gibberellins.
- B) auxins and cytokinins.
- C) gibberellins and cytokinins.
- D) cytokinins and abscisic acid.

Answer: <https://biology-forums.com/index.php?topic=1882453>

### Question 234

Which of the following enzymes catalyzes the elongation of a new DNA strand?

- A) helicase
- B) ligase
- C) single-stranded binding protein
- D) DNA polymerase

Answer: <https://biology-forums.com/index.php?topic=1883182>

### Question 235

The "big bang" that produced the universe is thought to have occurred

- A) 40 to 50 billion years ago.
- B) 12 to 14 billion years ago.
- C) 4.6 billion years ago.
- D) 4 million years ago.

Answer: <https://biology-forums.com/index.php?topic=1883485>

### Question 236

You want to design a controlled experiment to determine which tablet, PEPCID AC or Alka-Seltzer, neutralizes stomach acid the quickest. Which of the following experiments would be the best to perform?

- A) Place a PEPCID AC tablet in a beaker of acid at pH 2 and an Alka-Seltzer tablet in a separate beaker of acid at pH 2 and check the pH in the beakers every 2 minutes.
- B) Take a PEPCID AC tablet at 8:00 AM on Monday and take an Alka-Seltzer tablet at 8:00 AM on Tuesday and take note of how long it takes you to feel better.
- C) Find a group of your friends and go out to a big dinner. Then give half of them a PEPCID AC tablet and give the other half an Alka-Seltzer tablet and tell them to write down how long it takes them to feel better.
- D) Place a PEPCID AC tablet in a beaker of acid at pH 2 and an Alka-Seltzer tablet in a separate beaker of acid at pH 2 and record how long it takes for the tablets to dissolve.

Answer: <https://biology-forums.com/index.php?topic=1882782>

### Question 237

Two important contributions that cleavage makes to development are to

- A) establish the basic tissues of the body and define the future nervous system.
- B) create a multicellular embryo and partition the embryo into developmental regions.
- C) create a multicellular embryo and establish the basic tissues of the body.
- D) establish the basic body plan and determine the location of the mouth and anus.

Answer: <https://biology-forums.com/index.php?topic=1882102>

### Question 238

A molecule that is detected by our sense of smell first binds to

- A) specific receptor proteins on the cilia of receptor cells located in the epithelium of the upper nasal cavity.
- B) hairs that extend beyond the mucous layer and line the upper and lower nasal cavities.
- C) special mechanoreceptor cells located in the epithelium of the lower nasal cavity.
- D) special receptor proteins located at the surface of thermoreceptor cells lining the upper nasal cavity.

Answer: <https://biology-forums.com/index.php?topic=1882233>

### Question 239

If you were working for a pharmaceutical company as part of a drug discovery team, which of these enzyme inhibitors would you suggest as a productive avenue for drug development?

- A) a drug to treat high blood pressure that reversibly inhibits an enzyme catalyzing production of a chemical that causes blood vessels to contract
- B) a drug to treat diabetes that irreversibly inhibits an enzyme in the metabolic pathway to synthesize glucose
- C) a compound that acts as a competitive inhibitor for a digestive enzyme produced only in the presence of certain foods
- D) a compound that inhibits enzymes by significantly changing the pH throughout the body

Answer: <https://biology-forums.com/index.php?topic=1882900>

### Question 240

What portion of the graph would involve myosin forming cross-bridges and going through power strokes?

- A) from A to B
- B) from D to B
- C) from B to E
- D) from A to E

Answer: <https://biology-forums.com/index.php?topic=1882309>

### Question 241

Which of the following statements regarding plasmodesmata is false?

- A) Plasmodesmata penetrate plant cell walls.
- B) Plasmodesmata carry chemical messages between plant cells.
- C) Plasmodesmata carry nutrients between plant cells.
- D) Plasmodesmata are found in plants as well as some single-celled organisms.

Answer: <https://biology-forums.com/index.php?topic=1882882>

### Question 242

Speciation often occurs when a habitat becomes more heterogeneous. In Lake Victoria different species of cichlids are found in different areas of the lake. The best explanation for this speciation is that

- A) natural selection favored different heritable variations in different parts of the lake.
- B) male cichlids that lived in deep water needed to be seen by females, so they became colorful.
- C) food was scarce in the lake, so some fish had to learn how to scrape algae, some had to learn to eat insects, and some had to learn to bite leaves.
- D) humans selected for many different traits in cichlids in order to market them to the aquarium trade.

Answer: <https://biology-forums.com/index.php?topic=1883474>

### Question 243

Mitochondria transfer \_\_\_\_\_ energy from \_\_\_\_\_ to ATP; chloroplasts transform \_\_\_\_\_ energy into the chemical energy of ATP.

- A) chemical; food; light
- B) food; light; chemical
- C) light; food; kinetic
- D) food; light; nuclear

Answer: <https://biology-forums.com/index.php?topic=1883034>

### Question 244

A mutation in the gene for hormone A causes it to be unable to bind to its receptor protein. What do you predict will happen?

- A) The receptor protein will not be activated and therefore will not initiate a signal transduction pathway.
- B) The receptor protein will change shape in order to bind with hormone A.
- C) The water-soluble hormone molecule will not be able to pass through the phospholipid bilayer.
- D) The water-soluble hormone molecule will not be able to pass through the interstitial fluid.

Answer: <https://biology-forums.com/index.php?topic=1882065>

### Question 245

\_\_\_\_\_ marks the end of a gene and causes transcription to stop.

- A) A stop codon
- B) RNA ligase
- C) A terminator
- D) Methionine

Answer: <https://biology-forums.com/index.php?topic=1883192>

### Question 246

A population of deer has a per capita rate of increase of 0.1 deer per year. If there are initially 300 deer in the population, and the population is growing exponentially, how many deer will be in the population after one year?

- A) 30
- B) 300
- C) 330
- D) 600

Answer: <https://biology-forums.com/index.php?topic=1882644>

### Question 247

The earliest hominin to be found outside of Africa belongs to which species?

- A) Australopithecus afarensis
- B) Homo habilis
- C) Homo erectus
- D) Homo sapiens

Answer: <https://biology-forums.com/index.php?topic=1883832>

### Question 248

Oxygen is mostly transported through the body in which of the following forms?

- A) dissolved in the blood
- B) dissolved in red blood cells
- C) bound to hemoglobin
- D) bound to dissolved iron

Answer: <https://biology-forums.com/index.php?topic=1884037>

### Question 249

When proteins are used as a source of energy for the body, the proteins

- A) are converted into glucose molecules, which are fed into glycolysis.
- B) are converted mainly into intermediates of glycolysis or the citric acid cycle.
- C) donate electrons directly to the electron transport chain.
- D) are hydrolyzed to glucose and converted to acetyl CoA, which enters the citric acid cycle.

Answer: <https://biology-forums.com/index.php?topic=1882976>

### Question 250

The average global temperature has risen \_\_\_\_\_ over the past 100 years.

- A) 3C
- B) 10C
- C) 5C
- D) 0.8C

Answer: <https://biology-forums.com/index.php?topic=1882716>

### Question 251

Which of the following best describes the data that the scientists should collect and how they should be compared?

- A) comparison of plant species in the recontoured area, the abandoned area, and the never-roaded area
- B) comparison of properties of soil and plant species in the contoured area and abandoned area
- C) comparison of soil properties and species of plants present in the contoured area with the never-roaded area and of the abandoned area with the never-roaded area.
- D) comparison of soil properties only among all three areas since soil properties will determine plant species

Answer: <https://biology-forums.com/index.php?topic=1884115>

### Question 252

fMRI technology can provide significant insights into brain function by

- A) measuring areas of electronegativity.
- B) detecting damaged areas of the brain.
- C) measuring changes in blood oxygen usage at sites of brain activity.
- D) showing the pathways of nerve impulses.

Answer: <https://biology-forums.com/index.php?topic=1882183>

### Question 253

Which of the following statements regarding RNA is false?

- A) RNA uses the sugar dextrose.
- B) RNA uses the nitrogenous base uracil.
- C) One RNA molecule can include four different nucleotides in its structure.
- D) RNA molecules have a sugar-phosphate backbone.

Answer: <https://biology-forums.com/index.php?topic=1883175>

### Question 254

Which of the following statements best describes the power stroke of muscle contraction?

- A) The myosin head bends, pulling the thick filament toward the center of the sarcomere.
- B) The myosin head bends, pulling the thin filament toward the center of the sarcomere.
- C) The actin head bends, pulling the thin filament toward the center of the sarcomere.
- D) The actin head bends, pulling the thick filament toward the center of the sarcomere.

Answer: <https://biology-forums.com/index.php?topic=1882283>

### Question 255

When snakeheads enter aquatic ecosystems, biodiversity in these ecosystems would most likely

- A) increase, since another species has been added to the environment.
- B) decrease, since the snakehead will prey on native species.
- C) remain the same, since local species will prey on the snakeheads and remove them.
- D) remain the same, because the snakeheads will merge without problems into established communities.

Answer: <https://biology-forums.com/index.php?topic=1882748>

### Question 256

Adult stem cells have limited therapeutic potential

- A) because they are fully differentiated.
- B) because they lack a complete set of genes.
- C) due to their excessive numbers in tissues.
- D) because their developmental potential is limited to certain tissues.

Answer: <https://biology-forums.com/index.php?topic=1883272>

### Question 257

Which of the following are produced during the light reactions of photosynthesis?

- A) glucose, ADP, NADP+
- B) glucose, ADP, NADP+, CO<sub>2</sub>
- C) ADP, NADP+, O<sub>2</sub>
- D) ATP, NADPH, O<sub>2</sub>

Answer: <https://biology-forums.com/index.php?topic=1883013>

### Question 258

Which of the following statements about steroid hormones is true?

- A) Steroid hormones cause the production of cAMP.
- B) Steroid hormones are polar molecules that cannot pass through the cell membrane.
- C) Steroid hormones bind to receptors in the plasma membrane.
- D) Steroid hormones bind to specific receptor proteins, and the complex acts as a gene activator.

Answer: <https://biology-forums.com/index.php?topic=1882042>

### Question 259

The robot's cardiac cells, working together in synchrony, could be considered at what level in life's hierarchy of organization?

- A) organism
- B) organelle
- C) tissue
- D) organ system

Answer: <https://biology-forums.com/index.php?topic=1884113>

### Question 260

Which type of epithelial tissue shown is a stratified tissue?

- A) tissue A
- B) tissue B
- C) tissue C
- D) tissue D

Answer: <https://biology-forums.com/index.php?topic=1883903>

### Question 261

Which of the following is the cause of more than half of all deaths in the United States?

- A) cardiovascular disease
- B) flu
- C) cancer
- D) diabetes

Answer: <https://biology-forums.com/index.php?topic=1881854>

### Question 262

Valium, a prescription drug used to treat depression, works by

- A) binding and activating acetylcholine receptors.
- B) increasing the inhibitory effect of GABA.
- C) increasing the release and availability of norepinephrine and dopamine at synapses.
- D) activating receptors for GABA.

Answer: <https://biology-forums.com/index.php?topic=1882159>

### Question 263

You find the frozen remains of a woolly mammoth in an Alaskan glacier. You analyze a bit of the tusk and find that its  $^{14}\text{C}:^{12}\text{C}$  ratio is about one-fourth (25%) of the baseline level typically found in living organisms. Given that the half-life of  $^{14}\text{C}$  is 5,730 years, when did the mammoth die?

- A) 5,730 years ago
- B) almost 12,000 years ago
- C) at least 25,000 years ago
- D) approximately 75,000 years ago

Answer: <https://biology-forums.com/index.php?topic=1883499>

### Question 264

When people speak of the "rain shadow" of the Himalayan mountains, where the Gobi desert is, they are referring to the

- A) shadow cast by the mist and clouds that hover above the crest of the range.
- B) forested condition of the eastern flank of the range compared to the western flank.
- C) scarcity of rain on the eastern flank and adjacent lowlands compared to the western flank.
- D) dark-colored chaparral vegetation that grows on the eastern flank.

Answer: <https://biology-forums.com/index.php?topic=1882515>

### Question 265

A male turkey that imprinted onto a human at hatching is transferred as an older juvenile to a flock of "normal" turkeys. When this turkey reaches sexual maturity, he will probably try to court

- A) male, female, or immature turkeys indiscriminately.
- B) immature male turkeys.
- C) mature female turkeys.
- D) humans.

Answer: <https://biology-forums.com/index.php?topic=1882571>

### Question 266

A newly mated queen ant establishes an ant nest in an unoccupied patch of suitable habitat. The population of the nest grows quickly at first, then levels off at carrying capacity. Which of the following models best describes its population growth?

- A) linear
- B) logarithmic
- C) logistic
- D) exponential

Answer: <https://biology-forums.com/index.php?topic=1882618>

### Question 267

A signal outside a cell triggers changes in the transcription and translation inside the cell through

- A) post-translational editing.
- B) signal transduction pathways.
- C) protein activation.
- D) protein breakdown.

Answer: <https://biology-forums.com/index.php?topic=1883264>

### Question 268

You've made a hot drink by dissolving a teaspoon of instant coffee and a teaspoon of sugar in a cup of hot water. Which of the following statements is true?

- A) You've just prepared an aqueous solution.
- B) The water is the solute portion of the drink.
- C) The instant coffee and sugar are solvents.
- D) The instant coffee and sugar dissolve because they have no charged regions to repel the partial positive and partial negative regions of the water molecules.

Answer: <https://biology-forums.com/index.php?topic=1882762>

### Question 269

A nucleic acid probe is

- A) a virus that transfers DNA to a recipient cell.
- B) a piece of radioactively labeled DNA that is used to locate a specific gene.
- C) an enzyme that locates a specific restriction site on RNA.
- D) a plasmid that recognizes a specific DNA sequence.

Answer: <https://biology-forums.com/index.php?topic=1883320>

### Question 270

Which of the following agents can cause an infection that can ultimately develop into pelvic inflammatory disease in women?

- A) herpes simplex virus type 2
- B) papilloma virus
- C) *Candida albicans*
- D) *Chlamydia trachomatis*

Answer: <https://biology-forums.com/index.php?topic=1882094>

### Question 271

When a T2 bacteriophage infects an *Escherichia coli* cell, which part of the phage enters the bacterial cytoplasm?

- A) the whole phage
- B) only the RNA
- C) only the DNA
- D) the protein "headpiece" and its enclosed nucleic acid

Answer: <https://biology-forums.com/index.php?topic=1883172>

### Question 272

When plants undergo allopatric speciation, an initial reproductive barrier is often

- A) polyploidy.
- B) gametic isolation.
- C) temporal isolation.
- D) pollinator choice.

Answer: <https://biology-forums.com/index.php?topic=1883452>

### Question 273

Mechanoreceptors (touch) are not evenly spaced on your body. What part of the body might be expected to have mechanoreceptors located closer together?

- A) eyelid

- B) heel of foot
- C) top side of arm
- D) pad of toe

Answer: <https://biology-forums.com/index.php?topic=1882238>

### Question 274

Most biodiversity hot spots are found in \_\_\_\_\_ regions.

- A) western
- B) tropical
- C) temperate
- D) tundra

Answer: <https://biology-forums.com/index.php?topic=1882727>

### Question 275

Which of the following statements regarding skin cells and muscle cells in your body is true?

- A) Muscle cells contain information about muscle proteins but not about skin color.
- B) Skin cells contain information skin color but not about muscle proteins.
- C) Muscle cells contain information about skin color but not about muscle proteins.
- D) Skin cells and muscle cells each contain information about both muscle proteins and skin color.

Answer: <https://biology-forums.com/index.php?topic=1883291>

### Question 276

The endomembrane system includes all of the following organelles except the

- A) plasma membrane.
- B) endoplasmic reticulum.
- C) peroxisome.
- D) Golgi apparatus.

Answer: <https://biology-forums.com/index.php?topic=1882858>

### Question 277

How are hormones distributed to tissues, and what determines which cells hormones will affect?

- A) They are carried throughout the body in the bloodstream, and each hormone affects target cells that have receptors for it.
- B) They are carried to specific organs by lymphatic vessels and affect the cells in those organs.
- C) They are delivered by neurosecretory cells to specific tissues and affect the cells in those tissues.
- D) They are distributed locally in the interstitial fluid and affect nearby responsive target cells.

Answer: <https://biology-forums.com/index.php?topic=1882034>

### Question 278

Which of the following vitamins is fat-soluble and, consequently, can be stored in body fat?

- A) biotin
- B) pantothenic acid
- C) niacin
- D) K

Answer: <https://biology-forums.com/index.php?topic=1883954>

### Question 279

Legumes, such as beans or peas,

- A) form mutualistic associations with nitrogen-fixing bacteria.
- B) form mycorrhizal associations to increase nitrogen fixation in the soil.
- C) form parasitic relationships with other photosynthetic plants.
- D) fix N<sub>2</sub> from the atmosphere in their leaves.

Answer: <https://biology-forums.com/index.php?topic=1882420>

### Question 280

What dense storage granules in plant cells are thought to contribute to gravitropism?

- A) starch
- B) cellulose
- C) proteins
- D) chlorophyll

Answer: <https://biology-forums.com/index.php?topic=1882473>

### Question 281

According to scientists, about what percentage of men currently living in Central Asia may be descended from the Mongolian ruler Genghis Khan?

- A) 4%
- B) 8%
- C) 25%
- D) 40%

Answer: <https://biology-forums.com/index.php?topic=1883150>

### Question 282

Honeybees are able to discriminate between different flowers using

- A) color vision.
- B) a single lens.
- C) eye cups.
- D) basilar membranes.

Answer: <https://biology-forums.com/index.php?topic=1882220>

### Question 283

Which of the following is part of the light reaction?

- A) carbon fixation
- B) reduction of carbon
- C) regeneration of NADP+
- D) formation of waste products in the form of O<sub>2</sub>

Answer: <https://biology-forums.com/index.php?topic=1883014>

### Question 284

What is the advantage of excreting nitrogenous waste in the form of ammonia?

- A) Ammonia is less toxic than uric acid.
- B) Ammonia is less soluble than uric acid.
- C) Ammonia excretion conserves energy.
- D) Ammonia does not diffuse across cell membranes.

Answer: <https://biology-forums.com/index.php?topic=1881987>

### Question 285

The intimate, mutually beneficial association formed between a fungus and the root of a plant is called a

- A) sporophyte.
- B) mycorrhiza.
- C) hypha.
- D) mycelium.

Answer: <https://biology-forums.com/index.php?topic=1883692>

### Question 286

How do sponges transport nutrients within their bodies?

- A) They have simple digestive and circulatory systems composed of spongin.
- B) They rely on diffusion to move nutrients between their cells.
- C) Their mobile amoebocytes transport food molecules from cell to cell.
- D) They are not able to transport nutrients within their bodies but must independently absorb all necessary nutrients from the surrounding water.

Answer: <https://biology-forums.com/index.php?topic=1883741>

### Question 287

The phenotypic ratio resulting from a dihybrid cross of two heterozygote individuals showing independent assortment is expected to be

- A) 1:2:1
- B) 3:1
- C) 9:1:1:3
- D) 9:3:3:1

Answer: <https://biology-forums.com/index.php?topic=1883116>

### Question 288

You are setting up a PCR reaction and add a primer for one end of the target sequence, but you forget to add the primer for the other end of the target

sequence. If you added the other necessary components, what do you expect to observe after running the PCR reaction for 40 cycles?

- A) The PCR reaction will produce billions of copies of the target DNA.
- B) The PCR reaction will produce millions of copies of the target DNA.
- C) The PCR reaction will produce one copy of the target DNA.
- D) The PCR reaction will produce zero copies of the target DNA.

Answer: <https://biology-forums.com/index.php?topic=1883353>

### Question 289

Which arrow shows the release of digestive enzymes by the pancreas?

- A) arrow A
- B) arrow B
- C) arrow C
- D) arrow D

Answer: <https://biology-forums.com/index.php?topic=1883974>

### Question 290

One of the strongest lines of evidence of a meteor or comet impact in the late Cretaceous is

- A) the extinction of the dinosaurs.
- B) a thin layer of potassium-40 in late Cretaceous fossil strata.
- C) a thin layer of iridium-enriched clay in late Cretaceous fossil strata.
- D) the warming of Earth's climate in the late Cretaceous.

Answer: <https://biology-forums.com/index.php?topic=1883516>

### Question 291

An organ represents a higher level of structure than the tissue composing it and performs functions that the tissues cannot perform alone. This is an example of the principle of

- A) structural adaptations.
- B) cellular regulation.
- C) emergent properties.
- D) biotechnology.

Answer: <https://biology-forums.com/index.php?topic=1883876>

### Question 292

What happens to nutrient macromolecules in an animal's digestive tract?

- A) They are absorbed whole and are then broken down into monomers within cells that ultimately use them.
- B) Proteins and nucleic acids are digested into monomers before absorption; energy-storage macromolecules (starch and fat) are absorbed whole.
- C) The digestive breakdown of macromolecules determines the monomers that are immediately needed and therefore produced.
- D) Nutrient macromolecules are digested into monomers before absorption.

Answer: <https://biology-forums.com/index.php?topic=1883908>

### Question 293

Organisms that possess more than two complete sets of chromosomes are said to be

- A) haploid.
- B) polyploid.
- C) diploid.
- D) hybrids.

Answer: <https://biology-forums.com/index.php?topic=1883454>

### Question 294

At any given time, what percentage of the body's capillaries have blood flowing through them?

- A) 5-10%
- B) 20-25%
- C) 40-50%
- D) 85-90%

Answer: <https://biology-forums.com/index.php?topic=1881863>

### Question 295

Which hypothesis is most likely to be productive for their initial investigation?

- A) The nucleotide chain of the enzymes may be incorrectly formed.

- B) The dye in the fabric may have hydrolyzed the fatty acids in the enzymes.
- C) The three-dimensional structure of the proteins may have been altered.
- D) There may not have been enough phospholipids for the volume of fabric.

Answer: <https://biology-forums.com/index.php?topic=1882823>

### Question 296

In a photosystem, clusters of chlorophyll a, chlorophyll b, and carotenoid pigments function most like

- A) an antenna.
- B) a propeller on a motorboat.
- C) a windmill.
- D) a spring.

Answer: <https://biology-forums.com/index.php?topic=1883025>

### Question 297

Which of the following structures develops from mesodermal tissue?

- A) muscles
- B) lining of the digestive tract
- C) skin
- D) nervous system

Answer: <https://biology-forums.com/index.php?topic=1882104>

### Question 298

Which of the following statements about the focusing of light by the eyes is true?

- A) Squids and many fishes change the shape of the lens to focus light.
- B) Mammals focus light when a rigid lens is moved back and forth.
- C) Mammals use muscles and ligaments to change the shape of the lens to focus light.
- D) Mammalian lenses thicken when focused on distant objects.

Answer: <https://biology-forums.com/index.php?topic=1882225>

### Question 299

Interestingly, most herbivorous animals do not have the ability to digest the cellulose in plants. However, in the absence of this ability, a mechanism has evolved that allows them to survive despite eating only plant matter, namely,

- A) production of saliva containing amylase.
- B) digestion by symbiotic microorganisms.
- C) avoidance of plants containing cellulose.
- D) converting cellulose to other carbohydrates.

Answer: <https://biology-forums.com/index.php?topic=1883944>

### Question 300

Which of the following hormones causes glucose release and, consequently, a rise in the concentration of sugar in the blood?

- A) insulin
- B) glucagon
- C) calcitonin
- D) oxytocin

Answer: <https://biology-forums.com/index.php?topic=1882057>

### Question 301

Which of the following trace elements needed by humans is commonly added to table salt?

- A) iodine
- B) iron
- C) magnesium
- D) fluoride

Answer: <https://biology-forums.com/index.php?topic=1882753>

### Question 302

A farmer decides to go into the business of raising trout for tourists who enjoy fishing. She builds six trout ponds and stocks each of them with trout from genetically identical stock. Her friends tell her that because she started each pond with just a few trout, she has created a bottleneck effect and her trout populations are likely to become genetically different rapidly. Which of the following statements about her trout is likely true?

- A) Because they are all genetically alike, they will all remain alike even though the ponds are different.
- B) Because each population started off with just a few individuals, every mutation that occurs will have a huge impact on the population, so they are

likely to evolve in different directions quickly.

C) Because the ponds are different and the populations are likely to experience different mutations, the populations will likely diverge evolutionarily, but only over many generations.

D) The increase in genetic diversity caused by sexual reproduction will promote evolutionary divergence over time.

Answer: <https://biology-forums.com/index.php?topic=1883422>

### Question 303

Complete the analogy: The structure of dendrites is like that of \_\_\_\_\_, while the structure of axons is like that of \_\_\_\_\_.

A) taproots; branched roots

B) myelin sheath; nodes of Ranvier

C) branched roots; taproots

D) nodes of Ranvier; myelin sheath

Answer: <https://biology-forums.com/index.php?topic=1882160>

### Question 304

Most of the best agricultural soils in the United States are found in areas that were formerly

A) temperate grasslands.

B) taiga forest.

C) tropical rain forest.

D) tundra.

Answer: <https://biology-forums.com/index.php?topic=1882535>

### Question 305

Bioventing is a scientific technology that uses microorganisms to break down components of fuels in groundwater. Bioventing is an example of

A) a microbial community.

B) bioremediation.

C) biofilm-forming bacteria.

D) a radiolarian community.

Answer: <https://biology-forums.com/index.php?topic=1883628>

### Question 306

DNP is a chemical that has been used by people to lose weight. However, it is a dangerous option and has caused several people to die. DNP works in a fashion similar to that of brown fat. Based on this information, how would DNP cause weight loss and death?

A) DNP must prevent food from being consumed aerobically, so cells instead perform fermentation, and lactate buildup is deadly.

B) DNP must increase the rate of substrate-level phosphorylation, causing NADH to be produced more quickly than it can be used by the electron transport chain.

C) DNP must block cells from using fats and proteins to make ATP.

D) DNP must increase metabolism of food by producing heat instead of ATP.

Answer: <https://biology-forums.com/index.php?topic=1882984>

### Question 307

Atrazine is a widely used herbicide that binds to a protein in photosystem II, ultimately causing a breakdown in electron transport. Atrazine would first inhibit the production of

A) NADPH.

B) G3P.

C) ATP.

D) O<sub>2</sub>.

Answer: <https://biology-forums.com/index.php?topic=1883050>

### Question 308

The sum total of a population's use of the biotic and abiotic resources of its habitat constitutes its

A) environment.

B) evolution.

C) range.

D) niche.

Answer: <https://biology-forums.com/index.php?topic=1882658>

### Question 309

During transmission across a typical chemical synapse,

A) neurotransmitter molecules are stored in the synaptic cleft.

- B) action potentials trigger chemical changes that make the synaptic vesicles fuse with each other.
- C) vesicles containing neurotransmitters diffuse to the receiving cell's plasma membrane.
- D) neurotransmitter molecules bind to receptors in the receiving cell's plasma membrane.

Answer: <https://biology-forums.com/index.php?topic=1882152>

### Question 310

During the Carboniferous period, photosynthesis in immense swamp forests removed \_\_\_\_\_ from the atmosphere, which produced a drier, cooler global climate and promoted the success of \_\_\_\_\_.

- A) oxygen; ferns
- B) oxygen; seed plants
- C) carbon dioxide; lycophytes
- D) carbon dioxide; seed plants

Answer: <https://biology-forums.com/index.php?topic=1883669>

### Question 311

The function of the sphincter between the stomach and small intestine is to

- A) retain chyme in the stomach until pepsin digestion is complete.
- B) periodically release chyme into the small intestine in squirts.
- C) release bile into the duodenum when chyme is present.
- D) release pancreatic secretions into the duodenum when chyme is present.

Answer: <https://biology-forums.com/index.php?topic=1883927>

### Question 312

A group of dog breeders is trying to design and develop an ideal dog. They want a dog with a gentle disposition, black fur, long ears, short legs, and a strong sense of smell. Which of the following comments from fellow dog breeders represents the biggest challenge they are likely to face?

- A) There are breeds with long ears and breeds with short leg, but no breeds with both.
- B) There does not seem to be any genetic variation in sense of smell.
- C) Artificial selection is artificial and cannot change the genetics of a breed like natural selection.
- D) Most dogs with black fur have long legs.

Answer: <https://biology-forums.com/index.php?topic=1883421>

### Question 313

You start to fall but then catch yourself, regaining your balance. Which of the following brain regions is responsible for the rapid coordination of muscle activity that kept you from falling?

- A) motor cortex
- B) thalamus
- C) cerebellum
- D) pons

Answer: <https://biology-forums.com/index.php?topic=1882177>

### Question 314

The digestive tract of a nematode is most like which of the following?

- A) a sock
- B) a soda straw
- C) a cup
- D) a baseball

Answer: <https://biology-forums.com/index.php?topic=1883747>

### Question 315

The variation in gene pools among the 30 pupfish populations occurred through an evolutionary mechanism called

- A) the bottleneck effect.
- B) directional selection.
- C) random mating.
- D) Hardy-Weinberg equilibrium.

Answer: <https://biology-forums.com/index.php?topic=1883432>

### Question 316

If you could alter the shape of a frog so that it was long and thin instead of compact, the frog's oxygen transfer efficiency would  
Many amphibians (including many frogs, toads, and salamanders) spend the early part of their lives in water but live on land as adults. The adults of many species return to water to breed and lay their eggs. Frogs have small lungs and supplement their oxygen intake by breathing through the skin.

Although large frogs have more total surface area than smaller frogs, the larger frogs have a lower surface area/volume ratio (less skin surface relative to their total body volume). To keep their respiratory surfaces moist, frogs are generally found in wet or very moist locations.

In an experiment designed to investigate oxygen consumption in relation to body size, frogs from five different species were weighed and placed in a respirometer (a machine that measures oxygen consumption) for 1 hour. The table shows the results of the experiment.

- A) increase, because the frog would be larger.
- B) decrease, because there would be more skin area to keep moist.
- C) increase, because the frog would have more surface area in relation to body volume.
- D) not change at all, because the body volume would remain constant.

Answer: <https://biology-forums.com/index.php?topic=1884078>

### Question 317

A molecule that can elicit an adaptive immune response is called

- A) a complement.
- B) an interferon.
- C) an antibody.
- D) an antigen.

Answer: <https://biology-forums.com/index.php?topic=1881922>

### Question 318

Gangrene, hallucinations, temporary insanity, and even death can result when humans consume grain infested with

- A) corn smut.
- B) chytrids.
- C) coccidioidomycosis.
- D) ergots.

Answer: <https://biology-forums.com/index.php?topic=1883705>

### Question 319

How do sugars move from one sieve-tube cell to the next?

- A) by osmotic diffusion through the sieve plate
- B) by flowing along with water through perforations in the sieve plate
- C) by active transport across cell membranes at the sieve plate
- D) by diffusion through a companion cell that spans the sieve plate

Answer: <https://biology-forums.com/index.php?topic=1882402>

### Question 320

Which of the following biomes is dominated by coniferous trees adapted to surviving long, harsh winters and short, wet summers?

- A) coniferous forests
- B) tundra
- C) temperate broadleaf forest
- D) savanna

Answer: <https://biology-forums.com/index.php?topic=1882539>

### Question 321

The experiment in part C adds to the conclusions by

- A) giving evidence that all frogs in the experiments were male.
- B) suggesting a possible explanation for the effect of atrazine.
- C) showing that testosterone levels are lower in untreated frogs.
- D) demonstrating a lack of relationship between successful mating and testosterone.

Answer: <https://biology-forums.com/index.php?topic=1882605>

### Question 322

What is the node of a plant stem?

- A) the point of leaf attachment
- B) the point of apical dominance
- C) the area between the shoots and the roots
- D) a small pore where gases are exchanged

Answer: <https://biology-forums.com/index.php?topic=1882316>

### Question 323

Cells acquire low-density lipoproteins (LDLs) by

- A) diffusion.
- B) receptor-mediated endocytosis.
- C) pinocytosis.
- D) phagocytosis.

Answer: <https://biology-forums.com/index.php?topic=1882923>

### Question 324

It has been argued that cutting old-growth forests and replacing them with plantations of young trees would help to alleviate the threat of global greenhouse warming. What important fact does this argument ignore?

- A) Forests play too minor a role in global CO<sub>2</sub> dynamics, which are affected far more by marine algae.
- B) Young trees fix carbon at a lower rate per unit mass than old trees.
- C) Most of the biomass of the cut trees would be added to the atmosphere as CO<sub>2</sub> within a few years.
- D) Most of the young trees would die within a few years.

Answer: <https://biology-forums.com/index.php?topic=1883042>

### Question 325

Organisms that digest molecules in organic material and convert them into inorganic forms are

- A) primary consumers.
- B) decomposers.
- C) primary producers.
- D) detritivores.

Answer: <https://biology-forums.com/index.php?topic=1882673>

### Question 326

Muscles that are constantly active, such as those maintaining our body posture, have a high proportion of

- A) fast, fatigue-resistant fibers.
- B) fast, fatigue-susceptible fibers.
- C) slow, fatigue-resistant fibers.
- D) slow, fatigue-susceptible fibers.

Answer: <https://biology-forums.com/index.php?topic=1882290>

### Question 327

Which of these conclusions cannot reasonably be drawn from the graph?

- A) Protein production occurs throughout the cell cycle.
- B) Increase in ribosomal activity occurs as a cell prepares to divide.
- C) Cells export a large amount of protein following cell division.
- D) There is always a supply of amino acids in the cell.

Answer: <https://biology-forums.com/index.php?topic=1882888>

### Question 328

The flow rate of a gas through a tube is proportional to the diameter of the tube. Through which structure in the human respiratory system does air flow the fastest?

- A) bronchiole
- B) trachea
- C) bronchus
- D) alveoli

Answer: <https://biology-forums.com/index.php?topic=1884047>

### Question 329

You identify a molecule in a pizza that is a polymer; has oxygen, hydrogen, and sulfur atoms; and is hydrophilic. What kind of molecule is it?

- A) protein
- B) carbohydrate
- C) nucleic acid
- D) lipid

Answer: <https://biology-forums.com/index.php?topic=1882812>

### Question 330

Which of the following processes can move a solute against its concentration gradient?

- A) osmosis
- B) passive transport

- C) facilitated diffusion
- D) active transport

Answer: <https://biology-forums.com/index.php?topic=1882918>

### Question 331

Which of the following animals has a three-chambered heart?

- A) snake
- B) crocodile
- C) human
- D) bird

Answer: <https://biology-forums.com/index.php?topic=1881838>

### Question 332

If ocean waters in one area are radioactively contaminated, which processes would cause that radioactivity to show up in plant crops at some distance from the contamination?

- A) processes A and B
- B) processes B and C
- C) processes C and D
- D) processes D and A

Answer: <https://biology-forums.com/index.php?topic=1882550>

### Question 333

Which of the following statements about the cells of the mucous membrane lining your air tubes is false?

- A) They manufacture secretory products.
- B) They are stratified squamous epithelial cells.
- C) They are cuboidal or columnar in shape.
- D) They carry cilia that sweep mucus up and out of the respiratory system.

Answer: <https://biology-forums.com/index.php?topic=1883866>

### Question 334

In 1942 a scientist testing part of a radar system discovered that a candy bar in his pocket had melted. Intrigued, he tried placing an egg near the system he was working on; it exploded and splattered him with hot egg. In this way it was discovered that part of the radar system could be used to cook foods, which led to the development of the microwave oven. When this kind of repurposing occurs in biological systems, it is called

- A) paedomorphosis.
- B) mutation.
- C) exaptation.
- D) adaptive radiation.

Answer: <https://biology-forums.com/index.php?topic=1883548>

### Question 335

When the human brain's normal electrical activity is suddenly altered, a seizure can result. Seizures cause several behavioral and physical complications such as sudden mood changes, muscle spasms, or uncontrollable body shaking. Seizure impulses often start in one hemisphere of the brain and travel to the other. Which of the following surgical treatments would reduce the severity of seizures?

- A) severing the suprachiasmatic nucleus so that the patient's biological clock has altered circadian rhythms
- B) severing the corpus callosum so that the brain has diminished ability to send messages between the two cerebral hemispheres
- C) severing the parietal lobe so that speech capabilities are diminished
- D) stimulating the cerebrum to allow the retention of short-term memory capabilities

Answer: <https://biology-forums.com/index.php?topic=1882191>

### Question 336

Many flower traits are specifically attractive to a certain type of pollinator. For example, the scent of rotting flesh is attractive to certain flies and beetles but not to most other pollinators. What adaptive purpose is served by this kind of "niche marketing" of flowers to specific pollinators?

- A) This adaptation works to reduce pollinator traffic at a flower. Therefore, flowers do not have to produce as much nectar to feed big crowds of pollinators.
- B) This adaptation reduces pollinator traffic so that flowers have a chance to develop their pollen fully before it is spread.
- C) This targeting is done because the wrong kind of pollinator might eat all the pollen instead of delivering it to another flower.
- D) This adaptation helps to assure that pollen will be delivered to another flower of the same species. If less specialized pollinators are used, the odds are greater that pollen will wind up on the stigma of a different species.

Answer: <https://biology-forums.com/index.php?topic=1883688>

### Question 337

In the digestive system, most nutrient absorption occurs in the

- A) stomach.
- B) pancreas.
- C) small intestine.
- D) large intestine.

Answer: <https://biology-forums.com/index.php?topic=1883929>

### Question 338

Which of the following classes of sensory receptors responds to stimuli such as touch, pressure, stretching, and sound?

- A) thermoreceptors
- B) mechanoreceptors
- C) electromagnetic receptors
- D) chemoreceptors

Answer: <https://biology-forums.com/index.php?topic=1882205>

### Question 339

Humans use about \_\_\_\_\_ of their daily calories to maintain brain cells and power other life-sustaining activities.

- A) 25%
- B) 50%
- C) 75%
- D) 90%

Answer: <https://biology-forums.com/index.php?topic=1882956>

### Question 340

Earth's continents and seafloors together form a thin outer layer of the planet called the

- A) crust.
- B) strata.
- C) biosphere.
- D) Pangean supercontinent.

Answer: <https://biology-forums.com/index.php?topic=1883507>

### Question 341

Which of the following statements about human demographic trends is true?

- A) As women's status and education increase, they choose to have more children.
- B) After 1950, mortality rates increased rapidly in most developing countries.
- C) A human population in which women reproduce at a later age will experience slower population growth.
- D) The movement from high birth rates and low death rates to low birth rates and high death rates is called the demographic transition.

Answer: <https://biology-forums.com/index.php?topic=1882636>

### Question 342

Blood flow through capillaries is controlled by

- A) one-way valves.
- B) precapillary sphincters only.
- C) smooth muscle in the walls of arterioles only.
- D) precapillary sphincters and smooth muscle in the walls of arterioles.

Answer: <https://biology-forums.com/index.php?topic=1881864>

### Question 343

Which of the following options correctly pairs a structure in prokaryote cells with its function?

- A) fimbriae, help prokaryotes stick to each other and to surfaces
- B) capsule, rigid protective structure enclosing cell
- C) flagella, feeding appendages
- D) endospore, food digestion vacuole

Answer: <https://biology-forums.com/index.php?topic=1883565>

### Question 344

Spring has arrived, and you notice your neighbors are cutting their grass. When you walk outside to check if your mail has arrived, your eyes begin to

water and feel itchy. You are more than likely experiencing

- A) an overreaction to pollen.
- B) a reaction due to an autoimmune disease.
- C) a pollen allergy.
- D) both A and C.

Answer: <https://biology-forums.com/index.php?topic=1881957>

### Question 345

The gap between the transmitting and receiving neurons in a chemical synapse is known as the

- A) synaptic vesicle.
- B) ion channel.
- C) gap junction.
- D) synaptic cleft.

Answer: <https://biology-forums.com/index.php?topic=1882151>

### Question 346

These two molecules are structural isomers. What is the difference between them?

- A) the number of carbon atoms
- B) the number of hydrogen atoms
- C) the location of a double-bonded oxygen atom
- D) Only one of them has a double bond between carbon atoms.

Answer: <https://biology-forums.com/index.php?topic=1882818>

### Question 347

Many of the regions of the world where hunger is prevalent are also regions with hot and dry climates. What types of agricultural crops would you suggest that these regions attempt to grow?

- A) C3 plants, such as wheat and rice
- B) C3 plants and C4 plants, such as corn and sugarcane
- C) C3 plants and CAM plants, such as prickly pear and pineapple
- D) C4 plants and CAM plants

Answer: <https://biology-forums.com/index.php?topic=1883049>

### Question 348

Below are phylogenetic trees of vertebrates (A) and reptiles (B). Using the data in these models, what might a Tyrannosaurus rex taste like?

(A)

(B)

- A) beef steak
- B) frog legs
- C) chicken legs
- D) pork chops

Answer: <https://biology-forums.com/index.php?topic=1883557>

### Question 349

Most of the functions of a cell membrane, including transport and enzymatic function, are performed by

- A) glycolipids.
- B) proteins.
- C) phospholipids.
- D) cholesterol.

Answer: <https://biology-forums.com/index.php?topic=1882902>

### Question 350

What would happen if the chorion failed to secrete human chorionic gonadotropin?

- A) The maternal elements of the placenta would fail to develop.
- B) The fetal elements of the placenta would fail to develop.
- C) Neural tube formation would not occur, and the embryo would have no central nervous system.
- D) The embryo would be aborted.

Answer: <https://biology-forums.com/index.php?topic=1882117>

### Question 351

Cave-dwelling catfish and cave-dwelling salamanders share striking similarities: Both organisms lack pigmentation, and their eyes are reduced or absent. The most recent common ancestor to these organisms had normal pigmentation and fully developed eyes. The similarities between cave catfish and cave salamanders are an example of

- A) convergent homology.
- B) analogy (convergent evolution).
- C) homology.
- D) exaptation.

Answer: <https://biology-forums.com/index.php?topic=1883530>

### Question 352

A nutrition facts label from a fortified cereal states that in a single serving of cereal there is 8% of the percent daily value of the element phosphorus. The label also says that a single serving of cereal plus one-half cup of skim milk has 20% of the percent daily value of phosphorus. Which of the following statements is false?

- A) A half-cup of skim milk contains 12% of the percent daily value of phosphorus.
- B) A half-cup of skim milk contains twice as much phosphorus as a serving of cereal.
- C) Eating five servings of cereal and two and a half cups of skim milk will give you 100% of the phosphorus that you need for one day.
- D) The amount of phosphorus in six servings of cereal is equal to the amount of phosphorus in two cups of skim milk.

Answer: <https://biology-forums.com/index.php?topic=1882774>

### Question 353

If a person on a fad diet experiences muscle cramps, a physician would suspect that this individual is likely suffering from a deficiency of

- A) table salt.
- B) iodine.
- C) iron.
- D) calcium.

Answer: <https://biology-forums.com/index.php?topic=1883957>

### Question 354

Which of the following structures is most like an exoskeleton?

- A) the wood frame of a house
- B) a water balloon
- C) a suit of armor
- D) the hair covering the surface of a bear

Answer: <https://biology-forums.com/index.php?topic=1882262>

### Question 355

Which of the following statements regarding sexual reproduction is true?

- A) Sexual reproduction creates an individual that is a genetic copy of one parent.
- B) Sexual reproduction generates greater genetic variation than asexual reproduction.
- C) Sexual reproduction allows animals to expand their populations faster than asexual reproduction.
- D) Populations of organisms that reproduce through sexual reproduction generally have more difficulty adapting to changing environments.

Answer: <https://biology-forums.com/index.php?topic=1882082>

### Question 356

The genes for the enzymes of glycolysis

- A) are active in all metabolizing cells, but the genes for specialized proteins are expressed only in particular cell types.
- B) are inactive in all metabolizing cells, but the genes for specialized proteins are expressed in all cell types.
- C) and the genes for all specialized proteins are expressed in all metabolizing cells.
- D) and the genes for all specialized proteins are expressed in all embryonic cells.

Answer: <https://biology-forums.com/index.php?topic=1883247>

### Question 357

The data for the developed countries category indicate that developed countries (e.g., the United States) have the lowest estimated prevalence (%) of underweight preschool children from 1990 to 2015. However, what is concerning about these data?

- A) There is little variation in estimated prevalence (%) of underweight preschool children from 1990 to 2015.
- B) These are the only data provided that show an increase in estimated prevalence (%) of underweight preschool children from 1990 to 2015.
- C) The estimated prevalence (%) of underweight preschool children is very similar in year 1995 and year 2000.
- D) The estimated prevalence (%) of underweight preschool children from 1990 to 2015 is only slightly below the data for the Caribbean region.

Answer: <https://biology-forums.com/index.php?topic=1883986>

### Question 358

What is the name given to organisms that can make their own food and thus sustain themselves without consuming organic molecules derived from other organisms?

- A) chemotrophs
- B) heterotrophs
- C) synthesizers
- D) autotrophs

Answer: <https://biology-forums.com/index.php?topic=1882998>

### Question 359

If, in one population of pupfish all of the individuals have a blood pigment that is extraordinarily effective at carrying oxygen, but this trait is not seen in any of the other populations, what likely happened?

- A) Because oxygen was low where these pupfish lived, a new allele for an effective blood pigment arose.
- B) This population was lucky to have an individual with a random mutation for an effective blood pigment, and the frequency of this allele was increased in subsequent generations through natural selection.
- C) The ancestral population probably had this type of blood pigment, but it was lost through genetic drift in the other 29 populations.
- D) The other populations did not need this pigment, so they did not evolve it.

Answer: <https://biology-forums.com/index.php?topic=1883433>

### Question 360

The discovery of \_\_\_\_\_ explains embryonic pattern formation in a wide variety of organisms.

- A) the three-dimensional forms of animals
- B) gastrulation
- C) homeotic genes
- D) programmed cell death

Answer: <https://biology-forums.com/index.php?topic=1882111>

### Question 361

Before it opens up into full blossom, the outer green layer of a rosebud consists of the leaflike

- A) sepals.
- B) stamen.
- C) ovary.
- D) petals.

Answer: <https://biology-forums.com/index.php?topic=1882342>

### Question 362

What is the most common cause of anemia?

- A) vitamin deficiency
- B) low blood pressure
- C) iron deficiency
- D) inefficient hemoglobin production

Answer: <https://biology-forums.com/index.php?topic=1881874>

### Question 363

Which of the following statements about internal membranes in eukaryotic cells is false?

- A) In eukaryotic cells, internal membranes greatly increase a cell's total membrane area.
- B) In eukaryotic cells, internal membranes provide an additional area for many metabolic processes to occur.
- C) In eukaryotic cells, internal membranes form membranous compartments called organelles.
- D) In eukaryotic cells, internal membranes standardize the internal environment of all cellular organelles.

Answer: <https://biology-forums.com/index.php?topic=1882850>

### Question 364

Labored breathing, coughing, lung infections, and respiratory failure are characteristics defining

- A) asthma.
- B) meningitis.
- C) chronic obstructive pulmonary diseases.
- D) myasthenia gravis.

Answer: <https://biology-forums.com/index.php?topic=1884020>

### Question 365

Which of the following is a good way to ripen a green, unripe fruit?

- A) putting it in a darkened area such as a drawer or box
- B) placing it in a sealed plastic bag with an overripe banana
- C) placing it in a microwave, on low power, for 5 minutes
- D) placing it under a bright light for 24 hours

Answer: <https://biology-forums.com/index.php?topic=1882465>

### Question 366

In female mammals, the inactive X chromosome in each cell

- A) can be activated if mutations occur in the active X chromosome.
- B) is broken down, and its nucleotides are degraded and reused.
- C) is absorbed and used in energy production.
- D) becomes a Barr body.

Answer: <https://biology-forums.com/index.php?topic=1883250>

### Question 367

If an ecosystem has a carrying capacity of 1,000 individuals for a given species and 2,000 individuals of that species are present, we can predict that the population

- A) size will remain at equilibrium.
- B) size will decrease.
- C) will show a clumped dispersion pattern.
- D) size will slowly increase.

Answer: <https://biology-forums.com/index.php?topic=1882620>

### Question 368

Which of the following nutrients is digested only after it reaches the small intestine?

- A) fat
- B) protein
- C) starch
- D) polypeptide

Answer: <https://biology-forums.com/index.php?topic=1883939>

### Question 369

Forest destruction would have the greatest impact on which arrow?

- A) arrow A
- B) arrow B
- C) arrow C
- D) arrow D

Answer: <https://biology-forums.com/index.php?topic=1882549>

### Question 370

Which of the following statements regarding the brain is true?

- A) Ventricles in the brain are filled with interstitial fluid.
- B) The blood-brain barrier helps to maintain a stable chemical environment for the brain.
- C) Layers of connective tissue, called epithelium, surround and protect the brain and spinal cord.
- D) White matter is mainly dendrites.

Answer: <https://biology-forums.com/index.php?topic=1882166>

### Question 371

Urine differs in composition from the fluid that first enters a nephron tubule by filtration because

- A) the filtrate contains less water.
- B) the filtrate contains red blood cells.
- C) the filtrate has more salts.
- D) the filtrate does not contain urea.

Answer: <https://biology-forums.com/index.php?topic=1882021>

### Question 372

If you were a scientist working on this project, how would you argue that the results of the research would be worth the time investment?

- A) Finding the wild relative with disease resistance would help avoid extirpation of fungus that has a mutualistic relationship with the cultivated rice plants.
- B) Finding the wild relative with disease resistance would protect the continent of Asia as a biodiversity hot spot.
- C) Finding the wild relative with disease resistance would allow Asian farmers to continue to grow the crop they know.
- D) Finding the wild relative with disease resistance would help deter invasive species of rice plants.

Answer: <https://biology-forums.com/index.php?topic=1882750>

### Question 373

Biologically, why might oxytocin have the nickname "the love hormone?"

- A) because it has a role in reproductive behavior of males only
- B) because it has a role in reproductive behavior of females only
- C) because it has a role in reproductive behavior of both males and females
- D) because it has a role in androgen development

Answer: <https://biology-forums.com/index.php?topic=1882078>

### Question 374

If the hemoglobin molecules in your red blood cells suddenly were unable to bind carbon dioxide and hydrogen ions, what would happen to your blood pH?

- A) It would increase.
- B) It would stay the same.
- C) It would decrease.
- D) There is not enough information to answer this question.

Answer: <https://biology-forums.com/index.php?topic=1884051>

### Question 375

You have two flasks (labeled A and B) that each contain an equal population of normal animal cells. You place flask A in a machine called a shaking incubator, which shakes the flask at 37C and keeps the cells moving so as to not allow them to adhere to the bottom of the flask. Flask B is allowed to sit in an incubator (without shaking) at 37C. If you let the cells in each flask grow for a week, which of the following results are you most likely to observe?

- A) The cells in flask A will have grown significantly, but the cells in flask B will have not grown at all.
- B) The cells in both flasks A and B will have grown significantly.
- C) The cells in both flasks A and B will have not grown at all.
- D) The cells in flask B will have grown significantly, but the cells in flask A will have not grown at all.

Answer: <https://biology-forums.com/index.php?topic=1883082>

### Question 376

Marathon runners are long-distance runners (marathons are races that are 26.2 miles long). Studies have shown that the muscles of marathon runners contain an abundance of slow-twitch fibers. Which of the following statements about these fibers is true?

- A) Slow-twitch fibers have lots of mitochondria to make ATP aerobically.
- B) Slow-twitch fibers have lots of mitochondria to make ATP through fermentation.
- C) Slow-twitch fibers have few mitochondria and make ATP aerobically.
- D) Slow-twitch fibers have few mitochondria and make ATP through fermentation.

Answer: <https://biology-forums.com/index.php?topic=1882986>

### Question 377

Diane Dodd raised different fruit fly populations on different food sources. She found that after about 40 generations the evolution of reproductive isolation was under way. The mechanism of evolution responsible for this was

- A) natural selection.
- B) genetic drift.
- C) gene flow.
- D) mutation.

Answer: <https://biology-forums.com/index.php?topic=1883450>

### Question 378

The respiratory system includes all of the following structures except the

- A) esophagus.
- B) trachea.
- C) larynx.
- D) lung.

Answer: <https://biology-forums.com/index.php?topic=1883879>

### Question 379

A scientist wants to magnify a pollen grain 8,000 times and examine the ridges and pores on its surface. Which of the following instruments would be best?

- A) a transmission electron microscope
- B) a scanning electron microscope
- C) a fluorescence confocal microscope
- D) an inverted light microscope

Answer: <https://biology-forums.com/index.php?topic=1882835>

### Question 380

The main causes of the loss of plant biodiversity include

- A) plant diseases and clear-cutting of forests to create farmland.
- B) herbivory, logging, and air pollution.
- C) clear-cutting of forests to create farmland and logging.
- D) plant diseases and herbivory.

Answer: <https://biology-forums.com/index.php?topic=1883689>

### Question 381

The last common ancestor shared by humans and chimpanzees lived about

- A) 6,000-8,000 years ago.
- B) 5-7 million years ago.
- C) 25-40 million years ago.
- D) 1.5-2.5 billion years ago.

Answer: <https://biology-forums.com/index.php?topic=1883824>

### Question 382

Bacterial production of the enzymes needed for the synthesis of the amino acid tryptophan declines with increasing levels of tryptophan and increases as tryptophan levels decline. This is an example of

- A) competitive inhibition.
- B) noncompetitive inhibition.
- C) feedback inhibition.
- D) irreversible inhibition.

Answer: <https://biology-forums.com/index.php?topic=1882945>

### Question 383

Tomato seeds are often consumed by birds or other organisms and then dispersed through their feces. However, when tomatoes rot on the vine, organisms may not consume them. How would tomato seeds likely disperse in this situation?

- A) When the tomato rots, it drops to the ground and the seeds fall in the soil.
- B) Summer rains carry the seeds to a new area.
- C) Windy conditions carry the seeds to a new area.
- D) The tomato disperses its seeds as spores.

Answer: <https://biology-forums.com/index.php?topic=1883715>

### Question 384

NADH pills can be purchased over the counter and are often taken by sufferers of chronic fatigue syndrome (CFS). How might these pills benefit a CFS patient?

- A) They would increase energy by creating more FADH<sub>2</sub>.
- B) They would decrease the rate of glycolysis.
- C) They would increase the number of electrons provided to the electron transport chain.
- D) They would decrease the rate of alcoholic fermentation.

Answer: <https://biology-forums.com/index.php?topic=1882989>

### Question 385

Smooth muscle propels food through the alimentary canal by a process called

- A) ingestion.
- B) diffusion.
- C) active transport.
- D) peristalsis.

Answer: <https://biology-forums.com/index.php?topic=1883917>

### Question 386

A drug that interferes with microtubule formation is likely to completely disrupt

- A) the amoeboid motion of a cell.
- B) the function of lysosomes.
- C) contraction of muscle cells.
- D) the movements of sperm cells.

Answer: <https://biology-forums.com/index.php?topic=1882875>

### Question 387

Most \_\_\_\_\_ are located at specific areas where bacteria microbes tend to attack so that they can readily engulf and destroy the invading bacteria.

- A) erythrocytes
- B) leukocytes
- C) macrophages
- D) interferons

Answer: <https://biology-forums.com/index.php?topic=1881961>

### Question 388

Which part of a bone contains mostly stored fat?

- A) red bone marrow
- B) fibrous connective tissue
- C) spongy bone
- D) yellow bone marrow

Answer: <https://biology-forums.com/index.php?topic=1882269>

### Question 389

Which of the following cell structures are associated with the breakdown of harmful substances?

- A) chloroplasts
- B) mitochondria
- C) peroxisomes
- D) centrioles

Answer: <https://biology-forums.com/index.php?topic=1882883>

### Question 390

On a trip to the Southwest, you and a friend collect some seeds from a pion, which is a type of pine tree. Your friend also gathers a small bagful of soil from under the pion tree. Back home, both of you plant your seeds in commercial sterilized potting soil, but your friend adds a spoonful of the collected dirt to each of her pots. Her seedlings do better than yours. Which of the following is the likeliest explanation?

- A) Pine seedlings are better adapted to the sandy soil of the Southwest than to commercial potting mix.
- B) The soil from the Southwest probably contained macronutrients missing from the potting mix.
- C) The soil from the Southwest probably contained nitrogen-fixing bacteria that colonized the seedlings' root nodules.
- D) The soil from the Southwest probably contained fungi able to establish a mycorrhizal association with the seedlings' roots.

Answer: <https://biology-forums.com/index.php?topic=1882417>

### Question 391

Phagocytosis is to eating as pinocytosis is to

- A) osmosis.
- B) drinking.
- C) chewing.
- D) lysis.

Answer: <https://biology-forums.com/index.php?topic=1882922>

### Question 392

Upon which of the following is passive immunity dependent?

- A) a person's own immune system producing antibodies
- B) antibodies made by another organism
- C) antibody-producing cells from another organism
- D) antigens from a person's own body

Answer: <https://biology-forums.com/index.php?topic=1881925>

### Question 393

You arrive back in the United States after a visit to a foreign country located on another continent. The customs agent stops the person in front of you and confiscates the fruit basket this person is bringing home. Being the knowledgeable person you are, you calmly explain to your enraged fellow traveler that the reason for the detainment is that the fruit basket may be

- A) carrying endangered fruit.
- B) carrying an exotic species that could damage North American ecosystems.
- C) contaminated with chemicals that will damage the ozone layer above North America.
- D) contaminated with sufficient DDT to cause serious harm to anyone who eats the fruit.

Answer: <https://biology-forums.com/index.php?topic=1882710>

### Question 394

Which of the following regions has the greatest total percent decrease in estimated prevalence (%) of underweight preschool children from 1990 to 2015?

- A) Africa
- B) Asia
- C) Latin America and Caribbean
- D) Oceania

Answer: <https://biology-forums.com/index.php?topic=1883984>

### Question 395

Some of your DNA may not code for any protein and has no known function in gene regulation; it is sometimes referred to as "junk" DNA. How do nucleotide sequences of "junk DNA" evolve?

- A) They evolve through natural selection.
- B) They evolve through genetic drift and other chance processes.
- C) They evolve to be more useful by taking on new functions.
- D) They evolve by gradually being eliminated from the gene pool.

Answer: <https://biology-forums.com/index.php?topic=1883417>

### Question 396

Mad cow disease serves as an example of how interdependent \_\_\_\_\_ and \_\_\_\_\_ are to protein.

- A) solubility; texture
- B) form; construction
- C) structure; function
- D) adaptability; development

Answer: <https://biology-forums.com/index.php?topic=1882801>

### Question 397

The oxygen-carrying component in red blood cells is

- A) hemoglobin.
- B) bicarbonate ions.
- C) iron.
- D) the cell membrane.

Answer: <https://biology-forums.com/index.php?topic=1884038>

### Question 398

How long do human red blood cells circulate in the blood before they wear out and have to be replaced?

- A) 1 to 2 weeks
- B) 1 month
- C) 3 to 4 months
- D) 10 to 12 months

Answer: <https://biology-forums.com/index.php?topic=1881873>

### Question 399

Which of the following statements regarding the movement of electrons during cellular respiration is true?

- A) Electrons tend to move away from O<sub>2</sub>.
- B) O<sub>2</sub> is eventually oxidized by the electrons to form water.
- C) The electrons release large amounts of energy each time they are transferred from one molecule to another.
- D) O<sub>2</sub> is reduced when it accepts electrons and forms water.

Answer: <https://biology-forums.com/index.php?topic=1882957>

### Question 400

The tree in your backyard is home to two cardinals, a colony of ants, a wasp's nest, two squirrels, and millions of bacteria. Together, all of these organisms represent

- A) a species.
- B) a community.
- C) a population.
- D) an ecosystem.

Answer: <https://biology-forums.com/index.php?topic=1884086>

### Question 401

"Supertasters" are individuals who

- A) prefer foods that are somewhat bitter, such as vegetables.
- B) typically have more food dislikes.
- C) have fewer fungiform papillae on their tongue.
- D) tend to eat healthier and have fewer diseases.

Answer: <https://biology-forums.com/index.php?topic=1882234>

### Question 402

The largest group of prokaryotes is the \_\_\_\_\_, which obtain both energy and carbon from \_\_\_\_\_.

- A) autotrophs; inorganic molecules
- B) chemoautotrophs; decaying organic material
- C) chemoheterotrophs; organic molecules
- D) photoautotrophs; light

Answer: <https://biology-forums.com/index.php?topic=1883568>

### Question 403

Suppose that a bacterial infection swept across a sea otter population and killed most sea otters before they could reproduce. How would the marine community be affected?

Consider the following marine community: Sea otters prey on sea urchins and therefore help maintain a healthy sea urchin population. Sea urchins prey on kelp. By helping to maintain viable sea urchin populations, the sea otters are also allowing enough kelp to grow and act as a habitat for other organisms.

- A) For a period of time, there would be overpopulations of sea urchins and therefore a decline in kelp populations.
- B) For a period of time, there would be an overpopulation of kelp and therefore a decline in sea urchins.
- C) Sea otters would continue to decline until they reached extinction.
- D) Kelp would become a primary predator of sea urchins.

Answer: <https://biology-forums.com/index.php?topic=1882705>

### Question 404

Which of the following statements about lysosomes is false?

- A) Lysosomes help to digest worn-out or damaged organelles.
- B) Lysosomes synthesize proteins from the recycled amino acids.
- C) Lysosomes fuse with food vacuoles to expose nutrients to lysosomal enzymes.
- D) Lysosomes destroy harmful bacteria engulfed by white blood cells.

Answer: <https://biology-forums.com/index.php?topic=1882863>

### Question 405

In a study on human mate choice, researchers found that daughters choose mates who look like their fathers. To determine whether they choose mates who are genetically similar, the mate choices of adopted daughters were analyzed. Independent judges determined that adopted daughters chose mates with facial similarities to their adoptive father. This influence of parental image on mate choice could be considered a human example of

- A) imprinting.
- B) habituation.
- C) pattern recognition.
- D) a dominance hierarchy.

Answer: <https://biology-forums.com/index.php?topic=1882567>

### Question 406

Consider the following situations: (1) a magnesium atom and two chlorine atoms join together to form a molecule of magnesium chloride; (2) water molecules interact with each other in a beaker; and (3) two carbon atom and six hydrogen atoms join together to form ethane. Rank the strength of the bonding interactions taking place in each situation, from the weakest bonds to the strongest bonds.

- A)  $1 < 2 < 3$
- B)  $3 < 2 < 1$
- C)  $2 < 3 < 1$
- D)  $2 < 1 < 3$

Answer: <https://biology-forums.com/index.php?topic=1882769>

### Question 407

The pores that facilitate gas exchange in plant leaves are called

- A) stomata.
- B) guard cells.
- C) lenticels.
- D) plasmodesmata.

Answer: <https://biology-forums.com/index.php?topic=1882396>

### Question 408

A/An \_\_\_\_\_ has been used to estimate that HIV-1 M first spread to humans in the 1930s.

- A) parsimony analysis
- B) epidemiological study
- C) outgroup comparison
- D) molecular clock

Answer: <https://biology-forums.com/index.php?topic=1883544>

### Question 409

Suppose that diploid cells of the seminiferous tubules encounter errors during the cell cycle and mitosis. This results in the primary spermatocytes having a  $4n$  number of chromosomes. Assuming that meiosis proceeds normally, which of the following would be true?

- A) Sperm cells would have an  $n$  number of chromosomes.
- B) Sperm cells would have a  $2n$  number of chromosomes.
- C) Secondary spermatocytes would have a  $4n$  number of chromosomes.
- D) Secondary spermatocytes would have an  $n$  number of chromosomes.

Answer: <https://biology-forums.com/index.php?topic=1882125>

### Question 410

Evolutionary movement of aquatic vertebrates to land involved an intermediate individual that

- A) could fly.
- B) had a single lung.
- C) had a tracheal system of branching internal tubes.
- D) had both gills and lungs.

Answer: <https://biology-forums.com/index.php?topic=1884011>

### Question 411

Parkinson's disease is associated with a deficiency in

- A) dopamine.
- B) serotonin.
- C) acetylcholine.
- D) endorphins.

Answer: <https://biology-forums.com/index.php?topic=1882158>

### Question 412

Which of the following behaviors is unlikely to involve imprinting?

- A) A nestling male sparrow learns the "dialect" of song that is used in his native district.
- B) A nestling male songbird raised in the nest of a different species grows up to sing the song of his foster species.
- C) A songbird that engages in solitary migration using star navigation returns each year to the district where it was hatched.
- D) A migrating mother gazelle leaves her calf hidden in grass while she feeds and always returns to the correct patch of grass.

Answer: <https://biology-forums.com/index.php?topic=1882570>

### Question 413

Brown-eye genes are dominant over blue-eye genes. What is the best explanation for the fact that all the blue-eye alleles have not disappeared in the human population?

- A) Some blue alleles are always hidden in heterozygotes.
- B) The population is likely in Hardy-Weinberg equilibrium for that locus.

- C) Brown-eyed people sometimes have a blue-eyed parent.  
D) People with brown eyes tend to choose mates with brown eyes, and blue-eyed people tend to choose mates with blue eyes.  
Answer: <https://biology-forums.com/index.php?topic=1883423>

#### Question 414

- One advantage of gas exchange in water is that  
A) water can contain more oxygen than air.  
B) carbon dioxide is easier to eliminate in water than in air.  
C) it is easy to keep the exchange surface wet.  
D) ventilating gills in water requires very little energy.  
Answer: <https://biology-forums.com/index.php?topic=1884005>

#### Question 415

- Thylakoids are arranged in stacks called  
A) cristae.  
B) stomata.  
C) grana.  
D) vacuoles.  
Answer: <https://biology-forums.com/index.php?topic=1883004>

#### Question 416

- Complete metamorphosis is considered to occur in a species  
A) if the larva and adult have different diets.  
B) if the larva and adult live in different habitats.  
C) if a pupation stage separates the larval and adult stages.  
D) if the adult has wings, but the larva does not.  
Answer: <https://biology-forums.com/index.php?topic=1883762>

#### Question 417

- Where do plants get most of their mass?  
A) from nitrogen in the atmosphere  
B) from carbon dioxide in the atmosphere  
C) from water, as van Helmont predicted  
D) from organic molecules taken up from the soil  
Answer: <https://biology-forums.com/index.php?topic=1882386>

#### Question 418

- The reason the pronghorn antelope is not found outside North America is most likely that  
A) it has never dispersed beyond this region.  
B) its nutritional requirements cannot be met outside this region.  
C) there are too many pronghorn predators outside North America.  
D) its temperature requirements are stringent and not met outside North America.  
Answer: <https://biology-forums.com/index.php?topic=1882509>

#### Question 419

- To produce one glucose, the Calvin cycle needs to be run \_\_\_\_\_ times.  
A) two  
B) four  
C) six  
D) eight  
Answer: <https://biology-forums.com/index.php?topic=1883036>

#### Question 420

- Changes occur within a sarcomere during muscle contraction. One change is that the  
A) thin filaments get thicker.  
B) thick filaments move closer together.  
C) Z lines move closer together.  
D) thick filaments get thicker.  
Answer: <https://biology-forums.com/index.php?topic=1882281>

### Question 421

Which of the following statements about the Galpagos finches is false?

- A) The Galpagos finch species differ in their feeding habitats.
- B) Each island in the Galpagos chain has one and only one isolated, unique species of Darwin's finch.
- C) Most speciation events of the Galpagos finches occurred when some finches made it to another island, evolved in isolation, and accumulated enough changes to become a new species.
- D) The evolution of the Galpagos finches is an excellent example of adaptive radiation.

Answer: <https://biology-forums.com/index.php?topic=1883460>

### Question 422

Which of the following best represents an adaptation to increase surface-to-volume ratio?

- A) the long bones of a giraffe
- B) the smooth skin of an earthworm
- C) the multilobed sacs in the lungs
- D) the striations of skeletal muscle

Answer: <https://biology-forums.com/index.php?topic=1883887>

### Question 423

In pea plants, round peas are dominant (R) and shriveled peas are recessive (r) and yellow peas (shown as light gray in Punnett square) are dominant (Y) and green peas (dark gray) are recessive (y). Using this information and the partial Punnett square above, what were the phenotypes of the parental plants that were used in this cross by Mendel?

During a summer study abroad program, you travelled to Austria to study genetics at the University of Vienna. While you were there, a momentous discovery was made: some of Gregor Mendel's original lab books and notes were found to be buried outside of the abbey where he lived. It just so happened that the professor you were working with obtained copies of these notes and enlisted your help to decipher them.

You hired a translator to translate Mendel's notes from Czech to English, and using your knowledge of modern genetics (which Mendel did not have!) you were able to construct a partial Punnett square (shown below). Because the notebook was damaged from being buried for so long, this is the only information that you have regarding a cross that Mendel must have performed. Your professor has tasked you with figuring out more about this experiment.

- A) Rryy and RrYy
- B) Rryy and rrYy
- C) RRyy and rryy
- D) RrYy and RrYy

Answer: <https://biology-forums.com/index.php?topic=1883166>

### Question 424

Which mollusc group includes primarily sedentary animals that use mucus-coated gills to trap fine food particles?

- A) cephalopods
- B) gastropods
- C) chitons
- D) bivalves

Answer: <https://biology-forums.com/index.php?topic=1883749>

### Question 425

Human DNA and chimpanzee DNA

- A) differ by about 1%.
- B) differ by about 3%.
- C) differ by more than 10%.
- D) differ by the same amount that human DNA differs from orangutan DNA.

Answer: <https://biology-forums.com/index.php?topic=1883823>

### Question 426

For IVF to be completed successfully, several \_\_\_\_\_ should be removed from Brittany's ovaries.

- A) primary oocytes
- B) secondary oocytes
- C) follicles
- D) endometrial fragments

Answer: <https://biology-forums.com/index.php?topic=1882139>

### Question 427

The frequency of homozygous dominant individuals in a population that is in Hardy-Weinberg equilibrium is equal to

- A)  $q$  or  $p$ .
- B)  $p^2$ .
- C)  $2pq$ .
- D)  $2p$ .

Answer: <https://biology-forums.com/index.php?topic=1883396>

### Question 428

Geologists have evidence that over the past 1.5 billion years,

- A) Earth's continents have remained essentially in their current shape and positions.
- B) Earth's landmasses have joined into a single continent and split back apart again on three occasions.
- C) Earth's landmasses have moved about extensively but have remained separate.
- D) Earth's landmasses have been entirely submerged in water on three occasions.

Answer: <https://biology-forums.com/index.php?topic=1883506>

### Question 429

Cilia differ from flagella in that

- A) cilia contain nine microtubule doublets surrounding a central pair of microtubules, whereas flagella contain only nine microtubule doublets.
- B) the protein filaments of cilia are "naked," whereas those of flagella are wrapped in an extension of the cell membrane.
- C) cilia are typically more numerous and shorter than flagella.
- D) cilia are anchored only in the proteins of the cell membrane, whereas flagella are anchored in a special structure called the basal body.

Answer: <https://biology-forums.com/index.php?topic=1882876>

### Question 430

The effect of a sending neuron on a receiving neuron is typically greater when \_\_\_\_\_ neurotransmitters bind to the receiving neuron and the synapse is \_\_\_\_\_ the base of the receiving cell's axon.

- A) more; close to
- B) fewer; close to
- C) more; far from
- D) fewer; far from

Answer: <https://biology-forums.com/index.php?topic=1882155>

### Question 431

In the electron transport chain, the final electron acceptor is

- A) an oxygen atom.
- B) a molecule of carbon dioxide.
- C) a molecule of water.
- D) ADP.

Answer: <https://biology-forums.com/index.php?topic=1882966>

### Question 432

The \_\_\_\_\_ is the protective chamber that houses the ovule and later matures to become the fruit.

- A) ovary
- B) carpel
- C) sepals
- D) stigma

Answer: <https://biology-forums.com/index.php?topic=1883675>

### Question 433

When mothers transmit IgG to their developing child during gestation, such as in the case of a tetanus antibody, the mothers are providing a form of \_\_\_\_\_ immunity.

- A) nonspecific
- B) passive
- C) humoral
- D) active

Answer: <https://biology-forums.com/index.php?topic=1881951>

### Question 434

Which of the following terms represents the frequency of heterozygotes in a population that is in Hardy-Weinberg equilibrium?

- A)  $p$

- B) q
- C) 2pq
- D) q<sup>2</sup>

Answer: <https://biology-forums.com/index.php?topic=1883397>

### Question 435

Cigarette smoking can sometimes lead to development of a "smoker's cough," which results from paralysis of cilia in the airways. Why would the paralysis of cilia lead to smoker's cough?

- A) Paralyzed cilia can no longer clear the airways of mucus so coughing helps remove it.
- B) Paralyzed cilia can no longer provide an immune response to protect the airways from harmful compounds in the smoke, so coughing is used to try to prevent the compounds from damaging the airways.
- C) Paralyzed cilia lead to a nervous response that "tickles" the airways and induces coughing.
- D) Paralyzed cilia push mucus downward into the alveoli, which coughing attempts to remove.

Answer: <https://biology-forums.com/index.php?topic=1884049>

### Question 436

How are steroids able to cross cell membranes and enter cells?

- A) Steroids and cell membranes both contain receptor proteins.
- B) Steroids are able to pass through the phospholipid bilayer and bind to receptors inside the cell.
- C) Steroids can diffuse through open channel proteins in the membrane.
- D) Steroids move through cell membranes, such as water, by osmosis.

Answer: <https://biology-forums.com/index.php?topic=1882073>

### Question 437

What conclusion did scientists likely draw from this study?

- A) Rainy conditions may not be enough to dilute road salts that have high salt concentrations. Therefore, salamander clutches will experience minimal physiological damage.
- B) Rainy conditions are enough to completely dilute road salts that have high salt concentrations. Therefore, salamander clutches will not experience any permanent physiological damage.
- C) Rainy conditions are enough to completely dilute road salts that have high salt concentrations. Therefore, salamander clutches will experience minimal physiological damage.
- D) Rainy conditions may not be enough to dilute road salts that have high salt concentrations. Therefore, salamander clutches will face irreversible physiological damage.

Answer: <https://biology-forums.com/index.php?topic=1882030>

### Question 438

What type of energy would the leg muscles of athletes that enter this race use during the final 26.2-mile foot race?

- A) stored ATP and PCr
- B) aerobic respiration
- C) stored ATP and PCr plus lactic acid fermentation
- D) lactic acid fermentation

Answer: <https://biology-forums.com/index.php?topic=1882304>

### Question 439

What likely happened during the intervening time?

- A) The outer membrane of the nucleus broke off and moved the fluorescent tag to the Golgi.
- B) The endoplasmic reticulum engulfed the tagged protein and released it in a secretory vacuole.
- C) Material from the nucleus, including the tag, was being secreted outside the cell.
- D) The tag was seen in the Golgi before being seen in a secretory vacuole.

Answer: <https://biology-forums.com/index.php?topic=1882893>

### Question 440

The hypothesis that scientists who collected these data were most likely testing is that

- A) the permeability of collecting changes over time.
- B) collecting tubules have aquaporins.
- C) permeability change is linked to the number of aquaporins.
- D) aquaporins allow water into kidney tubules.

Answer: <https://biology-forums.com/index.php?topic=1882025>

### Question 441

In this drawing of the lac operon, which molecule is an inactive repressor?

- A) molecule A
- B) molecule B
- C) molecule C
- D) molecule D

Answer: <https://biology-forums.com/index.php?topic=1883299>

### Question 442

Pronghorn antelopes are well adapted for dry conditions with extremes of temperature, especially cold. As global climate change causes the area where the pronghorn live to change, not only in temperature but also in what plants grow there and what predators and prey live there, what is likely to happen to the pronghorn?

- A) The animals will learn to eat whatever plants exist in their area and escape from any new predators that arrive.
- B) If the pronghorn population includes genetic variation that allows survival and reproduction in the new conditions, they will adapt.
- C) If climate change is not too rapid, the pronghorn can produce new traits needed to survive and reproduce in the changed conditions.
- D) Because pronghorns will need to be cooler, their fur will become thinner.

Answer: <https://biology-forums.com/index.php?topic=1882544>

### Question 443

If the epithelium that lines the air sacs of your lungs were to gain a layer of cells, which of the following would likely occur?

- A) Oxygen will enter the lungs more quickly.
- B) Oxygen will enter the lungs more slowly.
- C) Secretion of mucus will increase.
- D) Oxygen will enter at the same rate, because it is only the shape of the cells that matter.

Answer: <https://biology-forums.com/index.php?topic=1883899>

### Question 444

Multiple sclerosis results from an autoimmune disease that primarily involves

- A) destruction of the hippocampus.
- B) destruction of the myelin sheath.
- C) destruction of regions of the motor cortex.
- D) deterioration of parts of the spinal cord.

Answer: <https://biology-forums.com/index.php?topic=1882147>

### Question 445

When snapping shrimp are building their homes in the seafloor, goby fish keep guard and flap their tails when danger is approaching. As part of this relationship, the shrimp allow the gobies to sleep in the burrow and use it for cover from predators. This is an example of

- A) symbiosis.
- B) biofilms.
- C) bioremediation.
- D) endosymbiosis.

Answer: <https://biology-forums.com/index.php?topic=1883632>

### Question 446

A woman sustains irreversible damage to one of her lungs in a fire. Her identical twin sister, who lives in another state, offers to donate one of her lungs to her injured sibling. Would physicians view this as an organ transplant surgery with a strong chance of success?

- A) Yes; the identical twins would have highly similar self-proteins, and this would likely minimize rejection by cytotoxic T cells.
- B) Yes; the identical twins would have highly different self-proteins, and this would likely minimize rejection by cytotoxic T cells.
- C) No; the identical twins would have highly similar self-proteins, and this would likely minimize rejection by cytotoxic T cells.
- D) No; the identical twins would have highly different self-proteins, and this would likely minimize rejection by cytotoxic T cells.

Answer: <https://biology-forums.com/index.php?topic=1881960>

### Question 447

Which of the following is likely to occur in *E. coli* cells that are grown in skim milk?

- A) The lac operon is shut off, and the cells will not produce lactose-utilizing enzymes.
- B) The trp repressor is activated, and the cells will produce lactose-utilizing enzymes.
- C) The trp operon is turned on, but the bacteria will not produce lactose-utilizing enzymes.
- D) The trp operon and the lac operon are both switched off.

Answer: <https://biology-forums.com/index.php?topic=1883245>

### Question 448

Plants have specific temperatures (or temperature ranges) that allow for maximum growth. A process by which heat from \_\_\_\_\_ is transferred from the sun to leaves helps give plants these ideal temperatures.

- A) convection
- B) evaporation
- C) conduction
- D) radiation

Answer: <https://biology-forums.com/index.php?topic=1882011>

### Question 449

Foreign genes can be inserted into a single plant cell that is then cultured to produce

- A) a genetically modified plant.
- B) genetically modified seeds.
- C) a new plant species.
- D) clones of the organisms from which the genes were taken.

Answer: <https://biology-forums.com/index.php?topic=1882362>

### Question 450

How many generations does it take to develop a new plant species by polyploidy?

- A) 1
- B) 2
- C) 10
- D) about 20

Answer: <https://biology-forums.com/index.php?topic=1883075>

### Question 451

Which of the following environmental factors usually has the greatest direct effect on an organism's rate of water loss by evaporation?

- A) soil type
- B) wind
- C) fires, hurricanes, and tornadoes
- D) barometric pressure

Answer: <https://biology-forums.com/index.php?topic=1882506>

### Question 452

Which of the following occurs during the process of labor?

- A) positive feedback involving oxytocin and prostaglandins
- B) negative feedback involving oxytocin and prostaglandins
- C) positive feedback involving estrogen and human chorionic gonadotropin
- D) negative feedback involving estrogen and human chorionic gonadotropin

Answer: <https://biology-forums.com/index.php?topic=1882120>

### Question 453

Which of the following is an example of secondary structure in a protein?

- A) a particular amino acid sequence
- B) an alpha helix
- C) a globular shape
- D) the joining of two polypeptide chains

Answer: <https://biology-forums.com/index.php?topic=1882798>

### Question 454

Cells migrate from one place to another during gastrulation using

- A) cilia.
- B) cellular protrusions.
- C) flagella.
- D) peristalsis.

Answer: <https://biology-forums.com/index.php?topic=1882108>

### Question 455

To view the path of blood flow through the heart and body, scientists and physicians perform an angiogram by injecting a dye into the blood and monitoring its movement. Imagine that this dye was injected into the pulmonary vein. Which of the following is the correct order of structures that the dye will flow through?

- A) lungs, pulmonary artery, left atrium, left ventricle
- B) left atrium, left ventricle, aorta, body arteries
- C) right atrium, right ventricle, aorta, body arteries
- D) lungs, pulmonary artery, right atrium, right ventricle

Answer: <https://biology-forums.com/index.php?topic=1881888>

### Question 456

The term for a close association between organisms of two or more species is

- A) symbiosis.
- B) interdependence.
- C) associative living.
- D) colonialism.

Answer: <https://biology-forums.com/index.php?topic=1883580>

### Question 457

The secretory parietal cells of the stomach are responsible for producing

- A) mucus.
- B) pepsin.
- C) hydrochloric acid.
- D) lactic acid.

Answer: <https://biology-forums.com/index.php?topic=1883924>

### Question 458

Complement proteins can do all of the following except

- A) enhance phagocytosis by innate immune cells by attaching to cell invaders.
- B) help trigger the inflammatory response.
- C) attack cancer and virus-infected cells after they are released by natural killer cells.
- D) act as chemical signals to recruit more immune cells to the site of infection.

Answer: <https://biology-forums.com/index.php?topic=1881936>

### Question 459

Female inheritance patterns cannot be analyzed by simply studying the X chromosome because

- A) the X chromosome is too large to analyze effectively.
- B) the X chromosome sometimes exchanges genetic information with the Y chromosome.
- C) the X chromosome is obtained from both father and mother.
- D) one X chromosome is deactivated in females.

Answer: <https://biology-forums.com/index.php?topic=1883151>

### Question 460

Which of the following plants has a dominant sporophyte generation and a seed, but no fruit?

- A) fern
- B) pine tree
- C) tulip
- D) moss

Answer: <https://biology-forums.com/index.php?topic=1883673>

### Question 461

Human saliva performs all of the following functions except

- A) neutralizing food acids.
- B) controlling bacterial populations.
- C) hydrolyzing starch.
- D) hydrolyzing proteins.

Answer: <https://biology-forums.com/index.php?topic=1883920>

### Question 462

Sometime after a human baby is born, the expression of fetal hemoglobin ceases and the expression of adult hemoglobin begins. Imagine that a baby is born and this switch from fetal to adult hemoglobin does not occur. In which part of the world would this baby be well-adapted to living?

- A) high-altitude cities
- B) open grasslands
- C) sea level at the beach
- D) a tropical rain forest

Answer: <https://biology-forums.com/index.php?topic=1884076>

### Question 463

A key derived character of sharks and rays that distinguishes them from ray-finned fishes is

- A) jaws and a swim bladder.
- B) vertebrae.
- C) calcified (hard) bones.
- D) a skeleton made of cartilage

Answer: <https://biology-forums.com/index.php?topic=1883796>

### Question 464

A big difference between social learning and imprinting is that

- A) imprinting does not involve a reward.
- B) imprinting can only take place among members of the same species.
- C) social learning has a primarily genetic basis.
- D) social learning is not limited to a sensitive period.

Answer: <https://biology-forums.com/index.php?topic=1882577>

### Question 465

Baby bobcats watched as their mother stalked a rabbit and pounced, catching a meal that was shared by all. The next day, two of the young bobcats were seen stalking a field mouse, which easily escaped from the inexperienced hunters. The young bobcats were learning how to hunt by the process of

- A) social learning.
- B) imprinting.
- C) habituation.
- D) associative learning.

Answer: <https://biology-forums.com/index.php?topic=1882576>

### Question 466

A single water molecule (H<sub>2</sub>O) is held together by

- A) a single covalent bond.
- B) a double covalent bond.
- C) two polar covalent bonds.
- D) hydrogen bonds.

Answer: <https://biology-forums.com/index.php?topic=1882757>

### Question 467

Which of the following clades is most directly related to lancelets?

- A) ray-finned fishes
- B) lampreys
- C) hagfishes
- D) lobe-fins

Answer: <https://biology-forums.com/index.php?topic=1883855>

### Question 468

What is the primary reason that a hot spring will kill a fish placed in it but encourage the growth of certain bacteria?

- A) The high temperatures destroy most of the fish's enzymes, but the specialized bacteria have enzymes adapted to these temperatures.
- B) Fish cannot feed directly on bacteria, but the bacteria can feed on dead fish.
- C) At hot spring temperatures, the metabolic activity of the fish's cells is so rapid that it runs out of food reserves and dies; the bacteria feed on the dead fish.
- D) Bacterial growth at high temperatures is so rapid that it deoxygenates the water and kills the fish.

Answer: <https://biology-forums.com/index.php?topic=1882507>

### Question 469

Which type of fat was found to contribute the most relative risk of developing heart disease?

- A) saturated fat

- B) monounsaturated fat
- C) polyunsaturated fat
- D) trans fat

Answer: <https://biology-forums.com/index.php?topic=1882814>

### Question 470

While cleaning out the attic, you find a packet of seeds that your grandmother gathered from her garden. You plant them outside, and some of them sprout. What was the condition of these germinating seeds while they were in the attic?

- A) The endosperm cells were dead; the embryo cells were alive but inactive.
- B) They were dead, but the embryo cells revived in response to water.
- C) They were alive and very metabolically active.
- D) They were alive but dormant.

Answer: <https://biology-forums.com/index.php?topic=1882352>

### Question 471

The male organ of a flower is the

- A) style.
- B) stamen.
- C) sepal.
- D) carpel.

Answer: <https://biology-forums.com/index.php?topic=1882340>

### Question 472

In all vertebrates, the brain consists of the

- A) cerebrum, forebrain, and hindbrain.
- B) cerebrum, midbrain, and hindbrain.
- C) forebrain, midbrain, and hindbrain.
- D) cerebrum, cerebellum, and hindbrain.

Answer: <https://biology-forums.com/index.php?topic=1882173>

### Question 473

Which of the following statements best represents the theory of pangenesis developed by Hippocrates?

- A) Pregnancy is a spontaneous event, and the characteristics of the offspring are determined by the gods.
- B) Particles called pangenes, which originate in each part of an organism's body, collect in the sperm or eggs and are passed on to the next generation.
- C) Offspring inherit the traits of either the mother or the father, but not both.
- D) Heritable traits are influenced by the environment and the behaviors of the parents.

Answer: <https://biology-forums.com/index.php?topic=1883098>

### Question 474

To be characterized as a chordate, an organism must

- A) display all four key characteristics of Chordata in both the larval and adult stages.
- B) possess a backbone in at least one life stage.
- C) possess a backbone in both the larval and adult stages.
- D) display each of the four key characteristics of the chordates at some point in the life cycle.

Answer: <https://biology-forums.com/index.php?topic=1883770>

### Question 475

The light reactions occur in the \_\_\_\_\_, while the Calvin cycle occurs in the \_\_\_\_\_.

- A) stroma; thylakoid membranes
- B) stroma; nucleus
- C) cytoplasm; thylakoid membrane
- D) thylakoid membranes; stroma

Answer: <https://biology-forums.com/index.php?topic=1883012>

### Question 476

You are adrift in the Atlantic Ocean and, being thirsty, drink the surrounding seawater. As a result,

- A) you quench your thirst.
- B) your cells become turgid.
- C) you dehydrate yourself.

D) your cells lyse from excessive water intake.

Answer: <https://biology-forums.com/index.php?topic=1882915>

### Question 477

"Lucy," who belongs to the group \_\_\_\_\_, was a bipedal hominin with a brain smaller than that of humans.

- A) Australopithecus
- B) Homo erectus
- C) Ardipithecus
- D) Homo habilis

Answer: <https://biology-forums.com/index.php?topic=1883826>

### Question 478

Which of the following statements regarding hypotheses about inheritance is false?

- A) The theory of pangenesis incorrectly suggests that reproductive cells receive particles from somatic cells.
- B) Contrary to the theory of pangenesis, somatic cells do not influence eggs or sperm.
- C) The blending hypothesis does not explain how traits that disappear in one generation can reappear in later generations.
- D) The blending hypothesis suggests that all of the traits of the offspring come from either the mother or the father.

Answer: <https://biology-forums.com/index.php?topic=1883099>

### Question 479

Mononucleosis ("mono") is usually caused by EBV, or the Epstein-Barr virus. Mono is more common in children than in adults because adults usually have developed \_\_\_\_\_ toward the virus.

- A) innate immunity
- B) adaptive immunity
- C) lymphocytes
- D) passive immunity

Answer: <https://biology-forums.com/index.php?topic=1881950>

### Question 480

What type of blood vessel is solely responsible for exchange between the blood and the interstitial fluid?

- A) artery
- B) arteriole
- C) capillary
- D) venule

Answer: <https://biology-forums.com/index.php?topic=1881865>

### Question 481

Which step in this process requires use of restriction enzymes?

- A) step A
- B) step B
- C) step C
- D) step D

Answer: <https://biology-forums.com/index.php?topic=1883365>

### Question 482

Which of the following can contribute to high blood pressure?

- A) regular exercise
- B) eating a heart-healthy diet
- C) smoking
- D) maintaining proper weight

Answer: <https://biology-forums.com/index.php?topic=1881862>

### Question 483

Which part of this seed contains stored food that allows the seed to grow until it can perform photosynthesis?

- A) part A
- B) part B
- C) part C
- D) part D

Answer: <https://biology-forums.com/index.php?topic=1882373>

### Question 484

What is the preferred name of the technique used to determine if DNA comes from a particular individual?

- A) DNA technology
- B) DNA analysis
- C) DNA profiling
- D) DNA microarrays

Answer: <https://biology-forums.com/index.php?topic=1883331>

### Question 485

Which of the following organisms has a respiratory system that does not require assistance from a circulatory system for gas exchange?

- A) grasshopper
- B) mouse
- C) carp
- D) crayfish

Answer: <https://biology-forums.com/index.php?topic=1884001>

### Question 486

Typical animal embryos have \_\_\_\_\_, or external cell layer, and \_\_\_\_\_, which lines the digestive tract.

- A) an ectoderm; a blastula
- B) an ectoderm; an endoderm
- C) an endoderm; an ectoderm
- D) a mesoderm; a gastrula

Answer: <https://biology-forums.com/index.php?topic=1883726>

### Question 487

A scientist produced a batch of recombinant DNase I in *E. coli* cells and a batch in mammalian cells. She placed 0.1 mg of the *E. coli*-derived DNase I in a vial containing a solution of DNA, and she placed 0.1 mg of the mammalian cell-derived DNase I in a separate vial containing the same solution of DNA. The initial viscosity of the DNA solutions was identical. What do you expect the viscosity of the DNA solutions to be after ten minutes have passed, and why?

- A) The viscosity of the mammalian cell DNase I vial will be lower than that of the *E. coli* DNase I vial because the mammalian cell DNase I will be functional and able to degrade the DNA.
- B) The viscosity of the mammalian cell DNase I vial will be higher than that of the *E. coli* DNase I vial because the mammalian cell DNase I will be functional and able to degrade the DNA.
- C) The viscosity of the *E. coli* DNase I vial will be lower than that of the mammalian cell DNase I vial because the *E. coli* DNase I will be functional and able to degrade the DNA.
- D) The viscosity of the *E. coli* DNase I vial will be higher than that of the mammalian cell DNase I vial because the *E. coli* DNase I will be functional and able to degrade the DNA.

Answer: <https://biology-forums.com/index.php?topic=1883374>

### Question 488

The researchers concluded, "These findings support the prediction that recontouring accelerates the rehabilitation of key ecohydrological properties toward reference dynamics." What does this mean?

- A) Recontouring makes the vegetation in the area grow out of control.
- B) Recontouring allows the water properties of the system to return to normal faster.
- C) Abandonment is the better treatment for restoration.
- D) Their original prediction that recontouring would produce greater plant diversity was supported.

Answer: <https://biology-forums.com/index.php?topic=1884117>

### Question 489

Which of the following statements represents a probable explanation for differences among pupfish populations?

- A) The frequency of genotypes reached equilibrium.
- B) New genes entered the population through migration.
- C) The isolated populations had restricted gene pools.
- D) Each new species contains all the original genotypes of the larger populations.

Answer: <https://biology-forums.com/index.php?topic=1883431>

### Question 490

The three greatest current threats to biodiversity, in order starting with the greatest, are

- A) habitat loss, overharvesting, and invasive species.
- B) habitat loss, invasive species, and overharvesting.
- C) invasive species, habitat loss, and overharvesting.
- D) invasive species, overharvesting, and habitat loss.

Answer: <https://biology-forums.com/index.php?topic=1882711>

### Question 491

Kingdom Fungi includes species

- A) such as mushrooms and plants.
- B) that obtain food by ingestion.
- C) that use photosynthesis to obtain food.
- D) that obtain food by decomposing dead organisms and absorbing the nutrients.

Answer: <https://biology-forums.com/index.php?topic=1884093>

### Question 492

Which of the following statements about the functions of a plant cell central vacuole is false?

- A) The central vacuole of a plant cell may help increase the size of cells by absorbing water.
- B) The central vacuole of a plant cell may store waste products.
- C) The central vacuole of a plant cell may digest chemicals for recycling.
- D) The central vacuole of a plant cell may store poisons.

Answer: <https://biology-forums.com/index.php?topic=1882866>

### Question 493

A pregnant woman goes to her obstetrician for her first ultrasound. After the exam is over, the doctor remarks, "It looks like the ribs are still developing, and I might even have seen some tiny fingers and toes." How many weeks pregnant is this woman?

- A) less than 5 weeks
- B) between 5 and 8 weeks
- C) between 8 and 14 weeks
- D) more than 14 weeks

Answer: <https://biology-forums.com/index.php?topic=1882131>

### Question 494

Genetic drift resulting from a disaster that drastically reduces population size is called

- A) natural selection.
- B) gene flow.
- C) the bottleneck effect.
- D) the founder effect.

Answer: <https://biology-forums.com/index.php?topic=1883400>

### Question 495

The acrosome of sperm cells contains an enzyme called hyaluronidase. Which of the following procedures would benefit from the addition of hyaluronidase?

- A) ligating two strands of DNA together
- B) helping a drug to pass through a cell membrane
- C) assisting with mitotic division of skin cells
- D) increasing levels of FSH released from the hypothalamus

Answer: <https://biology-forums.com/index.php?topic=1882129>

### Question 496

One of the most worrisome results of the large-scale clearing and cultivation of land is

- A) erosion and soil degradation.
- B) the inability to supply fresh water.
- C) the inability to supply enough food for growing populations.
- D) hurricanes.

Answer: <https://biology-forums.com/index.php?topic=1882695>

### Question 497

The transfer of heat from arteries carrying warm blood past veins returning cooler blood is an example of

- A) insulation.
- B) countercurrent heat exchange.

- C) evaporative cooling.
- D) behavioral thermoregulation.

Answer: <https://biology-forums.com/index.php?topic=1881979>

### Question 498

Miller-type experiments have shown that

- A) simple cells could be produced in the laboratory using a "soup" of small organic molecules.
- B) complex organic molecules can be produced by physical processes from inorganic components.
- C) living cells could survive in primitive Earth's atmosphere.
- D) given the conditions of early Earth, the formation of life would still require additional materials from meteorites and asteroids.

Answer: <https://biology-forums.com/index.php?topic=1883490>

### Question 499

A woman struggling with a bacterial illness is prescribed a month's supply of a potent antibiotic. She takes the antibiotic for about two weeks and feels much better. Should she save the remaining two-week supply, or should she continue taking the drug?

- A) She should save the drug for later, because if she keeps taking it the bacteria will evolve resistance.
- B) She should save the drug for use the next time the illness strikes.
- C) She should save the drug because antibiotics are in short supply and she may need it to defend herself against a bioterrorism incident.
- D) She should continue taking the drug until her immune system can completely eliminate the infection. Otherwise, some bacteria may remain in her system, and they will probably be resistant.

Answer: <https://biology-forums.com/index.php?topic=1883411>

### Question 500

The two diseases that represent high-priority threats as biological weapons today are

- A) smallpox and typhus.
- B) syphilis and HIV.
- C) anthrax and botulinum toxin.
- D) anthrax and *Thiobacillus*.

Answer: <https://biology-forums.com/index.php?topic=1883584>

### Question 501

Suppose that the circular muscles in an earthworm have become selectively paralyzed such that they are not able to contract. How will this affect the earthworm's locomotion?

- A) The earthworm will be able to elongate, but not get thicker.
- B) The earthworm will be able to get thicker, but not elongate.
- C) The earthworm will not be able to elongate or get thicker.
- D) The earthworm will be able to crawl as normal.

Answer: <https://biology-forums.com/index.php?topic=1882250>

### Question 502

Which of the following endocrine glands synthesizes melatonin?

- A) pineal
- B) adrenal cortex
- C) thyroid
- D) parathyroid

Answer: <https://biology-forums.com/index.php?topic=1882045>

### Question 503

Which of the following growth responses causes the shoots of a plant grown in the dark to grow upward?

- A) phototropism
- B) thigmotropism
- C) photoperiodism
- D) gravitropism

Answer: <https://biology-forums.com/index.php?topic=1882471>

### Question 504

A growth-producing region of cell division, known as a/an \_\_\_\_\_, is found near the tips of stems and roots.

- A) sporangium
- B) cuticle
- C) apical meristem

D) lignin

Answer: <https://biology-forums.com/index.php?topic=1883653>

### Question 505

What is the most likely evolutionary link between bipedalism and changes in the diet of early hominids?

- A) Bipedal species would be more likely to remain in one type of habitat.
- B) Bipedalism led to new farming practices.
- C) It is easier to escape predators with an upright posture.
- D) The greater ability to move to new habitats facilitated exploitation of new foods.

Answer: <https://biology-forums.com/index.php?topic=1883853>

### Question 506

The way the tendons in the legs of a kangaroo aid in locomotion is most like

- A) stepping in mud and the mud spreading out as your foot sinks in.
- B) stretching and contracting a rubber band.
- C) the circular movements of the wheels of an automobile.
- D) smashing an apple to make applesauce.

Answer: <https://biology-forums.com/index.php?topic=1882253>

### Question 507

Which of the following options lists the major groups or genera from the fossil record in the correct order from earliest to most recent?

- A) Australopithecus, Sahelanthropus, Homo
- B) Sahelanthropus, Ardipithecus, Australopithecus, Homo
- C) Ardipithecus, Sahelanthropus, Australopithecus, Homo
- D) Sahelanthropus, Homo, Australopithecus, Ardipithecus

Answer: <https://biology-forums.com/index.php?topic=1883852>

### Question 508

Why does a DNA strand grow only in the 5' to 3' direction?

- A) because DNA polymerases can only add nucleotides to the 3' end of the growing molecule
- B) because DNA polymerases can only add nucleotides to the 5' end of the growing molecule
- C) because the DNA molecule only unwinds in the 5' to 3' direction
- D) because DNA polymerase requires the addition of a starter nucleotide at the 5' end

Answer: <https://biology-forums.com/index.php?topic=1883183>

### Question 509

When an enzyme catalyzes a reaction,

- A) it lowers the activation energy of the reaction.
- B) it raises the activation energy of the reaction.
- C) it acts as a reactant.
- D) it is used once and discarded.

Answer: <https://biology-forums.com/index.php?topic=1882939>

### Question 510

Which of the following statements regarding cnidarians is true?

- A) Cnidarians have three true tissue layers.
- B) The digestive and circulatory compartment of cnidarians is called the gastrovascular cavity.
- C) The more stationary cnidarian body form, which is cylindrical with a ring of tentacles, is the medusa.
- D) Cnidarians are herbivores and can be destructive grazers on seaweeds.

Answer: <https://biology-forums.com/index.php?topic=1883742>

### Question 511

What feature of fats makes them hydrophobic?

- A) Fats have carboxyl groups.
- B) Fats include one glycerol molecule.
- C) Fats have polar fatty acids.
- D) Fats have nonpolar hydrocarbon chains.

Answer: <https://biology-forums.com/index.php?topic=1882789>

### Question 512

What percentage of the daily value of water-soluble vitamins is provided by this package of cookies?

- A) 0%
- B) 2%
- C) 3%
- D) 4%

Answer: <https://biology-forums.com/index.php?topic=1883991>

### Question 513

Which of the following treatments could possibly help to transform the bone on the right to the bone on the left?

- A) wearing long sleeves while out in the sun
- B) swimming for 30 minutes a day
- C) removing calcium from the diet
- D) taking vitamin D supplements

Answer: <https://biology-forums.com/index.php?topic=1882299>

### Question 514

The rate of energy consumption by an animal is called

- A) metabolism.
- B) digestion.
- C) metabolic rate.
- D) glycolysis.

Answer: <https://biology-forums.com/index.php?topic=1883948>

### Question 515

Which of the following types of reproductive barriers separates a pair of species that could interbreed but for the fact that one mates at dusk and the other at dawn?

- A) temporal isolation
- B) habitat isolation
- C) behavioral isolation
- D) mechanical isolation

Answer: <https://biology-forums.com/index.php?topic=1883440>

### Question 516

Complete the analogy: A cuticle is to a nematode as a/an \_\_\_\_\_ is to a/an \_\_\_\_\_.

- A) sock; shoe
- B) raincoat; human
- C) collar; dog
- D) earring; ear

Answer: <https://biology-forums.com/index.php?topic=1883783>

### Question 517

Under which of the following weather conditions would transpiration be most rapid?

- A) hot, humid weather
- B) cold, humid weather
- C) hot, dry weather
- D) windy, wet weather

Answer: <https://biology-forums.com/index.php?topic=1882394>

### Question 518

You unsuccessfully search your room for your math book. Your friend points out that it is on the table in front of you. You overlooked it because it is orange, and you thought it was green. This demonstrates a flaw in your

- A) early imprinting.
- B) social learning.
- C) innate behavior.
- D) search image.

Answer: <https://biology-forums.com/index.php?topic=1882598>

### Question 519

Speciation, or the formation of new species, is

- A) a form of microevolution.
- B) responsible for the diversity of life.
- C) necessary for natural selection and adaptation.
- D) an event that has occurred only a few times in the history of the planet.

Answer: <https://biology-forums.com/index.php?topic=1883434>

### Question 520

Suppose you conduct the study and obtain the results graphed above. What can you conclude about the correlation between anti-HPV antibody levels and incidence of HPV-related cancers?

- A) As antibody levels increase, the incidence of HPV-related cancers consistently increases.
- B) As antibody levels increase, the incidence of HPV-related cancers consistently decreases.
- C) An antibody levels increase, the incidence of HPV-related cancers consistently stays the same.
- D) There is no consistent correlation between anti-HPV antibody levels and the incidence of HPV-related cancers.

Answer: <https://biology-forums.com/index.php?topic=1881973>

### Question 521

Which of the following statements about locomotion is true?

- A) Locomotion requires animals to overcome friction and gravity.
- B) Gravity is a greater locomotion problem for animals in water than for those on land.
- C) Overcoming friction is a greater locomotion problem for land animals than for those that live in water.
- D) Bone strength is more important than body shape in the locomotion of land animals.

Answer: <https://biology-forums.com/index.php?topic=1882251>

### Question 522

If A is dominant to a and B is dominant to b, what is the expected phenotypic ratio of the cross AaBb AaBb?

- A) 16:0:0:0
- B) 8:4:2:2
- C) 1:1:1:1
- D) 9:3:3:1

Answer: <https://biology-forums.com/index.php?topic=1883117>

### Question 523

You are taking someone's blood pressure and are listening to sounds of blood flow just under the blood pressure cuff. If this person is hypertensive and has a blood pressure of 140/90, what would be the blood pressure associated with the first sound you hear?

- A) above 140 mm Hg
- B) between 90 and 140 mm Hg
- C) below 90 mm Hg
- D) between 70 and 120 mm Hg

Answer: <https://biology-forums.com/index.php?topic=1881891>

### Question 524

Large antlers in male elk, which are used for battles between males, are a good example of a trait favored by

- A) intersexual selection.
- B) intrasexual selection.
- C) disruptive selection.
- D) stabilizing selection.

Answer: <https://biology-forums.com/index.php?topic=1883409>

### Question 525

Currently, the single greatest threat to biodiversity is

- A) global warming.
- B) habitat destruction due to humans.
- C) the introduction of exotic species.
- D) overexploitation of populations for food.

Answer: <https://biology-forums.com/index.php?topic=1882709>

### Question 526

- In an ecosystem, you would expect to find interspecific competition between
- A) males and females of a species in which both sexes occupy the same niche.
  - B) populations of two species that occupy the same niche.
  - C) a prey species and its predator.
  - D) two wasp species that mimic each other's appearance.

Answer: <https://biology-forums.com/index.php?topic=1882659>

### Question 527

- Which of the following genetically modified organisms has not been developed by genetic engineers (at least, not yet)?
- A) transgenic rice with genes for milk proteins
  - B) transgenic salmon with a growth hormone gene that allows them to grow more quickly
  - C) transgenic corn with the gene for human insulin
  - D) transgenic pigs with a roundworm gene that allows them to make more omega-3 fatty acids

Answer: <https://biology-forums.com/index.php?topic=1883327>

### Question 528

- Water that is filtered out of the blood by the kidneys is returned to the body through the action of aquaporins. Which of the following statements about water balance disorders is scientifically accurate?
- A) People with heart failure often swell due to too much water from excess numbers of aquaporins.
  - B) Water retention (too much water) in pregnancy can be due to a decreased number of aquaporins.
  - C) Kidney failure and decreased urine production are due to increased numbers of aquaporins.
  - D) Small amounts of urine are produced by people who inherit a defect in the ability to make aquaporins.

Answer: <https://biology-forums.com/index.php?topic=1882955>

### Question 529

Which part of this root tip is the apical meristem?

- A) part A
- B) part B
- C) part C
- D) part D

Answer: <https://biology-forums.com/index.php?topic=1882372>

### Question 530

- The network of neurons that extends through the core of the brainstem and selects information that reaches the cerebral cortex during sleep is the
- A) medulla.
  - B) limbic system.
  - C) reticular formation.
  - D) brainstem core.

Answer: <https://biology-forums.com/index.php?topic=1882184>

### Question 531

- Why is group 1 needed in this experiment?
- A) Group 1 is the standard of comparison for the experimental group.
  - B) Group 1 is the standard of comparison for only adult males.
  - C) Group 1 is the standard of comparison for only adult females.
  - D) Group 1 allows for reliable comparison of all ages of female frogs in the study.

Answer: <https://biology-forums.com/index.php?topic=1882076>

### Question 532

- In what part of the world did the mutation for lactose tolerance first appear?
- A) East Asia
  - B) South America
  - C) northern Europe
  - D) North America

Answer: <https://biology-forums.com/index.php?topic=1882807>

### Question 533

If you focus on the data from the mid-1900s (indicated by the arrow) through today, the graph shows that

- A) there is a correlation between CO<sub>2</sub> and temperature; when CO<sub>2</sub> levels are high, so is temperature.
- B) there is a correlation between CO<sub>2</sub> and temperature; when CO<sub>2</sub> levels are high, temperature is low.
- C) there is no correlation between CO<sub>2</sub> and temperature; CO<sub>2</sub> fluctuates randomly and temperature is constant.
- D) there is no correlation between CO<sub>2</sub> and temperature; CO<sub>2</sub> is constant and temperature fluctuates randomly.

Answer: <https://biology-forums.com/index.php?topic=1883055>

### Question 534

Non-native species that are introduced to new environments, spread far beyond the original point of introduction, and cause damage are called

- A) destructive species.
- B) enemy species.
- C) invasive species.
- D) proprietary species.

Answer: <https://biology-forums.com/index.php?topic=1882679>

### Question 535

Household ammonia has a pH of 12; household bleach has a pH of 13. Which of the following statements about these substances is true?

- A) Both of these substances are strong acids.
- B) The ammonia has 10 times as many OH<sup>-</sup> ions as the bleach.
- C) The ammonia has 10 times as many H<sup>+</sup> ions as the bleach.
- D) A solution that could buffer the bleach and ammonia would remove excess OH<sup>-</sup> ions.

Answer: <https://biology-forums.com/index.php?topic=1882765>

### Question 536

What is the basic difference between exergonic and endergonic reactions?

- A) Exergonic reactions involve ionic bonds; endergonic reactions involve covalent bonds.
- B) Exergonic reactions involve the breaking of bonds; endergonic reactions involve the formation of bonds.
- C) Exergonic reactions release energy; endergonic reactions absorb it.
- D) In exergonic reactions, the reactants have less chemical energy than the products; in endergonic reactions, the opposite is true.

Answer: <https://biology-forums.com/index.php?topic=1882931>

### Question 537

Which of the following statements about DNA technology is false?

- A) DNA technology is now used to mass-produce human insulin.
- B) DNA technology is now used to mass-produce human growth hormone.
- C) DNA technology is now used to create cells that can identify and kill cancer cells.
- D) DNA technology is now used to produce vaccines that are harmless mutants of a pathogen.

Answer: <https://biology-forums.com/index.php?topic=1883325>

### Question 538

Planting these transgenic crops periodically would be beneficial to the environment because

- A) the plants would help clean accumulated salts deposited in the soil by irrigation.
- B) the transgenic plants would fix nitrogen and improve soil fertility.
- C) the plants would remove carbon dioxide and decrease global warming.
- D) the plants would resist diseases and decrease herbicide use.

Answer: <https://biology-forums.com/index.php?topic=1882442>

### Question 539

Mosses belong to the group of plants known as the

- A) angiosperms.
- B) gymnosperms.
- C) bryophytes.
- D) vascular plants.

Answer: <https://biology-forums.com/index.php?topic=1883657>

### Question 540

Which of the following is a likely consequence of thinning of the ozone layer?

- A) increases in skin cancer
- B) increases in escape of heat from Earth
- C) global warming
- D) decreases in flying insect populations

Answer: <https://biology-forums.com/index.php?topic=1882714>

### Question 541

When genetic variation in one nucleotide is found in at least 1% of the population, it is known as a

- A) single nucleotide polymorphism.
- B) short tandem repeat.
- C) recombinant DNA molecule.
- D) genomic library.

Answer: <https://biology-forums.com/index.php?topic=1883340>

### Question 542

Which of the following are threats to the biodiversity of invertebrates?

- A) habitat destruction
- B) non-native (invasive) species
- C) habitat degradation
- D) habitat destruction, non-native (invasive) species, habitat degradation

Answer: <https://biology-forums.com/index.php?topic=1883781>

### Question 543

Two species that sometimes mate and produce vigorous but sterile offspring are affected by

- A) gametic isolation.
- B) reduced hybrid fertility.
- C) reduced hybrid viability.
- D) hybrid breakdown.

Answer: <https://biology-forums.com/index.php?topic=1883443>

### Question 544

Why did the lactose tolerance mutation in the East African herders spread so rapidly within the population?

- A) Milk provided calcium for strong bones.
- B) It was a selective advantage for survival during droughts and cold winters.
- C) Lactose was a better source of energy than glucose.
- D) Milk was a good source of protein during the summer harvests.

Answer: <https://biology-forums.com/index.php?topic=1882808>

### Question 545

The copying mechanism of DNA is most like

- A) taking a picture of yourself and of your reflection in a mirror.
- B) mixing flour, sugar, and water to make bread dough.
- C) dripping water out of a faucet.
- D) carving a figure out of wood.

Answer: <https://biology-forums.com/index.php?topic=1883179>

### Question 546

In populations of the greater prairie chicken in Illinois, genetic diversity was

- A) lost through mutation and restored by natural selection.
- B) lost through genetic drift and restored by natural selection.
- C) lost through gene flow and restored by mutation.
- D) lost through genetic drift and restored by gene flow.

Answer: <https://biology-forums.com/index.php?topic=1883401>

### Question 547

Suppose you use a dissecting microscope to observe organisms that have colonized discs of densely packed, fibrous wood (Masonite plates) that have been submerged in 6 inches of lake water for eight weeks. You see insect cases (protective shelters), insect larvae, and newly emerged insects with wings. You determine that you are looking at an insect species

- A) that undergoes incomplete metamorphosis.
- B) that undergoes complete metamorphosis.

- C) with a body plan of radial symmetry.
- D) with complete digestive tracts.

Answer: <https://biology-forums.com/index.php?topic=1883785>

### Question 548

If the creators of the robot wanted to provide evidence that it is alive, which of the following properties would be best to use as evidence?

- A) The robot can move.
- B) The robot must be bathed in a liquid medium to provide nutrition for its cells.
- C) New robots can be reproduced by researchers using the same manufacturing process.
- D) The robot has two different types of cells, fibroblasts and cardiac cells.

Answer: <https://biology-forums.com/index.php?topic=1884111>

### Question 549

Glucose molecules are to starch as \_\_\_\_\_ are to proteins.

- A) oils
- B) amino acids
- C) fatty acids
- D) monosaccharides

Answer: <https://biology-forums.com/index.php?topic=1882793>

### Question 550

Synthetic auxins are used commercially

- A) to promote seed germination.
- B) to promote flowering in ornamental crops.
- C) to promote side branching to produce bushier crops.
- D) as a broadleaf weed killer.

Answer: <https://biology-forums.com/index.php?topic=1882469>

### Question 551

When a salmon moves from the ocean to a freshwater environment, you would expect its urine volume to \_\_\_\_\_ and its rate of salt absorption to \_\_\_\_\_.

- A) increase; remain the same
- B) increase; increase
- C) decrease; decrease
- D) decrease; increase

Answer: <https://biology-forums.com/index.php?topic=1882027>

### Question 552

Which of the following animals displays radial symmetry?

- A) a worm
- B) a sea anemone
- C) a fish
- D) a lobster

Answer: <https://biology-forums.com/index.php?topic=1883731>

### Question 553

When humans are cold, they often shiver. Shivering increases their \_\_\_\_\_, thereby warming their bodies.

- A) metabolic heat production
- B) insulation
- C) circulatory adaptation
- D) evaporative cooling

Answer: <https://biology-forums.com/index.php?topic=1882012>

### Question 554

Which of these is an example of natural selection acting on genetic variation resulting in evolutionary adaptation?

- A) As global warming has continued, many species that were found near the tropics have migrated either northward or southward toward the poles.
- B) During years of drought, tree rings are narrower.
- C) As the African environment became drier and the grasslands more prevalent, arched feet and non-opposable toes, both more effective for walking upright, became more common in hominins.
- D) Insect diversity in temperate broadleaf forests varies from year to year based on the amount of precipitation.

Answer: <https://biology-forums.com/index.php?topic=1882545>

### Question 555

Which of the following essential macronutrients for plants is obtained directly from the air?

- A) nitrogen
- B) magnesium
- C) hydrogen
- D) carbon

Answer: <https://biology-forums.com/index.php?topic=1882403>

### Question 556

HIV does the greatest damage to

- A) the adrenal glands.
- B) pancreatic cells.
- C) nervous tissue.
- D) white blood cells.

Answer: <https://biology-forums.com/index.php?topic=1883210>

### Question 557

Which of the following statements best describes the true nature of natural selection?

- A) Only the strongest survive.
- B) The strong eliminate the weak in the race for survival.
- C) Organisms change by random chance.
- D) Heritable traits that promote reproduction become more frequent in a population from one generation to the next.

Answer: <https://biology-forums.com/index.php?topic=1883404>

### Question 558

In regard to the baby's colorblindness, a sex-linked recessive trait, you explain that

A man and his wife are having trouble having a baby. Using modern technologies, the woman's eggs are removed, fertilized with her husband's sperm, and implanted into her uterus. The procedure is successful, and the woman gives birth to a healthy baby boy. After a while, though, they discover that their son is colorblind and has blood type O. The woman claims that the child can't be theirs since she has blood type A and her husband has type B. Also, neither parent is colorblind, although one grandparent (the woman's father) is also colorblind.

- A) colorblindness often appears randomly, even if neither parent is colorblind.
- B) the baby's father must have a recessive allele for colorblindness.
- C) since colorblindness is sex-linked, a son can inherit colorblindness if his mother has the recessive colorblindness allele.
- D) the eggs must have been accidentally switched, since males inherit sex-linked traits only from their fathers.

Answer: <https://biology-forums.com/index.php?topic=1883165>

### Question 559

Ventricular contraction normally begins at the apex (bottom of the heart). What would likely happen if ventricular contraction originated at the intersection of the atria and the ventricles instead?

- A) Blood would be pumped through the semilunar valves.
- B) Blood would be pumped through the AV valves.
- C) Blood would be pumped back into the atria.
- D) Blood would be pumped down to the apex of the heart.

Answer: <https://biology-forums.com/index.php?topic=1881890>

### Question 560

Which of the following lines of evidence suggests that lungfishes evolved while Pangaea was intact?

- A) Modern lungfishes on different continents show similar patterns of behavior.
- B) Lungfishes are found today in Africa, Australia, and South America.
- C) Fossil lungfishes have been found on every continent except Antarctica.
- D) Lungfishes are restricted to Australia and neighboring islands.

Answer: <https://biology-forums.com/index.php?topic=1883511>

### Question 561

Plants and fungi first became established on land during the

- A) Archaean.
- B) Proterozoic.
- C) Paleozoic.

D) Cenozoic.

Answer: <https://biology-forums.com/index.php?topic=1883495>

### Question 562

One of the factors that helps animal-pollinated flowering plants transfer pollen to plants of the same species is that

- A) pollinators are able to rapidly extract nectar from any species of flower, regardless of the pollinators' past or recent experience with a given flower type.
- B) most pollinators broadly use many different types of flowers.
- C) many pollinators have limited learning capacities and are most successful at obtaining food if they continue to visit the same type of flower after learning how to extract its nectar.
- D) each species of pollinator typically visits flowers of one and only one plant species.

Answer: <https://biology-forums.com/index.php?topic=1883687>

### Question 563

Which type of vascular tissue cell in a plant is dead at maturity?

- A) vessel elements
- B) companion cells
- C) sieve-tube cells
- D) parenchyma cells

Answer: <https://biology-forums.com/index.php?topic=1882325>

### Question 564

What is the difference between the heartwood and sapwood of a tree?

- A) Heartwood contains xylem, and sapwood contains phloem.
- B) Sapwood contains xylem, and heartwood contains phloem.
- C) Heartwood no longer transports water and minerals, and sapwood still conducts xylem sap.
- D) Heartwood contains old phloem that no longer functions, and sapwood contains functioning phloem.

Answer: <https://biology-forums.com/index.php?topic=1882339>

### Question 565

Which of the following substances, by providing strength, allows sclerenchyma cells to provide support and play a role analogous to that of an animal's skeleton?

- A) lignin
- B) sucrose
- C) starch
- D) chlorophyll

Answer: <https://biology-forums.com/index.php?topic=1882326>

### Question 566

In a moss, most of the plants that we see are \_\_\_\_\_, and in a fern, the most dominant stage is the \_\_\_\_\_.

- A) gametophytes; gametophyte
- B) gametophytes; sporophyte
- C) sporophytes; gametophyte
- D) sporophytes; sporophyte

Answer: <https://biology-forums.com/index.php?topic=1883666>

### Question 567

The technique used to produce the data displayed might be useful for a cancer biologist who wishes to

- A) determine whether a drug can prevent cell division.
- B) determine the effect of a drug on microtubule assembly.
- C) determine the effect of drugs on protein synthesis at various times in the cell cycle.
- D) determine the effect of a drug on mitochondrial function.

Answer: <https://biology-forums.com/index.php?topic=1882890>

### Question 568

A group of ants escaped from a picnic basket carried to the top of a mountain and thrived in this area where there were no other ants. Many years later descendants of these ants crawled into a picnic basket on the mountain and traveled back to the valley from which their ancestors had come. Which of these observations would cause you to conclude that the ants on top of the mountain had become a different species from those in the valley?

- A) The mountain ants and valley ants were different colors.
- B) The mountain ants and valley ants were different sizes.

C) The mountain ants ate different food than the valley ants.

D) The mountain ants could not mate with the valley ants.

Answer: <https://biology-forums.com/index.php?topic=1883463>

### Question 569

In terms of gene regulation, what do eukaryotes and prokaryotes have in common?

A) operons such as the lac operon and the trp operon

B) elaborate packing of DNA into chromosomes

C) activator proteins that bind to DNA

D) promoters that bind RNA polymerases

Answer: <https://biology-forums.com/index.php?topic=1883286>

### Question 570

The process through which species not closely related may come to resemble one another if they live in a similar environment is known as

A) coevolution.

B) homology.

C) convergent evolution.

D) paedomorphosis.

Answer: <https://biology-forums.com/index.php?topic=1883529>

### Question 571

Which is the correct order of steps taken by B and T cells to defend against infection in body fluids and cells?

1. B and T cells move to the lymph nodes, spleen, and other parts of the lymphatic system.

2. B and T cells leave the bone marrow and thymus and move to the bloodstream.

3. B and T cells meet and begin to fight viruses or other infectious agents.

4. B and T cells develop antigen receptors.

A) 4, 2, 1, 3

B) 2, 4, 3, 1

C) 4, 3, 2, 1

D) 2, 4, 1, 3

Answer: <https://biology-forums.com/index.php?topic=1881952>

### Question 572

The shape of a DNA molecule is most like

A) a set of railroad tracks.

B) a wooden ladder.

C) a twisted rope ladder.

D) beads on a string.

Answer: <https://biology-forums.com/index.php?topic=1883176>

### Question 573

Within the lungs, gas exchange occurs across

A) alveoli.

B) bronchioles.

C) diaphragms.

D) bronchi.

Answer: <https://biology-forums.com/index.php?topic=1884018>

### Question 574

You exercised to the point that you were breathing heavily. Your heavy breathing was the result of \_\_\_\_\_ relaying information about the amount of O<sub>2</sub> in your blood to the medulla, which ultimately resulted in your increased rate of breathing.

A) mechanoreceptors

B) electromagnetic receptors

C) chemoreceptors

D) thermoreceptors

Answer: <https://biology-forums.com/index.php?topic=1882208>

### Question 575

The common waste product in bears (mammals) is \_\_\_\_\_, while most saltwater fish get rid of wastes through \_\_\_\_\_.

A) ammonia; urea

- B) uric acid; urea
- C) urea; ammonia
- D) ammonia; uric acid

Answer: <https://biology-forums.com/index.php?topic=1882016>

### Question 576

As electrons move through the mitochondrial space,

- A) NADH is reduced.
- B) water is oxidized.
- C) ATP synthase works by active transport.
- D) the pH of the intermembrane space decreases.

Answer: <https://biology-forums.com/index.php?topic=1882968>

### Question 577

Which of the following statements about microarrays is false?

- A) Microarrays enable scientists to determine the activity of thousands of genes at once.
- B) Microarrays use tiny portions of double-stranded RNA fragments from a large number of genes.
- C) Microarrays are used to determine which genes are active in different tissues or in tissues of different states of health.
- D) Microarrays use fluorescently labeled cDNA molecules to identify particular genes expressed at a particular time.

Answer: <https://biology-forums.com/index.php?topic=1883260>

### Question 578

A pathologist who wants to examine a patient's liver cells to determine if the mitochondria have an internal structural defect will likely need to use a

- A) light microscope.
- B) transmission electron microscope.
- C) scanning electron microscope.
- D) chromatin stain.

Answer: <https://biology-forums.com/index.php?topic=1882842>

### Question 579

Ancestral diploid wheat species had  $2n = 14$  chromosomes. What happened when two of these species hybridized?

- A) They produced a viable, fertile hybrid species with 14 chromosomes.
- B) They produced a hybrid species that could not complete mitosis, so it did not develop properly.
- C) They produced a hybrid species with 14 chromosomes that was sterile because the chromosomes from the two different parent species did not pair up properly in meiosis.
- D) They produced a hybrid species with 28 chromosomes.

Answer: <https://biology-forums.com/index.php?topic=1883458>

### Question 580

The part of corn that is used for fuel or food is the

- A) fruit.
- B) root.
- C) zygote.
- D) flower.

Answer: <https://biology-forums.com/index.php?topic=1882369>

### Question 581

The complex of proteins and DNA in a nondividing cell is called

- A) chromatin.
- B) a nucleolus.
- C) a ribosome.
- D) a lysosome.

Answer: <https://biology-forums.com/index.php?topic=1882853>

### Question 582

Amniocentesis and chorionic villus sampling allow for \_\_\_\_\_ and \_\_\_\_\_ of the fetus so that it can be tested for abnormalities.

- A) imaging; karyotyping
- B) sexing; imaging
- C) karyotyping; biochemical testing
- D) direct observation; biochemical testing

Answer: <https://biology-forums.com/index.php?topic=1883125>

### Question 583

If you carve your initials in the trunk of a tree, will they move up as the tree grows?

- A) Yes. A tree elongates from the ground up.
- B) Yes. Secondary growth will cause them to move up.
- C) No. Elongation occurs just below the tips of growing stems in the apical meristems.
- D) Yes. Growth continues in all parts of a plant throughout its life.

Answer: <https://biology-forums.com/index.php?topic=1882332>

### Question 584

Uplift and formation of a mountain range divide a freshwater snail species into two isolated populations. Erosion eventually lowers the mountain range and brings the two populations together again, but when they mate, the resulting hybrids all produce sterile young. This scenario is an example of

- A) sympatric speciation.
- B) allopatric speciation.
- C) incomplete speciation.
- D) diversifying speciation.

Answer: <https://biology-forums.com/index.php?topic=1883448>

### Question 585

How does phytochrome control flowering?

- A) by determining whether day length exceeds a critical minimum
- B) by determining whether day length is shorter than a critical maximum
- C) by sensing sunrise and sunset
- D) by inducing differentiation of cells in the apical meristem

Answer: <https://biology-forums.com/index.php?topic=1882484>

### Question 586

What are the macronutrients present in most commercial fertilizers?

- A) C, H, and N
- B) N, P, and K
- C) C, N, and P
- D) N, C, and K

Answer: <https://biology-forums.com/index.php?topic=1882406>

### Question 587

Imagine that you are studying a very large population of moths that is isolated from gene flow. A single gene controls wing color. Half of the moths have white-spotted wings (genotype WW or Ww) and half of the moths have plain brown wings (ww). There are no new mutations, individuals mate randomly, and there is no natural selection on wing color. How will  $p$ , the frequency of the dominant allele, change over time?

- A)  $p$  will increase; the dominant allele will eventually take over and become most common in the population.
- B)  $p$  will neither increase nor decrease; it will remain more or less constant under the conditions described.
- C)  $p$  will decrease because of genetic drift.
- D)  $p$  will fluctuate rapidly and randomly because of genetic drift.

Answer: <https://biology-forums.com/index.php?topic=1883398>

### Question 588

Prednisone is a synthetic version of what natural hormone that is often prescribed to individuals who are suffering from redness and swelling due to allergies?

- A) mineralocorticoid
- B) glucocorticoid
- C) estrogen
- D) progestin

Answer: <https://biology-forums.com/index.php?topic=1882066>

### Question 589

Plasmodium, the organism that causes malaria, is a/an

- A) amoeba.
- B) stramenopile.
- C) ciliate.
- D) alveolate.

Answer: <https://biology-forums.com/index.php?topic=1883610>

### Question 590

Which of the following is a unique feature of echinoderms?

- A) bilateral symmetry
- B) a water vascular system
- C) radial symmetry
- D) a deuterostome pattern of development

Answer: <https://biology-forums.com/index.php?topic=1883765>

### Question 591

Living things that live in the polar ice biome include

- A) mosses, lichens, seals, and polar bears.
- B) penguins, seals, moose, and springtails.
- C) mosses, ferns, gulls, and penguins.
- D) lichens, jaguars, gulls, and polar bears.

Answer: <https://biology-forums.com/index.php?topic=1882543>

### Question 592

Which level in the hierarchy shown is a community?

- A) level A
- B) level B
- C) level C
- D) level D

Answer: <https://biology-forums.com/index.php?topic=1884106>

### Question 593

Unlike both smooth and skeletal muscle, cardiac muscle

- A) has cells that contact one another.
- B) has cells that are striated.
- C) generally cannot be contracted at will.
- D) has branched cells.

Answer: <https://biology-forums.com/index.php?topic=1883872>

### Question 594

Where is the organ of Corti?

- A) in the pinna
- B) in the inner ear
- C) in the middle canal
- D) in the Eustachian tube

Answer: <https://biology-forums.com/index.php?topic=1882211>

### Question 595

Integration of sensory stimuli occurs

- A) in highly specialized receptors such as the organ of Corti.
- B) in all receptors.
- C) in the brain.
- D) in the central and peripheral nervous systems.

Answer: <https://biology-forums.com/index.php?topic=1882235>

### Question 596

The most common type of connective tissue in the human body is

- A) fibrous connective tissue.
- B) adipose tissue.
- C) loose connective tissue.
- D) bone.

Answer: <https://biology-forums.com/index.php?topic=1883870>

### Question 597

A woman has been standing in one place without moving for a long time. You walk by and notice that her ankles are swollen. What is a likely explanation for this observation?

- A) Since the woman has not flexed her leg muscles, blood has not moved upward through the veins so stays pooled at her ankles.
- B) The woman's blood pressure has likely increased because of inactivity, and thus the blood has pooled at the her ankles.
- C) Since the woman hasn't flexed her leg muscles, blood has not moved upward through the arteries so stays pooled at her ankles.
- D) The woman's heart rate has likely increased because of inactivity, and thus the blood has pooled at her ankles.

Answer: <https://biology-forums.com/index.php?topic=1881887>

### Question 598

Which type of sensory receptors becomes more sensitive when damaged tissues produce prostaglandins?

- A) deep pressure receptors
- B) utricle hair cells
- C) pain receptors
- D) temperature receptors

Answer: <https://biology-forums.com/index.php?topic=1882206>

### Question 599

Which of the following are found in the interstitial fluid and consume any bacteria and virus-infected cells they encounter?

- A) erythrocytes
- B) leukocytes
- C) macrophages
- D) interferons

Answer: <https://biology-forums.com/index.php?topic=1881912>

### Question 600

The directions for each amino acid in a polypeptide are indicated by a codon that consists of \_\_\_\_\_ nucleotides in an RNA molecule.

- A) five
- B) four
- C) three
- D) two

Answer: <https://biology-forums.com/index.php?topic=1883188>

### Question 601

Oxygen-poor blood is carried from the heart of a mammal to the lungs via the

- A) pulmonary arteries.
- B) pulmonary veins.
- C) superior vena cava.
- D) inferior vena cava.

Answer: <https://biology-forums.com/index.php?topic=1881843>

### Question 602

If *H. floresiensis* were reunited with *H. erectus* at a much later date, but the two populations could no longer interbreed, it would be correct to conclude that

- A) *H. floresiensis* is no longer fertile as a species.
- B) the two groups had been isolated for more than 50,000 years.
- C) *H. floresiensis* has become less fit than *H. erectus*.
- D) a reproductive barrier had evolved.

Answer: <https://biology-forums.com/index.php?topic=1883482>

### Question 603

When you are very nervous, perhaps before you must speak in front of your college class, you notice that your mouth is dry and your heart is racing. This is most likely due to stimulation by the

- A) enteric division of your autonomic nervous system.
- B) sympathetic division of your autonomic nervous system.
- C) parasympathetic division of your autonomic nervous system.
- D) motor division of your parasympathetic nervous system.

Answer: <https://biology-forums.com/index.php?topic=1882172>

### Question 604

Some butterflies can ingest toxic chemicals from the milkweed plants they feed on and then can store those chemicals in their body. Because toxins stored in the butterflies are toxic to birds, the birds avoid eating the butterflies. Which of the following is the best explanation for this situation?

- A) Butterflies that stored the chemicals were never eaten by predators, so those butterflies survived.
- B) Butterflies developed a mutation that led them to be able to store the chemical because they needed to avoid being eaten.
- C) Milkweed plants wanted the butterflies to ingest the chemical so they would no longer feed on the plant, but the butterflies fooled the milkweed by storing the toxic chemicals.
- D) Any butterfly allele that allowed milkweed toxin storage would be likely to persist because butterflies that had it were more likely to survive.

Answer: <https://biology-forums.com/index.php?topic=1883425>

### Question 605

The extracellular matrix attached to cells via glycoproteins may then bind to \_\_\_\_\_ in the plasma membrane.

- A) dynein
- B) collagen
- C) integrins
- D) polysaccharides

Answer: <https://biology-forums.com/index.php?topic=1882878>

### Question 606

Which of the following pieces of evidence would be considered the best for establishing biological relatedness?

- A) birth certificates
- B) pictures from family reunions
- C) testimony from relatives
- D) a very close match in the DNA profile

Answer: <https://biology-forums.com/index.php?topic=1883339>

### Question 607

Species in widely separated but similar biomes often appear to display similar characteristics because of

- A) convergent evolution.
- B) coevolution.
- C) mutations.
- D) evolutionary drift.

Answer: <https://biology-forums.com/index.php?topic=1882523>

### Question 608

Which of the following physiological responses occurs in the human body when it becomes overheated?

- A) slowing of the heart rate
- B) constriction of blood vessels in the skin
- C) increased blood flow to the skin
- D) retention of water

Answer: <https://biology-forums.com/index.php?topic=1881978>

### Question 609

We would expect that a 15-nucleotide sequence that includes a stop codon at the end (as part of the 15-nucleotide sequence) will direct the production of a polypeptide that consists of

- A) two amino acids.
- B) three amino acids.
- C) four amino acids.
- D) five amino acids.

Answer: <https://biology-forums.com/index.php?topic=1883189>

### Question 610

What advantage do free-swimming larvae confer on reef-building corals?

- A) providing reef-building corals with a defense against fishes and other predators
- B) allowing reef-building corals to establish colonies in the deep ocean
- C) increasing survival since coral larvae have exoskeletons of chitin
- D) allowing reef-building corals to expand their populations into new habitats

Answer: <https://biology-forums.com/index.php?topic=1883789>

### Question 611

When a dolphin consumes a large volume of water and electrolytes, it must be able to get rid of large volumes of water via urine and feces. This is an example of the process of

- A) osmoregulation.
- B) convection.
- C) thermoregulation.
- D) countercurrent heat exchange.

Answer: <https://biology-forums.com/index.php?topic=1882008>

### Question 612

If you consume 1 g of each of the following, which will yield the most ATP?

- A) fat
- B) glucose
- C) protein
- D) starch

Answer: <https://biology-forums.com/index.php?topic=1882978>

### Question 613

Cystic fibrosis is a genetic disease that results from a defective CFTR protein that alters ion flow through the cell membrane such that water does not cross the cell membrane. Gene therapy is being used to attempt to help cystic fibrosis patients. Which of the following steps is not needed to develop a gene therapy treatment for cystic fibrosis?

- A) Clone the normal-functioning CFTR gene and make an RNA version of the gene.
- B) Make antibodies to the defective CFTR protein to enhance the patient's immune system.
- C) Remove cells from a patient and infect them with the recombinant virus.
- D) Insert the RNA version of the CFTR gene into a virus.

Answer: <https://biology-forums.com/index.php?topic=1883356>

### Question 614

A student wanted to plant an avocado seed to try to grow an avocado plant, but she could not tell which end of the seed was the bottom and which was the top. She asked her friends what she should do. Which one has the best response?

- A) One friend said it doesn't matter in which direction the seed is planted as long as there is a strong light on the soil, since the shoots will seek the light and turn the seed right side up.
- B) One friend said to put the seed in in any direction, because as the seed is watered, it will be able to detect the direction the water is coming from and point the shoots that way.
- C) One friend suggested a compromise: Put the seed sideways, since gravity will ensure that the shoots grow up and the roots grow down.
- D) One friend said just to put the seed in one direction or the other, because it will only sprout if it is in the right direction, and there's a 50/50 chance that it will be in the right orientation.

Answer: <https://biology-forums.com/index.php?topic=1882490>

### Question 615

When building a nest, a female Fisher's lovebird cuts long strips of vegetation and carries them to the nest site one at a time in her beak. The female peach-faced lovebird cuts short strips and carries them to the nest tucked under her back feathers. Hybrid female offspring cut intermediate-sized strips and attempt to tuck them under back feathers before carrying them in their beak. What does this demonstrate about behavior?

- A) Behavior can be learned from parents.
- B) There is a genetic basis to behavior.
- C) Environment is important in forming behaviors.
- D) Lovebirds can be trained easily.

Answer: <https://biology-forums.com/index.php?topic=1882564>

### Question 616

Which of the following diseases cannot currently be prevented by vaccination?

- A) AIDS
- B) polio
- C) measles
- D) tetanus

Answer: <https://biology-forums.com/index.php?topic=1881923>

### Question 617

Which of the following statements about glands and hormones is true?

- A) The anterior pituitary produces multiple hormones that affect activity of other endocrine glands and cells of the body.
- B) The posterior pituitary produces melatonin, which helps regulate biological rhythms.
- C) The pineal gland is the master control center of the endocrine system.
- D) The hypothalamus is an endocrine gland responsible for producing the hormone calcitonin.

Answer: <https://biology-forums.com/index.php?topic=1882049>

### Question 618

In a certain ecosystem, field mice are preyed on by snakes and hawks. The entry of wild dogs into the system adds another predator of the mice. The most likely short-term result of this addition is

- A) an increase in snake population.
- B) a tendency for hawks to prey on the dogs.
- C) a reduction in numbers of mice.
- D) migration of the hawks to another ecosystem.

Answer: <https://biology-forums.com/index.php?topic=1882674>

### Question 619

Structure in the living world is organized into hierarchical levels. Which of the following correctly lists these from least inclusive to most inclusive?

- A) cell, molecule, organ, organ system, tissue, organism
- B) molecule, cell, tissue, organ, organ system, organism
- C) molecule, cell, organ, organ system, tissue, organism
- D) cell, molecule, tissue, organ, organ system, organism

Answer: <https://biology-forums.com/index.php?topic=1883860>

### Question 620

Which hormone prevents a seed released in the fall from germinating immediately?

- A) auxins
- B) abscisic acid
- C) gibberellins
- D) ethylene

Answer: <https://biology-forums.com/index.php?topic=1882462>

### Question 621

Several primates have been taught to communicate with humans using sign language. This supports the view that animals other than humans can learn through the process of

- A) social learning.
- B) cognition.
- C) trial-and-error learning.
- D) imprinting.

Answer: <https://biology-forums.com/index.php?topic=1882578>

### Question 622

Which of the following statements about plant viruses is false?

- A) Once in a plant, a virus can spread from cell to cell through plasmodesmata.
- B) The genetic material in most plant viruses is RNA.
- C) Preventing infections and breeding resistant plants can control viral infection in plants.
- D) There are many successful ways to rid infected plants of a virus.

Answer: <https://biology-forums.com/index.php?topic=1883207>

### Question 623

If a person sits on a cool floor, heat from that person is transferred to the floor. This is an example of

- A) convection.
- B) radiation.
- C) conduction.
- D) evaporation.

Answer: <https://biology-forums.com/index.php?topic=1882010>

### Question 624

All of the trees in an orchard were derived from the same rootstock, but half had scion "A" grafted and the other half had a different scion, scion "B," grafted. The trees that were grafted with scion "A" developed large fruits. What characteristics do you think the fruit from the trees that were grafted with scion "B" will have and why?

All apples in the United States, regardless of variety or where they're purchased, are produced by cloning. For more than 2,000 years, apple growers around the world have used a type of cloning called grafting to produce larger, better-tasting apples. Why has cloning become the primary method of apple growing? Apples grown from seeds usually don't produce apples with the same taste and appearance as that of the parent tree because there's a high degree of genetic variability among the seeds. Making identical genetic copies of the preferred fruit is the only way to get reliable apple quality. In grafting, the shoots and branches of the desired fruit, called a scion, are attached onto the trunk and root system of a previously existing tree, called the rootstock. Both components of the graft are needed because the rootstock controls gene expression in the scion, triggering production of apples that match the cloned scion.

- A) The fruits will be large because the trees share the same rootstock.
- B) The fruits will be large because all scions produce the same kind of fruits.
- C) The fruits will be small because the trees share the same rootstock.
- D) There is not enough information to know what the fruit will look like

Answer: <https://biology-forums.com/index.php?topic=1883304>

### Question 625

In which part of the human female reproductive system does fertilization normally take place?

- A) part A
- B) part B
- C) part C
- D) part D

Answer: <https://biology-forums.com/index.php?topic=1882134>

### Question 626

In an average ecosystem, about how much energy is present in the organisms at a given trophic level compared to the organisms at the next higher trophic level?

- A) a tenth as much
- B) half as much
- C) twice as much
- D) ten times as much

Answer: <https://biology-forums.com/index.php?topic=1882684>

### Question 627

The type of repetitive DNA composed of sequences of large repeated units is often associated with

- A) tandem repeats.
- B) transposable elements.
- C) sex-linked genes.
- D) transcription factors.

Answer: <https://biology-forums.com/index.php?topic=1883344>

### Question 628

Which of the following statements is true for all types of passive transport?

- A) Proteins are needed to transport molecules across the membrane.
- B) The concentration gradient is the driving force.
- C) Only small polar molecules are able to cross the plasma membrane.
- D) Ions never cross the plasma membrane by passive transport.

Answer: <https://biology-forums.com/index.php?topic=1882917>

### Question 629

There is a mutation in the operator of the lac operon in a cell such that the lac repressor always stays bound to the operator. If lactose is added to the cell, what will happen?

- A) Lactose will bind to the repressor, and lac enzymes will be produced.
- B) Lactose will bind to the repressor, and lac enzymes will not be produced.
- C) Lactose will not bind to the repressor, and lac enzymes will be produced.
- D) Lactose will bind to the operator, and lac enzymes will be produced.

Answer: <https://biology-forums.com/index.php?topic=1883289>

### Question 630

Autotrophs that utilize light as their energy source are

- A) chemosynthetic autotrophs.
- B) photoautotrophs.

- C) fungi.
- D) heterotrophs.

Answer: <https://biology-forums.com/index.php?topic=1883000>

### Question 631

Structurally, a sarcomere is

- A) the region between two thick filaments.
- B) the region between two Z lines.
- C) an array of Z units.
- D) the region between a thick filament and the next thin filament.

Answer: <https://biology-forums.com/index.php?topic=1882277>

### Question 632

The level of ecologic organization that incorporates abiotic factors is the

- A) community.
- B) ecosystem.
- C) population.
- D) species.

Answer: <https://biology-forums.com/index.php?topic=1882502>

### Question 633

Which enzyme breaks large polypeptides into smaller polypeptides?

- A) amylase
- B) lipase
- C) lactase
- D) chymotrypsin

Answer: <https://biology-forums.com/index.php?topic=1883938>

### Question 634

Birds, like other animals, must eliminate ammonia or urea. They do so by converting it to

- A) amino acids.
- B) ammonium ions.
- C) sodium chloride.
- D) uric acid.

Answer: <https://biology-forums.com/index.php?topic=1881990>

### Question 635

Which of the following provides the best evidence to help develop a hypothesis about what is causing the difficulties faced by a coastal condor population?

- A) Sea lions, food for condors along the coast, live near an old dumping ground for a chemical manufacturing plant and have a significant amount of DDT in their blubber.
- B) Air currents along the coast are stronger, allowing coastal condors to cover more area in their search for prey.
- C) California bans ammunition containing lead (Pb) to prevent lead ingestion by condors feeding on carcasses of animals shot by hunters but not retrieved.
- D) Hatching success in birds farther from the coast was greater than that in birds along the coast.

Answer: <https://biology-forums.com/index.php?topic=1882555>

### Question 636

The relationship between spinal nerves and the spinal cord is most like the relationship between

- A) the hairs on a person's head.
- B) the vertical and horizontal threads woven together to form a piece of cloth.
- C) an interstate highway and the many roads that intersect with it via on- and off-ramps.
- D) a bowl of spaghetti and the sauce that is poured onto it.

Answer: <https://biology-forums.com/index.php?topic=1882167>

### Question 637

Compared to conventional agriculture, organic farming

- A) uses fewer synthetic pesticides.
- B) increases crop yields.
- C) guarantees the safety and extra health benefits of food.

D) requires much less hands-on work.

Answer: <https://biology-forums.com/index.php?topic=1882414>

### Question 638

Why are most plants green?

- A) Chlorophyll a reflects green light.
- B) Chlorophyll a absorbs green light.
- C) Chlorophyll b primarily uses green light as the source of energy for photosynthesis.
- D) Green helps plants blend into their environment as a sort of camouflage.

Answer: <https://biology-forums.com/index.php?topic=1883017>

### Question 639

A population of butterflies has an allele B for big spots on the wings and b for small spots on the wings. The table below provides data about this population.

Genotype BBBbbb

Number of butterflies 300400300

Genotype frequency 0.30.40.3

Regarding these data about the butterfly population, which of the following statements is correct?

- A) The population is in Hardy-Weinberg equilibrium because the number of B alleles is equal to the number of b alleles.
- B) The population is in Hardy-Weinberg equilibrium because half of the heterozygotes are B and half are b.
- C) The population is not in Hardy-Weinberg equilibrium because  $p^2$  and  $2pq$  are different.
- D) The population is not in Hardy-Weinberg equilibrium because the genotype frequency of bb is greater than it would be in equilibrium.

Answer: <https://biology-forums.com/index.php?topic=1883420>

### Question 640

Which of the following statements regarding animal digestive systems is false?

- A) We expect that an herbivore will have a longer alimentary canal than a carnivore of similar body size.
- B) Meat is more difficult to digest than vegetable matter because of its protein content.
- C) Many herbivorous animals have cellulose-digesting microbes in their colon and cecum.
- D) When cows chew their cud, it helps to soften and break down plant fibers, making these more accessible to digestion by microbes.

Answer: <https://biology-forums.com/index.php?topic=1883942>

### Question 641

Which of the following hormones is released by neurosecretory cells extending from the hypothalamus?

- A) estrogen
- B) growth hormone
- C) oxytocin
- D) calcitonin

Answer: <https://biology-forums.com/index.php?topic=1882050>

### Question 642

The kind of vegetation in a tropical rain forest is generally determined by the amount of

- A) rainfall.
- B) organic material in the soil.
- C) minerals in the soil.
- D) light.

Answer: <https://biology-forums.com/index.php?topic=1882526>

### Question 643

Which of the following best expresses the concept of natural selection?

- A) differential reproductive success based on inherited characteristics
- B) inheritance of acquired characteristics
- C) change in response to need
- D) a process of constant improvement, leading eventually to perfection

Answer: <https://biology-forums.com/index.php?topic=1883383>

### Question 644

What is the transcription product of the sequence GCTAGCGATGAC?

- A) CGTUCGCUTCUG
- B) CGAUCGCUACUG

- C) CAGTAGCGATCG
- D) CGUTCGCUTCUG

Answer: <https://biology-forums.com/index.php?topic=1883220>

### Question 645

The dominant herbivores in savannas are

- A) gophers.
- B) insects.
- C) antelope.
- D) giraffes.

Answer: <https://biology-forums.com/index.php?topic=1882529>

### Question 646

Grass shoots bend toward the light because, on the shadowed side, a(n)

- A) reduction in auxin levels promotes cell elongation.
- B) reduction in auxin levels prevents cell elongation.
- C) increase in auxin levels promotes cell elongation.
- D) increase in auxin levels promotes cell division.

Answer: <https://biology-forums.com/index.php?topic=1882445>

### Question 647

Scientists believe that a major factor promoting the adaptive radiation of mammals was probably

- A) their development of fur.
- B) the mass extinction of most dinosaurs, an event that opened up new ecological opportunities.
- C) internal fertilization.
- D) the origin and diversification of flowering plants.

Answer: <https://biology-forums.com/index.php?topic=1883519>

### Question 648

Microfilaments differ from microtubules in that microfilaments

- A) are thicker than microtubules.
- B) are found only in plants, whereas microtubules are found in both plant and animal cells.
- C) are mainly composed of actin, whereas microtubules are composed of tubulin.
- D) help to anchor organelles, whereas microtubules primarily function to help cells change shape and move.

Answer: <https://biology-forums.com/index.php?topic=1882874>

### Question 649

Barry Marshall and his collaborators showed that

- A) lifestyle factors such as stress, diet, and smoking cause chronic gastritis and stomach ulcers.
- B) lab animals are easily infected by *Helicobacter pylori*.
- C) *Helicobacter pylori* bacteria are protective against peptic ulcers.
- D) *Helicobacter pylori* bacteria cause chronic gastritis and stomach ulcers.

Answer: <https://biology-forums.com/index.php?topic=1883583>

### Question 650

Which of the following statements about ecosystems is false?

- A) Bacteria and fungi recycle energy within an ecosystem.
- B) Plants and other photosynthetic organisms are producers in ecosystems.
- C) Chemical nutrients cycle within an ecosystem.
- D) In the process of energy conversions within an ecosystem, some energy is converted to heat.

Answer: <https://biology-forums.com/index.php?topic=1884089>

### Question 651

Fish that quickly and accurately sense the location of a nearby motionless fish in cloudy water are probably using

- A) electromagnetic receptors.
- B) photoreceptors.
- C) chemoreceptors.
- D) pain receptors.

Answer: <https://biology-forums.com/index.php?topic=1882209>

### Question 652

An animal digestive tract that consists of two openings (a mouth and anus) is called

- A) an excretory system.
- B) an alimentary canal.
- C) an intestine.
- D) an avian (bird) crop.

Answer: <https://biology-forums.com/index.php?topic=1883912>

### Question 653

Diane Dodd's experiments using fruit flies demonstrated that

- A) the evolution of reproductive barriers occurs much too slowly to produce measurable effects in the laboratory.
- B) new species can form in a single generation by the production of new reproductive structures.
- C) formation of a reproductive barrier between two populations is more likely if they experience and adapt to different environmental conditions.
- D) reproductive barriers usually are absolute: Either two populations are fully willing and able to interbreed, or they are strictly separated by a fully effective reproductive barrier.

Answer: <https://biology-forums.com/index.php?topic=1883451>

### Question 654

Most homeostasis depends on

- A) positive feedback control.
- B) negative feedback control.
- C) hormonal regulation.
- D) predictable environmental conditions.

Answer: <https://biology-forums.com/index.php?topic=1883890>

### Question 655

Genome sequence analysis suggests that Neanderthals

- A) never interbred with humans.
- B) are more closely related to chimpanzees than humans.
- C) at least sometimes had pale skin and red hair.
- D) could not speak.

Answer: <https://biology-forums.com/index.php?topic=1883349>

### Question 656

Blood clots are formed by platelets and the plasma protein

- A) thrombin.
- B) sealin.
- C) hemophilin.
- D) fibrinogen.

Answer: <https://biology-forums.com/index.php?topic=1881877>

### Question 657

A child is brought to the hospital with a fever of 107F. Doctors immediately order an ice bath to lower the child's temperature. Which of the following statements offers the most logical explanation for this action?

- A) Elevated body temperature will increase reaction rates in the child's cells and overload the limited number of enzymes found in the cell.
- B) Elevated body temperatures may denature enzymes. This would interfere with the cell's abilities to catalyze various reactions.
- C) Elevated body temperatures will increase the energy of activation needed to start various chemical reactions in the body. This will interfere with the ability of enzymes to catalyze vital chemical reactions.
- D) Elevated body temperatures cause molecules to vibrate more quickly and prevent enzymes from easily attaching to reactants. This would slow vital body reactions.

Answer: <https://biology-forums.com/index.php?topic=1882942>

### Question 658

Multicellular organisms evolved from three different ancestral lineages: alveolates, unikonts, and archaeplastids. Of these, fungi and animals evolved from two different lineages of \_\_\_\_\_, and land plants are \_\_\_\_\_.

- A) alveolates; unikonts
- B) alveolates; archaeplastids
- C) unikonts; archaeplastids
- D) archaeplastids; unikonts

Answer: <https://biology-forums.com/index.php?topic=1883622>

### Question 659

If you travel through Ecuador from west to east, you will pass through tundra, taiga, temperate forest, and tropical forest. Which of the following climatic factors remains constant on such a trip?

- A) maximum temperature
- B) average rainfall
- C) soil type
- D) day length

Answer: <https://biology-forums.com/index.php?topic=1882513>

### Question 660

Which of the following statements about herpesviruses is false?

- A) Herpesviruses reproduce inside the host cell's mitochondria.
- B) Herpesviruses acquire their envelopes from the host cell nuclear membrane.
- C) Herpesviruses may remain dormant for long periods of time while inside the host cell nucleus.
- D) Herpesviruses may cause cold sores or genital sores to appear during times of physical or emotional stress.

Answer: <https://biology-forums.com/index.php?topic=1883206>

### Question 661

In stimulus detection, sensory receptor cells convert a stimulus

- A) into a neurotransmitter.
- B) into an enzyme.
- C) into an electric signal.
- D) into an astigmatism.

Answer: <https://biology-forums.com/index.php?topic=1882203>

### Question 662

The two main classes of molecules that function as hormones are steroid hormones and hormones that are derived from

- A) amino acids.
- B) cholesterol.
- C) nucleic acids.
- D) long-chain fatty acids.

Answer: <https://biology-forums.com/index.php?topic=1882036>

### Question 663

The growth that pushes a root down through the soil takes place through

- A) cell elongation at the tip of the root cap.
- B) cell division in the apical meristem.
- C) cell elongation behind the root tip.
- D) differentiation of xylem cells in the apical meristem.

Answer: <https://biology-forums.com/index.php?topic=1882331>

### Question 664

In 2012, scientists discovered that colonies of single-celled organisms can be found in high numbers in the human gut. Scientists are particularly concerned with the colonies that produce methane, as methane in the human gut can be linked to constipation and irritable bowel syndrome (IBS). The scientists can classify these colonies as belonging to the domain

- A) Archaea.
- B) Bacteria.
- C) Eukarya.
- D) Protista.

Answer: <https://biology-forums.com/index.php?topic=1883630>

### Question 665

The Mesozoic era is often called the age of reptiles. Which of the following also occurred during this era?

- A) the origin of animals in the oceans
- B) the appearance of the first plants on land
- C) the appearance of the first animals (tetrapods and insects) on land
- D) the appearance of the first mammals and flowering plants on land

Answer: <https://biology-forums.com/index.php?topic=1883502>

### Question 666

- The number of proteins in humans
- A) is approximately equal to the number of genes.
  - B) cannot be determined because the human genome is too complex.
  - C) is less than half the number of genes.
  - D) is much greater than the number of genes.

Answer: <https://biology-forums.com/index.php?topic=1883348>

### Question 667

- How does inhibition of an enzyme-catalyzed reaction by a competitive inhibitor differ from inhibition by a noncompetitive inhibitor?
- A) Competitive inhibitors interfere with the enzyme; noncompetitive inhibitors interfere with the reactants.
  - B) Competitive inhibitors bind to the enzyme reversibly; noncompetitive inhibitors bind to it irreversibly.
  - C) Competitive inhibitors change the enzyme's tertiary structure; noncompetitive inhibitors cause polypeptide subunits to dissociate.
  - D) Competitive inhibitors bind to the active site of the enzyme; noncompetitive inhibitors bind to a different site.

Answer: <https://biology-forums.com/index.php?topic=1882944>

### Question 668

You are a medical student and are reviewing a case study about a past patient. The patient was 4 feet 8 inches tall at age 38, was unable to have children, and had an above-average intelligence. The patient also had an irregular number of chromosomes. What diagnosis would you give the patient?

- A) Turner syndrome
- B) Down syndrome
- C) Klinefelter syndrome
- D) chronic myelogenous leukemia

Answer: <https://biology-forums.com/index.php?topic=1883087>

### Question 669

Independent orientation of chromosomes at metaphase I and random fertilization are most like

- A) shuffling cards and dealing out hands of poker.
- B) cutting up a pie into eight even-sized slices.
- C) alphabetizing files in a filing cabinet.
- D) pairing up similar socks after washing your clothes.

Answer: <https://biology-forums.com/index.php?topic=1883068>

### Question 670

Which part of the life cycle does a pollen grain represent?

- A) a spore
- B) a sperm cell
- C) a male gametophyte
- D) a male sporophyte

Answer: <https://biology-forums.com/index.php?topic=1883671>

### Question 671

Which of the following statements about genome sequencing is false?

- A) The genomes of nearly 7,000 species have been completely sequenced.
- B) The first eukaryotic organism to have its genome sequenced was yeast.
- C) Most of the genomes that have been sequenced to date are eukaryotes.
- D) The genome of a mouse has been sequenced.

Answer: <https://biology-forums.com/index.php?topic=1883341>

### Question 672

A normal BMI (body mass index) for a person who is 6' 1" and weighs 150 pounds would be

- A) approximately 18.5-20.
- B) approximately 23-24.
- C) approximately 17.5-18.5.
- D) approximately 25-26.

Answer: <https://biology-forums.com/index.php?topic=1883979>

### Question 673

You find a small, elongated animal embedded in the sand with one end sticking out. Among other things, it has segmental musculature, a coelom, a notochord, and a complete digestive tract with an anus located partway down the body. This animal is

- A) an annelid.
- B) a larval echinoderm.
- C) either a larval echinoderm or a chordate.
- D) a chordate.

Answer: <https://biology-forums.com/index.php?topic=1883772>

### Question 674

Why is the runoff from fertilized agricultural fields, even if free of pesticides, often harmful to the ecosystems of temperate lakes?

- A) Fertilizer compounds are toxic to fish.
- B) The runoff causes heavy growth of algae, which eventually die and decompose, causing oxygen depletion.
- C) Runoff water pools at the lake's bottom, where the fertilizer compounds react with materials in the sediment to form toxic substances.
- D) The runoff is acid, and acidification kills key lake organisms.

Answer: <https://biology-forums.com/index.php?topic=1882522>

### Question 675

In order to add the gene for human insulin to a bacterial plasmid, the DNA molecules have to be "cut" with enzymes called restriction endonucleases and then pasted back together with enzymes called DNA ligases. Imagine that during this process, the first five nucleotides of the human insulin gene were accidentally cut out before it was pasted into the bacterial plasmid. What is the most likely outcome if this plasmid was added to bacterial cells? Diabetes mellitus is a metabolic disease that is characterized by the buildup of glucose in the blood, or hyperglycemia. Diabetes results either from the pancreas not being able to produce the hormone insulin (type 1 diabetes) or if the body's cells become resistant to insulin (type 2 diabetes). Insulin is a protein that binds to receptors on cell surfaces to allow glucose to enter the cell.

In order to manage the disease, type 1 diabetics require frequent insulin injections. Until the 1970s, insulin was obtained from processing the pancreases of large mammals such as cows and pigs; it was then purified for medicinal use. This all changed in the 1970s with the advent of recombinant DNA technology, which allows scientists to insert genes from other species into bacterial plasmids and have bacteria produce proteins from these other species' genes. In 1978, the gene that codes for human insulin was added to a bacterial plasmid and bacteria were used to produce human insulin. These bacteria acted as mini-factories that produced human insulin for type 1 diabetes patients. Today, the production of human insulin from bacteria is commonplace and is a multibillion dollar market for pharmaceutical companies.

- A) Transcription would not take place because the RNA polymerase would not recognize the promoter.
- B) The human insulin protein would be produced as normal.
- C) The human insulin protein would not be produced because the start codon is missing.
- D) The human insulin protein would be shorter than normal because it will be missing one amino acid.

Answer: <https://biology-forums.com/index.php?topic=1883236>

### Question 676

Which of the following is an effect of interleukin-2?

- A) stimulating helper T cells to divide
- B) stimulating mast cells to release histamine
- C) stimulating antigen-presenting cells
- D) modulating macrophage phagocytosis

Answer: <https://biology-forums.com/index.php?topic=1881940>

### Question 677

Why is the whole-genome shotgun method currently the tool of choice for analyzing genomes?

- A) It is extremely accurate.
- B) Multiple genomes can be analyzed simultaneously.
- C) It is fast and inexpensive.
- D) It is very labor-intensive.

Answer: <https://biology-forums.com/index.php?topic=1883346>

### Question 678

\_\_\_\_\_ spend almost all of their time on the ground, instead of in trees.

- A) Gorillas
- B) Orangutans
- C) Gibbons
- D) Chimpanzees

Answer: <https://biology-forums.com/index.php?topic=1883820>

### Question 679

If you eat a hamburger, you are mainly eating ground-up beef muscle. What levels of organization are represented in this ground-up muscle?

- A) organism, population, and community
- B) organ, organ system, and organism
- C) organelle, cell, and tissue
- D) tissue, organ, and organ system

Answer: <https://biology-forums.com/index.php?topic=1884087>

### Question 680

Which of the following contributes to gas exchange in the human fetus?

- A) the lower blood pH of the embryo
- B) the lack of turbulence in fetal blood
- C) the high oxygen levels maintained in the amniotic fluid by the placenta
- D) the stronger attraction that fetal hemoglobin has for oxygen when compared to adult hemoglobin

Answer: <https://biology-forums.com/index.php?topic=1884040>

### Question 681

Why don't the countries that most need high-protein crops grow them?

- A) High-protein crops usually require fertilizers, which may not be affordable to these countries.
- B) High-protein crops require extensive irrigation, which may not be affordable to these countries.
- C) High-protein crops are more difficult to process, making the foods they produce too expensive.
- D) High-protein crops are typically low in most other vital nutrients.

Answer: <https://biology-forums.com/index.php?topic=1882415>

### Question 682

Many rats were tested for their ability to learn to navigate a maze. The average number of errors, for a total of 14 trials, was 64 per rat. The rats that made the fewest errors were bred to each other, and the offspring were tested in a similar way. This process was repeated for seven generations, at which point the average number of errors for 14 trials was 36. This experiment demonstrates that

- A) learned behavior cannot be inherited.
- B) maze-learning ability has a genetic basis.
- C) maze-learning ability depends mainly on early contact with adept parents.
- D) natural selection has a role in the evolution of fixed action patterns but not in the evolution of behavior involving learning.

Answer: <https://biology-forums.com/index.php?topic=1882565>

### Question 683

The liquid part of the blood that consists of water, salts, and dissolved proteins is known as

- A) interstitial fluid.
- B) lymph.
- C) plasma.
- D) platelets.

Answer: <https://biology-forums.com/index.php?topic=1883867>

### Question 684

In 2012, scientists studied modern *Marchantia* liverwort plants and observed that they not only are able to make their own food using energy from sunlight but also absorb chemical nutrients from plant material in aquatic environments. They classified this plant as a

- A) chemoheterotroph.
- B) photoautotroph.
- C) mixotroph.
- D) chemoautotroph.

Answer: <https://biology-forums.com/index.php?topic=1883625>

### Question 685

Which of the following is considered a likely explanation for the events of the Cambrian explosion?

- A) Complex predator-prey relationships and increased atmospheric oxygen levels promoted animal diversification.
- B) A great surge of volcanic activity was triggered by significant movements of the continental plates and possibly by an asteroid impact.
- C) Solar flares led to increased UV radiation intensity, which in turn promoted a high rate of mutation. This led to rapid diversification of animals.
- D) The massive growth of swamp vegetation depleted the atmosphere's carbon dioxide and eventually cooled the Earth's climate.

Answer: <https://biology-forums.com/index.php?topic=1883729>

### Question 686

Normal genes have a promoter followed by a start codon. In a mutant gene, the "A" in the start codon has been deleted. Which of the following is not a possible outcome?

- A) The normal protein will be produced.
- B) A shorter protein will be produced.
- C) A longer protein will be produced.
- D) No protein will be produced.

Answer: <https://biology-forums.com/index.php?topic=1883227>

### Question 687

Some RNA molecules can function like enzymes. These particular enzymatic RNA molecules are called

- A) ribosomes.
- B) mRNA.
- C) ribozymes.
- D) RNase.

Answer: <https://biology-forums.com/index.php?topic=1883493>

### Question 688

Prokaryotic cell walls function

- A) to promote flexibility and formation of pseudopodia.
- B) to prevent the cell from bursting in a hypotonic environment.
- C) to propel cells (locomotion).
- D) as a site of metabolic reactions (photosynthesis and cellular respiration).

Answer: <https://biology-forums.com/index.php?topic=1883563>

### Question 689

Which of the following variations of the sentence "Where is the cat?" is most like a chromosomal deletion?

- A) Where is cat?
- B) Where is the the cat?
- C) Where the is cat?
- D) Where is cat the the cat?

Answer: <https://biology-forums.com/index.php?topic=1883076>

### Question 690

The energy yield from the breakdown of a single molecule of glucose does not depend upon

- A) whether the NADH produced in glycolysis passes its electrons across the mitochondrial membrane to NAD<sup>+</sup> or FAD.
- B) the supply of oxygen.
- C) the supply of carbon dioxide.
- D) whether some of the energy of the H<sup>+</sup> gradient is used for work other than ATP production.

Answer: <https://biology-forums.com/index.php?topic=1882970>

### Question 691

Home pregnancy test kits work by detecting the presence of a hormone in a woman's urine. Recently developed test kits include an indicator of how long the woman has been pregnant (1-2, 2-3, or 3+ weeks). The presence of \_\_\_\_\_ would indicate that a woman is pregnant, and \_\_\_\_\_ levels of this hormone would indicate that she is farther along in her pregnancy.

- A) HCG; low
- B) HCG; high
- C) FSH; low
- D) FSH; high

Answer: <https://biology-forums.com/index.php?topic=1882127>

### Question 692

Which of the following statements regarding the urinary system is true?

- A) Bowman's capsule envelops the glomerulus.
- B) Most glomeruli are located in the renal medulla.
- C) The urinary bladder receives ammonia for excretion.
- D) The urethra is responsible for transporting urea from the kidney to the urinary bladder.

Answer: <https://biology-forums.com/index.php?topic=1881994>

### Question 693

Your friend is complaining of middle back pain. She also says that she hurts the most near her spine. What part of her back may have been injured?

- A) cervical vertebrae
- B) sacral vertebrae
- C) lumbar vertebrae
- D) thoracic vertebrae

Answer: <https://biology-forums.com/index.php?topic=1882296>

### Question 694

The human wrist is very agile, but because of this agility it is also very prone to injuries involving the tissue connecting the wrist bones. This statement illustrates

- A) that animal structures are not perfect.
- B) that connective tissue can be damaged.
- C) that muscle tissue can be damaged.
- D) both A and B

Answer: <https://biology-forums.com/index.php?topic=1883893>

### Question 695

Which of the following statements regarding the definition of species is false?

- A) The ecological species concept identifies species in terms of their ecological niches.
- B) The phylogenetic species concept defines a species as a set of organisms that shares a common ancestor and forms one branch on the tree of life.
- C) The morphological species concept relies upon comparing the DNA sequences of organisms.
- D) Under the biological species concept, the gap between species is maintained by reproductive isolation.

Answer: <https://biology-forums.com/index.php?topic=1883437>

### Question 696

If Charles gets married and starts a family, which of the following chromosomal abnormalities has an increased chance of occurring in his children?

- A) YO
- B) YY
- C) XO
- D) XXY

Answer: <https://biology-forums.com/index.php?topic=1883093>

### Question 697

All the offspring of a cross between a red-flowered plant and a white-flowered plant have pink flowers. This means that the allele for red flowers is \_\_\_\_\_ to the allele for white flowers.

- A) dominant
- B) codominant
- C) incompletely dominant
- D) recessive

Answer: <https://biology-forums.com/index.php?topic=1883129>

### Question 698

If Hershey and Chase had used radioactive oxygen in their experiments instead of phosphorus and sulfur, what results would they have likely obtained?

- A) They would have observed a radioactive signal in the pellet only.
- B) They would have observed a radioactive signal in the liquid only.
- C) They would have observed a radioactive signal in both the pellet and the liquid.
- D) They would have not observed radioactivity anywhere.

Answer: <https://biology-forums.com/index.php?topic=1883225>

### Question 699

Which of the following serves as an impenetrable barrier that prevents more than one sperm from fertilizing an egg?

- A) the acrosome
- B) the jelly coat of the egg
- C) the sperm's plasma membrane
- D) the vitelline layer

Answer: <https://biology-forums.com/index.php?topic=1882099>

### Question 700

At what point on the graph is the sarcomere the most extended?

- A) point A
- B) point B
- C) point C
- D) point E

Answer: <https://biology-forums.com/index.php?topic=1882306>

### Question 701

What hormone was in the cotton used to wrap the apical ends of the group A plants?

- A) cytokinin
- B) gibberellin
- C) ethylene
- D) auxin

Answer: <https://biology-forums.com/index.php?topic=1882498>

### Question 702

The main function of the rough endoplasmic reticulum is the production of

- A) mitochondria and proteins secreted by the cell.
- B) hydrogen peroxide and steroid hormones secreted by the cell.
- C) ribosomes and steroid hormones.
- D) membrane and proteins secreted by the cell.

Answer: <https://biology-forums.com/index.php?topic=1882860>

### Question 703

The mechanism for excreting nitrogenous waste in aquatic animals was ineffective on land because

- A) land animals concurrently developed a more efficient reproduction system.
- B) land animals found better food sources.
- C) land animals had a more difficult time with water balance than aquatic species since water was not always available on land.
- D) aquatic animals did not have as much protein in their diets as did land animals.

Answer: <https://biology-forums.com/index.php?topic=1881988>

### Question 704

You collect a protist from a rotting log and grow it in a petri dish containing E. coli, which it engulfs. For a while the protists multiply as single cells. Then the E. coli run short, and the protists aggregate to form a clump, which rises up to become a stalked structure with a globular head. What kind of protist do you have?

- A) a plasmodial slime mold
- B) a cellular slime mold
- C) a free-living amoeba
- D) a water mold

Answer: <https://biology-forums.com/index.php?topic=1883619>

### Question 705

Which of the following options lists taxonomic categories in the correct order from most specific to most general?

- A) genus, family, class, order, phylum
- B) genus, family, order, class, phylum
- C) family, genus, order, phylum, class
- D) family, genus, class, order, phylum

Answer: <https://biology-forums.com/index.php?topic=1883533>

### Question 706

Two yeast cells, one of type a and the other type  $\alpha$ , are in proximity to each other. The a yeast cell has a mutation in the gene for the factor receptor protein such that the receptor does not translocate to the surface of the a cell. If both cells secrete their respective a and  $\alpha$  factors, which of the following outcomes is most likely to occur?

- A) The a and  $\alpha$  cells will grow toward each other.
- B) The a cell will grow towards the  $\alpha$  cell.
- C) The  $\alpha$  cell will grow toward the a cell.
- D) The a and  $\alpha$  cells will not grow toward each other at all.

Answer: <https://biology-forums.com/index.php?topic=1883290>

### Question 707

Aspen trees are the most widely distributed tree in North America. A forest of many aspen trees, some of which may be tens of thousands of years old, is actually one single clone. Which of the following is likely to be the greatest threat to the long-term survival of aspen forests?

- A) insects, which may bore holes in the stems of trees
- B) climate change, which alters aspen trees' typical environment from the usual moist and cool to dry and warm
- C) a fungus that is often found associated with roots of some trees in the stand
- D) lack of pollinators

Answer: <https://biology-forums.com/index.php?topic=1882367>

### Question 708

Which of the following human activities has contributed to an increase in the number of bacteria having R plasmids?

- A) nitrogen fixation by genetically engineered plants
- B) improper use of restriction enzymes in research and medical facilities
- C) increased carcinogen exposure from excessive fossil fuel burning
- D) heavy use of antibiotics in medicine and in agriculture

Answer: <https://biology-forums.com/index.php?topic=1883219>

### Question 709

Which of the following features is unique to chordates?

- A) bilateral symmetry
- B) a coelom
- C) a notochord
- D) a complete digestive tract including an anus

Answer: <https://biology-forums.com/index.php?topic=1883768>

### Question 710

The first organisms on Earth were very small, but now when you look around you see many large organisms. Which of the following is the best explanation for this observation?

- A) Evolution tends toward larger and larger organisms.
- B) There were many steps necessary to go from small cells to large organisms.
- C) Organisms got larger because they needed to be larger in order to use resources more efficiently.
- D) The goal of evolution is to produce the largest organisms possible.

Answer: <https://biology-forums.com/index.php?topic=1883553>

### Question 711

Relaying a message from a membrane receptor to a molecule that performs a specific function within a cell occurs when

- A) a signaling molecule binds to a protein that extends to the outside of the cell.
- B) a protein receptor on the interior of the membrane become bounds by a signaling molecule.
- C) the extracellular matrix is moved to the inside of the cell.
- D) glycoproteins are recognized by other cells.

Answer: <https://biology-forums.com/index.php?topic=1882904>

### Question 712

A comet orchid has creamy white-colored flowers and a characteristic "tail" that contains the flower's nectar. This orchid does not emit a scent during daylight hours but is aromatic at night. The comet orchid is most likely pollinated by

- A) windy nighttime conditions.
- B) pollen traveling on animal fur.
- C) a nocturnal pollinator.
- D) moisture from cool evenings.

Answer: <https://biology-forums.com/index.php?topic=1883717>

### Question 713

HIV is a virus that is particularly difficult to eradicate

- A) because of its DNA genome.
- B) because it rarely mutates.
- C) because it mutates to produce new drug-resistant strains.
- D) due to its small size.

Answer: <https://biology-forums.com/index.php?topic=1881943>

### Question 714

The most recent evidence clarifying the relationship between modern humans and Neanderthals comes from analysis of

- A) skeletal structure.
- B) the types of tools that were made by Neanderthals.
- C) Neanderthal artwork and burial rites.
- D) Neanderthal mitochondrial DNA.

Answer: <https://biology-forums.com/index.php?topic=1883833>

### Question 715

How many chromosomes are there in a maize egg cell nucleus as compared to a maize pollen cell nucleus?

- A) half as many
- B) twice as many
- C) the same number
- D) half as many or the same number, depending on whether the pollen cell has divided to produce sperm or not

Answer: <https://biology-forums.com/index.php?topic=1882344>

### Question 716

Which of the following statements about cells is true?

- A) All cells have cell walls.
- B) All cells have internal structures that move.
- C) All cells are attached to other cells.
- D) All cells are motile.

Answer: <https://biology-forums.com/index.php?topic=1882830>

### Question 717

Plant cells are protected from the harmful effects of excessive light energy and reactive oxidative molecules by

- A) mitochondria.
- B) chlorophyll.
- C) carotenoids.
- D) ATP.

Answer: <https://biology-forums.com/index.php?topic=1883020>

### Question 718

The adaptations of pronghorns

- A) to open country could be a disadvantage in a densely forested environment.
- B) include a reflective coat, an ability to find small pools of water, and chemical defenses against most predators.
- C) to the open plains and shrub deserts of North America have helped them spread to nearly every continent.
- D) demonstrate that meeting the demands of local environmental conditions helps organisms extend their ranges to other types of environments.

Answer: <https://biology-forums.com/index.php?topic=1882510>

### Question 719

The basis of cellular differentiation is

- A) the operon.
- B) selective gene expression.
- C) cloning.
- D) mutation.

Answer: <https://biology-forums.com/index.php?topic=1883246>

### Question 720

Which of the following is essentially the opposite of pleiotropy?

- A) incomplete dominance
- B) codominance
- C) multiple alleles
- D) polygenic inheritance

Answer: <https://biology-forums.com/index.php?topic=1883134>

### Question 721

A population of 1,000 birds exists on a small Pacific island. Some of the birds are yellow, a characteristic determined by a recessive allele. The others

are green, a characteristic determined by a dominant allele. A hurricane on the island kills most of the birds from this population. Only 10 remain, and those birds all have yellow feathers. Which of the following statements is true?

- A) Assuming that no new birds come to the island and no mutations occur, future generations of this population will contain both green and yellow birds.
- B) The hurricane has caused a population bottleneck and a loss of genetic diversity.
- C) This situation illustrates the effect of a mutation event.
- D) The 10 remaining birds will mate only with each other, and this will contribute to gene flow in the population.

Answer: <https://biology-forums.com/index.php?topic=1883402>

### Question 722

Which of the following colors contributes the least energy to photosynthesis?

- A) blue
- B) red
- C) orange
- D) green

Answer: <https://biology-forums.com/index.php?topic=1883018>

### Question 723

Using a stethoscope, you listen to a beating heart and hear "lub-dup, lub-dup." These sounds are created by

- A) muscles in the left ventricle.
- B) blood flowing through the aorta.
- C) blood pressure differentials from chamber to chamber.
- D) blood recoiling against the closed valves.

Answer: <https://biology-forums.com/index.php?topic=1881850>

### Question 724

Lions are not always successful hunters and may go days between meals. What evolutionary adaptation helps the lion survive periods of famine?

- A) formation of a two-chambered stomach
- B) an extended cecum
- C) an expandable stomach
- D) a rich microbial flora in the colon

Answer: <https://biology-forums.com/index.php?topic=1883943>

### Question 725

Which of the following is associated with obesity and occurs because cells of the body fail to respond adequately to insulin?

- A) type 1 diabetes
- B) type 2 diabetes
- C) hyperglycemia
- D) hypoglycemia

Answer: <https://biology-forums.com/index.php?topic=1882058>

### Question 726

If a woman has reached or passed her due date (the date that a woman is expected to give birth), her obstetrician may inject her with hormones to help initiate labor. Which of the following hormones would assist the most in the initiation of labor?

- A) HCG
- B) FSH
- C) progesterone
- D) oxytocin

Answer: <https://biology-forums.com/index.php?topic=1882133>

### Question 727

The brain and sensory system of a bilaterally symmetric organism function most like

- A) the engine of a motorboat.
- B) the pilot of an airplane.
- C) the passengers on a train.
- D) a member of a marching band.

Answer: <https://biology-forums.com/index.php?topic=1882164>

### Question 728

Which of the following correctly pairs a biome and its characteristics?

- A) temperate broadleaf forest mild winters; scarce rainfall; predominantly dicot vegetation
- B) chaparral mild, rainy winters; long, hot, but wet summers
- C) savanna long, cold winters; vegetation dominated by conifers
- D) tundra very cold winters; only the upper layer of the soil thaws during summer

Answer: <https://biology-forums.com/index.php?topic=1882530>

### Question 729

Which of the following statements regarding food is false?

- A) Food provides the raw materials for biosynthetic pathways that make molecules for cellular repair and growth.
- B) Food provides the raw materials for biosynthetic pathways that can produce molecules that are not actually present in the original food.
- C) Food provides the raw materials for biosynthetic pathways that can produce sugar by a process that is the exact opposite of glycolysis.
- D) Food provides the raw materials for biosynthetic pathways that consume ATP.

Answer: <https://biology-forums.com/index.php?topic=1882979>

### Question 730

The function of chloroplasts is

- A) cellular respiration.
- B) lipid synthesis.
- C) photosynthesis.
- D) intracellular digestion.

Answer: <https://biology-forums.com/index.php?topic=1882871>

### Question 731

Which of the following statements about deuterostomes is true?

- A) Deuterostomes lack true tissues.
- B) Deuterostomes have only two tissue layers.
- C) The opening that forms during deuterostome gastrulation becomes the anus.
- D) The opening that forms during deuterostome gastrulation becomes the mouth.

Answer: <https://biology-forums.com/index.php?topic=1883736>

### Question 732

Suppose you wanted to test this hypothesis using sunflower plants. Which of the following would be the best procedure regarding the groups you use in your experiment?

- A) Choose two equal-size groups of sunflower plants. One would be the experimental group and one would be the control group.
- B) Choose equal-size groups of sunflower plants and zinnia plants. The sunflower plants would be the experimental group and the zinnia plants would be the control group.
- C) Choose two groups of sunflower plants. The experimental group would have twice as many plants as the control group.
- D) Choose two groups of sunflower plants. The experimental group would have half as many plants as the control group.

Answer: <https://biology-forums.com/index.php?topic=1883724>

### Question 733

All cells are enclosed by a plasma membrane that is similar in \_\_\_\_\_ and \_\_\_\_\_.

- A) thickness; composition
- B) permeability; content
- C) lucidity; texture
- D) structure; function

Answer: <https://biology-forums.com/index.php?topic=1882907>

### Question 734

Which of the following statements about fruit fly development is false?

- A) One of the earliest development events is the determination of the head and tail ends of the egg.
- B) The location of the head and tail ends of the egg is primarily determined by the location of sperm entry during fertilization.
- C) Homeotic genes regulate batteries of other genes that direct the anatomical identity of body parts.
- D) Cascades of gene expression routinely direct fruit fly development.

Answer: <https://biology-forums.com/index.php?topic=1883259>

### Question 735

The connection between structure and \_\_\_\_\_ is a basic concept of biology.

- A) species
- B) adaptation

- C) function
- D) sex

Answer: <https://biology-forums.com/index.php?topic=1883859>

### Question 736

What is the main evidence that you would use to decide whether the conclusions and implications that The Atlantic published were valid?

- A) the online news story from The Atlantic
- B) the original scientific study
- C) a different online summary of the original scientific study
- D) a different original scientific study on a hormone that is biologically similar to oxytocin

Answer: <https://biology-forums.com/index.php?topic=1882080>

### Question 737

You are reading the journal of an amateur naturalist who visited the Sonoran Desert in the last century. Which of his descriptions of desert plants would you question?

- A) a plant whose seeds will not germinate unless soaked
- B) a perennial that flowers only after years of vegetative growth and produces a large number of seeds
- C) a late winter hillside covered with wildflowers
- D) a common annual that produces one large seed per plant

Answer: <https://biology-forums.com/index.php?topic=1882532>

### Question 738

Generally speaking, fluids in plants are

- A) pushed through phloem and pulled through xylem.
- B) pushed through xylem and pulled through phloem.
- C) pulled through both xylem and phloem.
- D) actively pumped throughout the plant.

Answer: <https://biology-forums.com/index.php?topic=1882399>

### Question 739

This image represents monocots and eudicots. Which column shows traits that are incorrectly categorized?

- A) column A
- B) column B
- C) column C
- D) column D

Answer: <https://biology-forums.com/index.php?topic=1882377>

### Question 740

Which provides the most general and correct description of the idea of a reproductive barrier?

- A) any feature (of geography, behavior, or morphology) that keeps one species from mating with another
- B) a biological difference between two species that prevents them from successfully interbreeding
- C) a geographic barrier that separates two species and prevents gene flow between them
- D) a difference in behavior that keeps two species from interbreeding

Answer: <https://biology-forums.com/index.php?topic=1883438>

### Question 741

If the trends shown in the graph continue, how might this affect photosynthesis?

- A) Photorespiration may increase, leading to an increase in photosynthetic production of sugar.
- B) Photorespiration may increase, leading to a decrease in photosynthetic production of sugar.
- C) C4 and CAM plants would be unable to photosynthesize.
- D) There would be no effect on photosynthesis, since CO<sub>2</sub> and temperature are stable.

Answer: <https://biology-forums.com/index.php?topic=1883057>

### Question 742

If an overlap develops between the ranges of two closely related species, and if the species occupy the same niche in the zone of overlap, what will probably happen in the zone of overlap?

- A) A new species will arise by hybridization.
- B) Both species will coexist, provided the environment in the zone of overlap is different from that in either individual range.
- C) Both species will coexist, provided the environment in the zone of overlap is similar to that of one of the individual ranges.

D) One species will take over most or all of the zone of overlap.

Answer: <https://biology-forums.com/index.php?topic=1882660>

### Question 743

Which H<sup>+</sup> has just passed through the inner mitochondrial membrane by diffusion?

- A) hydrogen ion A
- B) hydrogen ion B
- C) hydrogen ion C
- D) hydrogen ion D

Answer: <https://biology-forums.com/index.php?topic=1882992>

### Question 744

Which of the following statements regarding membrane function is false?

- A) The plasma membrane forms a selective barrier around the cell.
- B) The plasma membrane plays a role in transferring signals to the cell's interior.
- C) The plasma membrane has receptors for chemical messages.
- D) The plasma membrane is the control center of the cell.

Answer: <https://biology-forums.com/index.php?topic=1882905>

### Question 745

What will be the result when estrogen sulfotransferase is inhibited?

- A) Epinephrine will cease to be produced.
- B) A diminished amount of estrogen will be present.
- C) An overabundance of glucocorticoids will be present.
- D) An overabundance of estrogen will be present.

Answer: <https://biology-forums.com/index.php?topic=1882075>

### Question 746

\_\_\_\_\_ are toxic proteins secreted by pathogenic bacteria, and \_\_\_\_\_ are toxic components of the outer membrane of gram-negative pathogens.

- A) Endotoxins; phosphotoxins
- B) Endotoxins; botulinum toxins
- C) Exotoxins; enterotoxins
- D) Exotoxins; endotoxins

Answer: <https://biology-forums.com/index.php?topic=1883581>

### Question 747

Plants grow toward light through the action of

- A) hormones.
- B) nerves.
- C) solar energy.
- D) chloroplasts.

Answer: <https://biology-forums.com/index.php?topic=1882444>

### Question 748

The vertebrate kidney helps to keep the acidity of body fluids constant by varying the amount of hydrogen ions (H<sup>+</sup>) it secretes into the urine. You can confidently predict that this aspect of kidney function will be controlled by

- A) a positive feedback mechanism.
- B) a negative feedback mechanism.
- C) nerve impulses from the brain.
- D) a hormone produced in the kidney itself.

Answer: <https://biology-forums.com/index.php?topic=1883889>

### Question 749

Earthworms crawl by

- A) undulating from side to side.
- B) peristalsis.
- C) the leg-like action of their belly scales.
- D) pushing themselves forward from the tail.

Answer: <https://biology-forums.com/index.php?topic=1882255>

### Question 750

Organisms belonging to the kingdom Plantae

- A) are photosynthetic.
- B) obtain food by decomposing the remains of dead organisms and absorbing the nutrients.
- C) are unicellular and lack a nucleus.
- D) are multicellular and lack a nucleus.

Answer: <https://biology-forums.com/index.php?topic=1884095>

### Question 751

Which of the following brain regions controls the secretion of pituitary hormones and exerts direct control over many other aspects of homeostasis?

- A) thalamus
- B) hypothalamus
- C) hippocampus
- D) cerebellum

Answer: <https://biology-forums.com/index.php?topic=1882179>

### Question 752

The oxygen released into the air as a product of photosynthesis comes from

- A) water.
- B) glucose.
- C) carbon dioxide.
- D) chlorophyll.

Answer: <https://biology-forums.com/index.php?topic=1883005>

### Question 753

A normal muscle cell produces the myosin protein, which allows muscles to contract. You discover a single muscle cell that has tRNAs that do not bind to amino acids. Will the myosin gene be expressed in this muscle cell? Why or why not?

- A) Yes, because all cells in the body express the myosin gene all of the time.
- B) No, because if the tRNAs do not bind amino acids, then translation cannot occur.
- C) Yes, because the myosin gene will be transcribed in the muscle cell nucleus.
- D) No, because the myosin mRNA will likely get broken down in the cytoplasm.

Answer: <https://biology-forums.com/index.php?topic=1883283>

### Question 754

If you wanted to produce a recombinant form of DNase I, what cell type should you use?

- A) E. coli
- B) yeast
- C) mammalian
- D) plant

Answer: <https://biology-forums.com/index.php?topic=1883372>

### Question 755

Which of the following would be correctly classified as a protein?

- A) cholesterol
- B) starch
- C) an enzyme
- D) cellulose

Answer: <https://biology-forums.com/index.php?topic=1882795>

### Question 756

Ozone consists of \_\_\_\_\_ oxygen atom(s).

- A) one
- B) two
- C) three
- D) four

Answer: <https://biology-forums.com/index.php?topic=1883043>

### Question 757

The duck-billed platypus and other monotremes differ from other mammals in that they

- A) are aquatic.
- B) lay eggs.
- C) have mammary glands.
- D) have hair.

Answer: <https://biology-forums.com/index.php?topic=1883791>

### Question 758

In which of the zones shown in this depiction of an aquatic biome does photosynthesis occur?

- A) zone A
- B) zone B
- C) zone C
- D) zone D

Answer: <https://biology-forums.com/index.php?topic=1882546>

### Question 759

An important function of the bones in the skeleton is to

- A) provide a source of ATP.
- B) generate hormones.
- C) add weight.
- D) support the body.

Answer: <https://biology-forums.com/index.php?topic=1882258>

### Question 760

Which of the following produces a thick fluid containing fructose, which is used for energy by sperm?

- A) prostate gland
- B) bulbourethral gland
- C) seminal vesicles
- D) epididymis

Answer: <https://biology-forums.com/index.php?topic=1882089>

### Question 761

Evidence for the relatively close relationship of archaea to eukaryotes includes

- A) the absence of introns from genes in both groups.
- B) the fact that both contain circular DNA without histones.
- C) the presence of peptidoglycan in the cell walls of both groups.
- D) the fact that both have several kinds of relatively complex RNA polymerases.

Answer: <https://biology-forums.com/index.php?topic=1883573>

### Question 762

Which of the following options best describes the mechanism that causes a stoma to open?

- A) K<sup>+</sup> enters the guard cells and water follows passively, making the cells turgid.
- B) K<sup>+</sup> activates water pumps in the guard cell membrane that make them turgid.
- C) K<sup>+</sup> leaves the guard cells and water follows passively, making the cells flaccid.
- D) Loss of K<sup>+</sup> from guard cells creates positive pressure and expands the guard cells.

Answer: <https://biology-forums.com/index.php?topic=1882395>

### Question 763

A bacterium living in an underground septic tank thrives by absorbing organic compounds from decomposing wastes. What is it?

- A) a chemoautotroph
- B) a chemoheterotroph
- C) a photoautotroph
- D) a photoheterotroph

Answer: <https://biology-forums.com/index.php?topic=1883569>

### Question 764

Any gene located on a sex chromosome

- A) is called a recessive gene.
- B) is called a sex-linked gene.
- C) will exhibit pleiotropy.
- D) will exhibit codominance.

Answer: <https://biology-forums.com/index.php?topic=1883147>

### Question 765

During REM sleep, an EEG shows

- A) a flat trace with very few waves.
- B) mainly alpha waves.
- C) sleep waves.
- D) an irregular, rapidly changing pattern.

Answer: <https://biology-forums.com/index.php?topic=1882185>

### Question 766

If one strand of DNA is CGGTAC, then the corresponding strand would be

- A) GCCTAG.
- B) GCCAUC.
- C) TAACGT.
- D) GCCATG.

Answer: <https://biology-forums.com/index.php?topic=1883178>

### Question 767

The electron transport chains of the light reactions

- A) are located in the stroma.
- B) shuttle electrons from photosystem II to photosystem I.
- C) provide energy for the citric acid cycle.
- D) are found on the plasma membrane of mesophyll cells.

Answer: <https://biology-forums.com/index.php?topic=1883027>

### Question 768

Which of the following situations represents an example of territorial behavior?

- A) Digger wasps are able to recognize the pattern of landmarks around their nests.
- B) Sow bugs become more active and move around randomly if they find themselves in a dry area.
- C) Gannets breed in dense colonies. Each gannet defends the area within the beak's reach of its nest, but gannets feeding at sea are indifferent to each other.
- D) Troops of monkey species use well-defined, widely overlapping ranges. Troops avoid encountering each other and are aggressive if they meet.

Answer: <https://biology-forums.com/index.php?topic=1882591>

### Question 769

Which of the following structures is involved in the human sense of balance?

- A) the outer ear
- B) the oval window
- C) the utricle
- D) the basilar membrane

Answer: <https://biology-forums.com/index.php?topic=1882216>

### Question 770

If you could design a modified version of the enzyme to ensure that it would function optimally in the harsh conditions of the washing vat (such as high temperature or high pH), which of the following could you do to achieve this goal?

- A) Add more amino acids to the end of the protein to make it more hydrophobic.
- B) Change the amino acid sequence slightly to ensure a more stable tertiary structure.
- C) Remove some amino acids from the start of the protein to strengthen its secondary structure.
- D) Change the amino acid sequence drastically to give the enzyme quaternary structure.

Answer: <https://biology-forums.com/index.php?topic=1882826>

### Question 771

For a given area and time period, the amount of solar energy converted to chemical energy in organic compounds is called

- A) primary succession.
- B) secondary succession.

- C) primary production.
- D) secondary production.

Answer: <https://biology-forums.com/index.php?topic=1882683>

### Question 772

The locomotive behavior of earthworms is enabled by contraction of their longitudinal and circular muscles; this is seen through their typical burrowing behavior. Nematodes, however, contract their longitudinal muscles against the pressure of fluid in their bodies to produce a whiplike motion that enables them to move. Suppose you place an earthworm and a nematode in a watery solution. Which do you think would be able to move more easily, and why?

- A) the earthworm, because it uses two sets of muscles to help it move through the watery solution
- B) the nematode, because its whiplike motion will easily propel it through the watery solution
- C) the earthworm, because it can contract and expand its muscles to burrow down through the watery solution
- D) the nematode, because it can move its paddle-like appendages on its segments to help it move through the watery solution

Answer: <https://biology-forums.com/index.php?topic=1883734>

### Question 773

A current leading hypothesis about the first system of inheritance in the earliest life-forms involves

- A) self-replicating DNA molecules (the "DNA world" hypothesis).
- B) self-replicating RNA molecules aided by ribozymes.
- C) proteins that served as templates for RNA molecules, leading to the formation of DNA.
- D) self-replicating polypeptides aided by ribosomes.

Answer: <https://biology-forums.com/index.php?topic=1883492>

### Question 774

Based on the age structure of the country, which of the following situations would be most likely to occur over the next 20 years?

- A) strong economic gains stimulated by population growth
- B) an increased demand for resources based on population growth
- C) a decreased demand for medical services due to the small number of elderly citizens
- D) a decline in housing prices based on lack of demand

Answer: <https://biology-forums.com/index.php?topic=1882651>

### Question 775

Coral reefs are made up of genetically identical coral polyps. New polyps develop as offshoots from the parental polyp. What type of reproduction do coral polyps use?

- A) budding
- B) fission
- C) fragmentation
- D) sexual reproduction

Answer: <https://biology-forums.com/index.php?topic=1882081>

### Question 776

Which of the following statements about biomes, the major terrestrial ecosystems covering the Earth, is true?

- A) Each of the 10 major biomes is restricted to just one or two continents.
- B) The major factors affecting the distribution of biomes are wind and sunlight.
- C) Most natural biomes are unaffected by human activity.
- D) Fire is very important in some biomes.

Answer: <https://biology-forums.com/index.php?topic=1882524>

### Question 777

Ever since Darwin, systematics has tried to

- A) organize species into groups based on logical categories.
- B) classify species in groups that reflect evolutionary relationships.
- C) prove the existence of evolution using laboratory experiments.
- D) keep classification and naming as a practical science, separate from controversies involving evolution.

Answer: <https://biology-forums.com/index.php?topic=1883532>

### Question 778

By far the largest number of extant fish species on Earth have

- A) a cartilaginous skeleton.
- B) rasping tongues to enhance their parasitic behavior.

- C) an operculum and swim bladder.
  - D) high economic importance for their skin, which can be made into faux leather.
- Answer: <https://biology-forums.com/index.php?topic=1883798>

### Question 779

- Finding #1: If schools offered greater amounts of fruits and vegetables, then more students ate them. However, many students in both schools did not eat any fruits and vegetables. This suggests that
- A) offering more fruits and vegetables increases the chances that students will eat them, but simply offering more may not be the only solution to bettering child lunch nutrition.
  - B) a lower amount of fruits and vegetables should be offered to students in both school group A and school group B.
  - C) offering more fruits and vegetables decreases the chances that students in school group B will eat them but increases the chances that students in school group A will eat them.
  - D) offering more fruits and vegetables increases the chances that students will eat them, but only if they have all essential vitamins and minerals.
- Answer: <https://biology-forums.com/index.php?topic=1883987>

### Question 780

- In terms of population dynamics, what is "boom-and-bust" cycling?
- A) a situation in which a population moves back and forth between rapid growth and decline
  - B) a situation in which a growing population overshoots the carrying capacity of its environment and experiences a crash before stabilizing
  - C) a situation in which the sex ratio in a population shows repeated oscillations
  - D) a situation in which the populations of a predator species and a prey species oscillate in unison
- Answer: <https://biology-forums.com/index.php?topic=1882627>

### Question 781

- The sending of, reception of, and response to signals constitute animal
- A) cost-benefit analysis.
  - B) communication.
  - C) problem solving.
  - D) associative learning.
- Answer: <https://biology-forums.com/index.php?topic=1882581>

### Question 782

- The main difference between the earliest evolved tetrapods and the most recently evolved tetrapods is that
- A) later tetrapods have larger brains.
  - B) later tetrapods produce milk to feed their young.
  - C) early tetrapods lack legs.
  - D) early tetrapods lack a vertebral column.
- Answer: <https://biology-forums.com/index.php?topic=1883857>

### Question 783

- Which of the following is a characteristic of eudicots?
- A) parallel leaf venation
  - B) vascular bundles scattered throughout the stem
  - C) a flower with six petals
  - D) a taproot system
- Answer: <https://biology-forums.com/index.php?topic=1882315>

### Question 784

- Which of the following statements about organs is false?
- A) An organ represents a higher level of structure than the tissues composing it.
  - B) An organ consists of several tissues.
  - C) An organ can only carry out the functions of its component tissues.
  - D) An organ consists of many cells.
- Answer: <https://biology-forums.com/index.php?topic=1883877>

### Question 785

- Action potentials relay different intensities of information due to the
- A) amplitude of action potentials relative to the strength of the stimulus.
  - B) frequency of action potentials relative to the strength of the stimulus.
  - C) duration of action potentials relative to the strength of the stimulus.

D) shape of action potentials relative to the strength of the stimulus.

Answer: <https://biology-forums.com/index.php?topic=1882150>

### Question 786

The daughter-producing sperm used to fertilize Brittany's eggs should be

- A) diploid primary spermatocytes.
- B) haploid secondary spermatocytes.
- C) haploid sperm cells.
- D) diploid sperm cells.

Answer: <https://biology-forums.com/index.php?topic=1882138>

### Question 787

Which of the following is a function of the vertebrate liver?

- A) combining ammonia and carbon dioxide to form urea
- B) synthesizing ammonia from uric acid
- C) excreting urea
- D) producing urea from uric acid and carbon dioxide

Answer: <https://biology-forums.com/index.php?topic=1881992>

### Question 788

Which of the following mechanisms helps keep the stomach lining in place despite the destructive force of gastric juice?

- A) digestion of protein by pepsin
- B) secretion of acid-neutralizing compounds
- C) generation through mitosis of new cells to replace the stomach lining
- D) protection of the cells of the stomach-lining by parietal cells

Answer: <https://biology-forums.com/index.php?topic=1883925>

### Question 789

What event will immediately follow the event shown in this image?

- A) The cell will divide into two animal cells.
- B) The cell will divide into two plant cells.
- C) The cell will divide into four animal cells.
- D) The cell will divide into four plant cells.

Answer: <https://biology-forums.com/index.php?topic=1883089>

### Question 790

All animals must obtain \_\_\_\_\_ from outside sources.

- A) preformed ATP
- B) fuel to power body activities
- C) enzymes
- D) chyme

Answer: <https://biology-forums.com/index.php?topic=1883946>

### Question 791

During a discussion about ecosystems, a student says, "Plants eat sunlight, and animals eat other organisms." Which of the following responses to the student's comment is most accurate?

- A) Plants don't eat sunlight; they eat sugars that they get from the soil.
- B) Plants don't eat sunlight; they use it to make sugars.
- C) Plants eat sunlight, but they also eat other organism such as decomposers.
- D) Plants eat sunlight, but animals also eat bacteria, which are not considered organisms.

Answer: <https://biology-forums.com/index.php?topic=1884103>

### Question 792

The fungi are being used as a form of

- A) endosymbiosis.
- B) bioremediation.
- C) phagocytosis.
- D) mixotrophy.

Answer: <https://biology-forums.com/index.php?topic=1883649>

### Question 793

About one-third of all animal and plant species are concentrated on \_\_\_\_\_ of Earth's land.

- A) 20%
- B) 10%
- C) 5%
- D) 1.5%

Answer: <https://biology-forums.com/index.php?topic=1882728>

### Question 794

Which of the following animal groups is characterized by the absence of tails?

- A) apes
- B) Old World monkeys
- C) New World monkeys
- D) lemurs

Answer: <https://biology-forums.com/index.php?topic=1883819>

### Question 795

Much research is being done to increase the nitrogen-fixing ability of plants with root nodules. Why is this an important goal for agricultural researchers?

- A) Decreasing the size of nodules will allow plants to fix more nitrogen into their own molecules.
- B) Nitrogen is an essential component of the amino acids used to form protein.
- C) Increasing the nitrogen-fixing ability of plants will allow them to make better use of nitrogen fertilizers.
- D) Removing the bacteria from the root nodules will allow more fixed nitrogen to be available to the plants.

Answer: <https://biology-forums.com/index.php?topic=1882422>

### Question 796

A diabetic, who does not utilize insulin properly, will metabolize fats instead of glucose. A condition called diabetic ketoacidosis is a common result of excessive fat metabolism, causing blood pH values of 7.1 or less (normal range is 7.35-7.45). What has happened to the blood pH and why?

- A) The pH is above normal (basic) because the ketones are too basic.
- B) The pH is below normal (acidic) because the buffering capacity was exceeded.
- C) The pH is not affected because the blood buffers can absorb the excess H<sup>+</sup>.
- D) The pH is below normal because buffers can donate OH<sup>-</sup>.

Answer: <https://biology-forums.com/index.php?topic=1882766>

### Question 797

If a plant is kept in the dark,

- A) the stomata continue their daily rhythm of opening and closing.
- B) the stomata will remain closed the entire time that the plant is in the dark.
- C) the stomata will remain open the entire time that the plant is in the dark.
- D) the guard cells will open as water is added.

Answer: <https://biology-forums.com/index.php?topic=1882398>

### Question 798

Which of the following enzymes catalyzes the production of a strand of RNA from DNA?

- A) RNA polymerase
- B) RNA ligase
- C) a ribozyme
- D) tRNA

Answer: <https://biology-forums.com/index.php?topic=1883190>

### Question 799

In an ecosystem, energy

- A) cycles along with chemical nutrients.
- B) typically flows from consumers to producers to decomposers.
- C) typically flows from producers through a series of consumers.
- D) comes ultimately from bacteria.

Answer: <https://biology-forums.com/index.php?topic=1884090>

### Question 800

The model of species selection is analogous to natural selection. In this analogy, \_\_\_\_\_ are like individuals within a population, and \_\_\_\_\_ is analogous to reproduction.

- A) major groups of organisms; extinction
- B) species; speciation
- C) genes; gene duplication
- D) families; interbreeding

Answer: <https://biology-forums.com/index.php?topic=1883527>

### Question 801

Mate-attracting features such as the bright plumage of a male peacock result from

- A) intersexual selection.
- B) intrasexual selection.
- C) disruptive selection.
- D) stabilizing selection.

Answer: <https://biology-forums.com/index.php?topic=1883410>

### Question 802

Wood frogs freeze solid during the winter and then thaw in the spring. As the freezing progresses, blood circulation stops. How would you expect cells not being served by the circulatory system to produce ATP during this time, and what by-product would you expect to build up in the cells?

- A) aerobic respiration and CO<sub>2</sub>
- B) fermentation and lactate
- C) fermentation and alcohol
- D) photosynthesis and O<sub>2</sub>

Answer: <https://biology-forums.com/index.php?topic=1882987>

### Question 803

Purple sulfur bacteria are organisms capable of photosynthesis. They get their name, in part, because they use H<sub>2</sub>S (hydrogen sulfide) instead of water during the light reactions. In what form would you expect to find sulfur (S) as a result of photosynthesis in these bacteria?

- A) S<sub>2</sub>
- B) SO<sub>2</sub>
- C) CS<sub>2</sub>
- D) C<sub>6</sub>H<sub>12</sub>S<sub>6</sub>

Answer: <https://biology-forums.com/index.php?topic=1883048>

### Question 804

The pH of the stomach is extremely acidic (~ pH 2). If you ate a Yummie cake, what do you think would happen to the protein that you ingested as it passes through the stomach?

- A) The protein would become denatured due to the acidic environment.
- B) The protein would form longer proteins via dehydration reactions.
- C) The protein would speed up digestion because it is an enzyme.
- D) The protein would get broken down via dehydration reactions.

Answer: <https://biology-forums.com/index.php?topic=1882829>

### Question 805

When hermit crabs crawl across the ocean floor, they often have sea anemones attached to their backs. The anemones use their dangerous tentacles to keep hermit crab predators at bay, and they dine on the particles of food that the crab does not eat. This is an example of

- A) bioremediation.
- B) alternation of generations.
- C) symbiosis.
- D) endosymbiosis.

Answer: <https://biology-forums.com/index.php?topic=1883631>

### Question 806

Which of the following statements about the humors of the eye is true?

- A) The vitreous humor fills the chamber behind the lens.
- B) The vitreous humor circulates.
- C) The aqueous humor is jellylike.
- D) The humors help keep the outside of the eye moist.

Answer: <https://biology-forums.com/index.php?topic=188224>

### Question 807

There is concern over the use of 2,4-D, a synthetic plant hormone, as a weed killer because the by-product dioxin

- A) can cause irreversible mutations in crop plants.
- B) causes massive fish kills when it gets into lakes and streams.
- C) can cause birth defects and leukemia in mammals.
- D) weakens the shells of the eggs of predatory birds, resulting in the death of their offspring.

Answer: <https://biology-forums.com/index.php?topic=1882470>

### Question 808

Household ammonia, or ammonium hydroxide, is a mixture of ammonia (NH<sub>3</sub>) and water. What types of bonding interactions will occur between molecules of ammonia and water in a bottle of household ammonia?

- A) polar covalent bonds between positively charged nitrogen atoms in ammonia and negatively charged oxygen atoms in water
- B) polar covalent bonds between negatively charged nitrogen atoms in ammonia and positively charged hydrogen atoms in water
- C) hydrogen bonds between positively charged nitrogen atoms in ammonia and negatively charged oxygen atoms in water
- D) hydrogen bonds between negatively charged nitrogen atoms in ammonia and positively charged hydrogen atoms in water

Answer: <https://biology-forums.com/index.php?topic=1882773>

### Question 809

The shoulder joint where the humerus meets the shoulder girdle is an example of

- A) a hinge joint.
- B) a ligament.
- C) a pivot joint.
- D) a ball-and-socket joint.

Answer: <https://biology-forums.com/index.php?topic=1882273>

### Question 810

Which of the following statements regarding breathing and circulation in insects is false?

- A) Insects lose very little water by using a tracheal system to breathe.
- B) The tracheal system of insects consists of a series of branching air tubes that extend from the surface to deep inside the body.
- C) Terrestrial animals such as insects spend much more energy than aquatic animals to ventilate their respiratory surfaces.
- D) The circulatory system of insects is not involved in transporting oxygen.

Answer: <https://biology-forums.com/index.php?topic=1884009>

### Question 811

Which peak corresponds to cells in G<sub>1</sub>? In S phase? In G<sub>2</sub>?

- A) A: G<sub>1</sub>; B: G<sub>2</sub>; C: S
- B) A: G<sub>2</sub>; B: S; C: G<sub>1</sub>
- C) A: S; B: G<sub>1</sub>; C: G<sub>2</sub>
- D) A: G<sub>1</sub>; B: S; C: G<sub>2</sub>

Answer: <https://biology-forums.com/index.php?topic=1883095>

### Question 812

Which of the following is associated with a reduced risk of cardiovascular disease?

- A) high levels of HDL
- B) high levels of LDL
- C) high consumption of trans fats
- D) high consumption of dietary cholesterol

Answer: <https://biology-forums.com/index.php?topic=1883964>

### Question 813

Below is a nutrition facts label for one cup of whole cow's milk. Which of the following is most abundant by weight in one cup of whole milk? (1000 mg = 1 g)

- A) the total amount of lipids
- B) polysaccharides
- C) monosaccharides
- D) protein

Answer: <https://biology-forums.com/index.php?topic=1882822>

### Question 814

The recessive allele of a gene causes cystic fibrosis. For this gene among Caucasians,  $p = 0.98$ . If a Caucasian population is in Hardy-Weinberg equilibrium with respect to this gene, what proportion of babies is born homozygous recessive and therefore suffers cystic fibrosis?

- A)  $(0.02)^2 = 0.0004$
- B) 0.02
- C)  $(0.98)^2 = 0.9604$
- D)  $2(0.02 \cdot 0.98) = 0.0392$

Answer: <https://biology-forums.com/index.php?topic=1883399>

### Question 815

Darwin was the first person to draw an evolutionary tree, a diagram that represents

- A) records of breeding in domesticated animals.
- B) records of lineages in humans (also known as a family tree).
- C) evidence-based hypotheses regarding our understanding of patterns of evolutionary descent.
- D) groupings of organisms based on overall similarity.

Answer: <https://biology-forums.com/index.php?topic=1883394>

### Question 816

Half the trees in an orchard were derived from rootstock "A" and half from rootstock "B," but all the trees had the same scion. If the trees grafted onto rootstock "A" were infected by a parasite that causes blossom rot, the trees grafted onto rootstock "B"

All apples in the United States, regardless of variety or where they're purchased, are produced by cloning. For more than 2,000 years, apple growers around the world have used a type of cloning called grafting to produce larger, better-tasting apples. Why has cloning become the primary method of apple growing? Apples grown from seeds usually don't produce apples with the same taste and appearance as that of the parent tree because there's a high degree of genetic variability among the seeds. Making identical genetic copies of the preferred fruit is the only way to get reliable apple quality. In grafting, the shoots and branches of the desired fruit, called a scion, are attached onto the trunk and root system of a previously existing tree, called the rootstock. Both components of the graft are needed because the rootstock controls gene expression in the scion, triggering production of apples that match the cloned scion.

- A) would be less likely to become infected because they're grafted onto different rootstocks.
- B) would be more likely to become infected, since the pathogen would spread through the soil to the roots of other trees.
- C) would be very likely to become infected, because the remaining scions are genetically identical to those that are already infected.
- D) There's no way to determine the likelihood of infection, since genetic variability gives all the trees different characteristics.

Answer: <https://biology-forums.com/index.php?topic=1883303>

### Question 817

The term "gene expression" refers to the

- A) fact that each individual of a species has a unique set of genes.
- B) fact that individuals of the same species have different phenotypes.
- C) process by which genetic information flows from genes to proteins.
- D) flow of information from parent to offspring.

Answer: <https://biology-forums.com/index.php?topic=1883238>

### Question 818

Which of the following represents the male gametophyte of a conifer?

- A) pollen grain
- B) sperm
- C) pollen cone
- D) tree

Answer: <https://biology-forums.com/index.php?topic=1883672>

### Question 819

The tracheal system of an insect is most like which of the following?

- A) the exhaust system of an automobile
- B) the electrical wiring in a home
- C) the air duct system in a building
- D) leaves on a tree

Answer: <https://biology-forums.com/index.php?topic=1884010>

### Question 820

Golden Rice is golden in color because it is rich in

- A) vitamin A.
- B) vitamin C.
- C) beta-carotene.
- D) chromium picolinate.

Answer: <https://biology-forums.com/index.php?topic=1883326>

### Question 821

When you successfully study with the stereo on in the background, you are demonstrating

- A) habituation.
- B) imprinting.
- C) associative learning.
- D) conditioning.

Answer: <https://biology-forums.com/index.php?topic=1882568>

### Question 822

It is estimated that the modern continents began to take shape

- A) 1.3 million years ago.
- B) 650 million years ago.
- C) 65 million years ago.
- D) 6,000 years ago.

Answer: <https://biology-forums.com/index.php?topic=1883509>

### Question 823

As a result of the cascade of electrons down the electron transport chains of the light reactions,

- A) NADPH is reduced to NADP+.
- B) NADPH is oxidized to NADP+.
- C) NADP+ is reduced to NADPH.
- D) NADP+ is oxidized to NADPH.

Answer: <https://biology-forums.com/index.php?topic=1883028>

### Question 824

What advantage does the extended hearing range of elephants provide?

- A) ability to communicate with other species with extended hearing ranges
- B) ability to locate obstacles in their migration routes
- C) ability to communicate with other elephants long distances away
- D) advance warning to take shelter when storms are coming

Answer: <https://biology-forums.com/index.php?topic=1882246>

### Question 825

One experiment in phototropism involved cutting off the tips of grass seedlings before exposing them to light from one side. The decapitated seedlings did not bend toward the light. A valid conclusion from this experiment would be that

- A) plants cannot engage in photosynthesis without the tip of the plant.
- B) light is perceived by the tip of grass plants.
- C) a foil cover over the tip of the seedlings would cause them to bend.
- D) hormones are produced in all parts of the plant.

Answer: <https://biology-forums.com/index.php?topic=1882446>

### Question 826

The experiment in part A was important to the overall conclusions by demonstrating all of the following except

- A) all trials of the experiment had frogs of about the same size.
- B) there is variation in body weight.
- C) body size did not have an impact on successful mating.
- D) frogs gain weight over time.

Answer: <https://biology-forums.com/index.php?topic=1882604>

### Question 827

When a cell uses fatty acids for aerobic respiration, it first hydrolyzes fats to

- A) glycerol and amino acids.
- B) glycerol and fatty acids.
- C) fatty acids and sugars.

D) sugars and glycerol.

Answer: <https://biology-forums.com/index.php?topic=1882977>

### Question 828

A scientist hypothesizes that a new drug turns on a certain gene in a skin cell. Which of the following experiments would be the best to test her hypothesis?

While DNA microarrays can be used to determine whether or not a gene is expressed in a cell, quantitative polymerase chain reaction (qPCR) can be used to measure the extent of gene expression in cells and tissues. To perform qPCR, mRNA is extracted from cells and reverse transcribed to complementary DNA (cDNA). Using fluorescent DNA molecules that recognize specific gene sequences and DNA polymerase, copies of the gene sequence of interest are made. After the copies are made, a fluorescent detector measures the intensity of the fluorescent signal, which is proportional to the number of mRNA transcripts in the cell and corresponds to the level of gene expression in the cell.

- A) Use qPCR to measure the initial levels of gene expression in skin cells, treat skin cells with the drug and measure the levels of gene expression, and then compare the two measurements.
- B) Use qPCR to measure the levels of gene expression in skin cells after exposure to the drug.
- C) Use qPCR to measure the initial levels of gene expression in muscle cells, treat skin cells with the drug and measure the levels of gene expression, and then compare the two measurements.
- D) Use qPCR to measure the levels of gene expression in skin cells after exposure to the drug and then add another drug to turn off gene expression and use qPCR to measure the levels of expression.

Answer: <https://biology-forums.com/index.php?topic=1883306>

### Question 829

Botulinum toxin (Botox) produced by certain bacteria will

- A) prevent enzymatic breakdown of neurotransmitters.
- B) cause continual contraction of smooth muscle.
- C) initiate an increase in the strength of a transmitted signal.
- D) inhibit the release of acetylcholine.

Answer: <https://biology-forums.com/index.php?topic=1882156>

### Question 830

Which of the following structures contributes to the structure of the placenta as well as completely surrounding the embryo?

- A) chorion
- B) amnion
- C) yolk sac
- D) allantois

Answer: <https://biology-forums.com/index.php?topic=1882118>

### Question 831

When a tetraploid flower pollinates a diploid flower of the parental species, the resulting offspring will be

- A) pentaploid and sterile.
- B) diploid and fertile.
- C) triploid and fertile.
- D) triploid and sterile.

Answer: <https://biology-forums.com/index.php?topic=1883456>

### Question 832

You are cleaning out an old lab freezer and find a tube that contains the ground-up remains of an unknown animal. Your research advisor suggests that you perform chemical assays to determine what molecules made up the animal. After analyzing the data, you determine that the animal contained a large amount of chitin. What type of animal was in the tube?

- A) leech
- B) octopus
- C) snake
- D) lobster

Answer: <https://biology-forums.com/index.php?topic=1882257>

### Question 833

A number of studies have found that for many plants there is an increase in seed production under conditions of elevated carbon dioxide levels. Which of the following is a likely explanation for this phenomenon?

- A) The energy needed to produce seeds comes from carbon dioxide.
- B) The carbon needed to produce new plant molecules through photosynthesis requires carbon dioxide.
- C) Increased carbon dioxide levels cause increased cell respiration, which is needed to produce more seeds.

D) Increased carbon dioxide causes increased plant heating, which speeds up seed production.

Answer: <https://biology-forums.com/index.php?topic=1882366>

### Question 834

Organisms with true radial symmetry

- A) have their sense organs, mouth, and brain clustered in the head.
- B) tend to be highly mobile.
- C) do not have a distinct head region and tend to be sedentary or passive drifters.
- D) can be divided into two matching halves along only one plane.

Answer: <https://biology-forums.com/index.php?topic=1883733>

### Question 835

Microevolution, or evolution at its smallest scale, occurs when

- A) an individual's traits change in response to environmental factors.
- B) a community of organisms changes due to the extinction of several dominant species.
- C) a new species arises from an existing species.
- D) a population's allele frequencies change over a span of generations.

Answer: <https://biology-forums.com/index.php?topic=1883395>

### Question 836

Restriction enzymes specifically recognize and cut short sequences of DNA called

- A) introns.
- B) exons.
- C) sticky ends.
- D) restriction sites.

Answer: <https://biology-forums.com/index.php?topic=1883312>

### Question 837

Camouflage typically evolves as a result of

- A) predation.
- B) interspecific competition.
- C) mutualism.
- D) herbivory.

Answer: <https://biology-forums.com/index.php?topic=1882662>

### Question 838

Which of the following statements about chimpanzee behavior is true?

- A) Only female chimpanzees are organized in a dominance hierarchy.
- B) Alpha males assert their status by making plant stems into tools for food extraction.
- C) Social primates do not show reconciliation or pacification-type behaviors.
- D) Grooming behavior is crucial to maintaining relationships within chimpanzee groups.

Answer: <https://biology-forums.com/index.php?topic=1882596>

### Question 839

How are genes used by cells to build proteins?

- A) The genes in DNA direct the synthesis of an RNA molecule, which is used to build a protein.
- B) The genes in RNA direct the synthesis of a DNA molecule, which is used to build a protein.
- C) DNA is transcribed into an amino acid sequence.
- D) The genes in RNA direct the synthesis of proteins directly.

Answer: <https://biology-forums.com/index.php?topic=1882802>

### Question 840

Rotenone is a poison commonly added to insecticides. Rotenone binds tightly with one of the electron carrier molecules in the electron transport chain, preventing electrons from passing to the next carrier molecule. Insects exposed to rotenone will die because

- A) they will no longer be able to perform anaerobic respiration.
- B) high levels of fermentation products will build up in their bodies.
- C) they will no longer be able to produce adequate amounts of ATP.
- D) they will no longer be able to absorb water and will become dehydrated.

Answer: <https://biology-forums.com/index.php?topic=1882967>

### Question 841

Which of the following is a practical application of population ecology that will result in population decline?

- A) restricting the length of deer hunting season
- B) managing crops by selectively killing agricultural pests
- C) removing habitat space from wild animal populations
- D) preventing the overfishing of cod

Answer: <https://biology-forums.com/index.php?topic=1882646>

### Question 842

An elk herd is observed over many generations. Most of the full-grown bull elk have antlers of nearly the same size, although a few have antlers that are significantly larger or smaller than this average size. The average antler size remains constant over the generations. Which of the following effects probably accounts for this situation?

- A) directional selection
- B) stabilizing selection
- C) a bottleneck effect that resulted in low genetic diversity
- D) a high rate of gene flow

Answer: <https://biology-forums.com/index.php?topic=1883406>

### Question 843

Which of the following is the most probable sequence of events when fertilizer runoff reaches the bay?

- A) submerged vegetation increases, food for fish and shellfish increases, fish and shellfish populations increase
- B) phytoplankton population increases, food for fish and shellfish increases, fish and shellfish populations increase
- C) phytoplankton population increases, it blocks sunlight to submerged vegetation, submerged vegetation dies, fish and shellfish populations decrease
- D) submerged vegetation decreases, fish and shellfish feed on decaying plants, phytoplankton feed on fish and shellfish, commercial fisheries decline

Answer: <https://biology-forums.com/index.php?topic=1882552>

### Question 844

During the 1950s, a scientist named Lysenko tried to solve the food shortages in the Soviet Union by breeding wheat that could grow in Siberia. He theorized that if individual wheat plants were exposed to cold, they would develop additional cold tolerance and pass it to their offspring. Based on the ideas of artificial and natural selection, do you think this project worked as planned?

- A) Yes; the wheat probably evolved better cold tolerance over time through inheritance of acquired characteristics.
- B) No, because Lysenko took his wheat seeds straight to Siberia instead of exposing them incrementally to cold.
- C) No, because there was no process of selection based on inherited traits. Lysenko assumed that exposure could induce a plant to develop additional cold tolerance and that this tolerance would be passed to the plant's offspring.
- D) Yes, because this is generally the method used by plant breeders to develop new crops.

Answer: <https://biology-forums.com/index.php?topic=1883381>

### Question 845

Asthenozoospermia is a medical condition that is characterized by reduced sperm motility. What structure of the sperm is likely affected in a man who has asthenozoospermia?

- A) acrosome
- B) head
- C) middle piece
- D) flagellum

Answer: <https://biology-forums.com/index.php?topic=1882128>

### Question 846

Action potentials normally travel along an axon

- A) toward the cell body.
- B) away from the cell body.
- C) either toward or away from the cell body.
- D) away from the synapse.

Answer: <https://biology-forums.com/index.php?topic=1882149>

### Question 847

The text describes how emperor penguins use a huddling behavior to conduct heat efficiently. Similarly, honeybees conduct heat within their hives by huddling together and then changing positions from the center of the huddle to the edges in order to keep heat circulating. When it is warm, however, the bees transport water into their hives and then beat their wings in order to make \_\_\_\_\_ cooling possible.

- A) conductive and convective

- B) isotonic and convective
- C) evaporative and convective
- D) evaporative and conductive

Answer: <https://biology-forums.com/index.php?topic=1882014>

### Question 848

In leaf abscission, the abscission layer forms where the

- A) leaf stalk joins the stem.
- B) axillary bud joins the stem.
- C) root joins the stem.
- D) leaf stalk joins the leaf.

Answer: <https://biology-forums.com/index.php?topic=1882464>

### Question 849

If fungi of the genus *Cordyceps* are ingested by insects, fruiting bodies will form and erupt through the bodies of the insects. *Cordyceps* are an example of

- A) symbiosis.
- B) parasitic fungi.
- C) lichens.
- D) mycorrhizae.

Answer: <https://biology-forums.com/index.php?topic=1883702>

### Question 850

Which of the following statements regarding enzyme function is false?

- A) An enzyme's function depends on its three-dimensional shape.
- B) Enzymes are very specific for certain substrates.
- C) Enzymes are used up when they catalyze a chemical reaction so must be synthesized for each new chemical reaction.
- D) Enzymes emerge unchanged from the reactions they catalyze.

Answer: <https://biology-forums.com/index.php?topic=1882941>

### Question 851

Below are three statements. Which of the following choices properly matches the statements with the correct biological processes?

- I. This occurs in the nucleus of eukaryotic cells.
- II. Transfer RNAs bind amino acids in the cytoplasm.
- III. A polymerase enzyme is required.

- A) I: replication; II: translation; III: transcription
- B) I: translation; II: translation; III: replication
- C) I: transcription; II: translation; III: translation
- D) I: replication; II: transcription; III: replication

Answer: <https://biology-forums.com/index.php?topic=1883223>

### Question 852

Myocardial infarction, also called a heart attack,

- A) is caused by excessive blood pressure in the heart.
- B) actually causes no permanent damage to the heart.
- C) is unrelated to cigarette smoking.
- D) is the damage or death of cardiac muscle tissue.

Answer: <https://biology-forums.com/index.php?topic=1881853>

### Question 853

You designed and performed an experiment that measured CO<sub>2</sub> gas exchange levels at the upper side of a sunflower leaf (fewer stomata) and the bottom side of a sunflower leaf (greater stomata). After collecting and analyzing your data, you conclude that there was not a significant difference in CO<sub>2</sub> gas exchange between the two sides of the leaf. Which of the following possibly explains this finding?

- A) The difference in the density of stomata on the two leaf surfaces is not likely due to an adaptation related to gas exchange regulation.
- B) The difference in the density of stomata on the two leaf surfaces is likely due to specific mechanisms that sunflowers use to disperse their seeds.
- C) The difference in the density of stomata on the two leaf surfaces is likely due to mycorrhizal associations with other plants.
- D) The difference in the density of stomata on the two leaf surfaces is likely due to different pollination needs for each surface.

Answer: <https://biology-forums.com/index.php?topic=1883725>

### Question 854

Visual information is carried from the retina to the brain via

- A) the optic nerve.
- B) rhodopsin.
- C) photopsins.
- D) the blind spot.

Answer: <https://biology-forums.com/index.php?topic=1882230>

### Question 855

What part of a neuron carries signals toward the part of the cell that houses the nucleus?

- A) node of Ranvier
- B) axon
- C) cell body
- D) dendrite

Answer: <https://biology-forums.com/index.php?topic=1882145>

### Question 856

The speed of impulse conduction along an axon may be increased by

- A) a myelin sheath.
- B) a graded potential.
- C) neurotransmitters.
- D) effector cells.

Answer: <https://biology-forums.com/index.php?topic=1882146>

### Question 857

To cross-fertilize flowers A and B, one would first remove flower A's immature \_\_\_\_\_ and later transfer pollen from flower B to flower A's \_\_\_\_\_.

- A) carpel; ovule
- B) anthers; stamen
- C) stamens; stigma
- D) stigma; style

Answer: <https://biology-forums.com/index.php?topic=1883677>

### Question 858

During which stage of meiosis do synapsis and crossing over occur?

- A) interphase I
- B) prophase I
- C) prophase II
- D) metaphase I

Answer: <https://biology-forums.com/index.php?topic=1883066>

### Question 859

Fungi are found associated with the earliest plant fossils. Fungi may have helped plants become terrestrial by

- A) forming mycorrhizal associations with plants and by decomposing organic matter.
- B) stocking the soil with organic matter.
- C) providing simple organic compounds in return for sugars.
- D) killing the bacterial enemies of plants.

Answer: <https://biology-forums.com/index.php?topic=1883693>

### Question 860

Genes located close together on the same chromosomes are referred to as \_\_\_\_\_ genes and generally \_\_\_\_\_.

- A) linked; sort independently during meiosis
- B) homologous; are inherited together
- C) linked; do not sort independently during meiosis
- D) codependent; do not sort independently during meiosis

Answer: <https://biology-forums.com/index.php?topic=1883136>

### Question 861

Which arrow in this image of the global water cycle includes transpiration?

- A) arrow A
- B) arrow B

- C) arrow C
- D) arrow D

Answer: <https://biology-forums.com/index.php?topic=1882548>

### Question 862

If you were observing two elephants separated by a distance of four miles, could the sensory receptors of your ear receive signals passing between them?

- A) Yes. Human ears have sound reception over the same range of frequencies as elephants.
- B) Yes. The organ of Corti in humans is more highly evolved than the comparable organ in elephants.
- C) No. Elephants have a much wider range of high-frequency hearing.
- D) No. Human ears cannot hear sounds lower than 20 Hz.

Answer: <https://biology-forums.com/index.php?topic=1882247>

### Question 863

The emergence of many diverse species from a common ancestor is called

- A) adaptive radiation.
- B) gradualism.
- C) allopatric speciation.
- D) hybridization.

Answer: <https://biology-forums.com/index.php?topic=1883461>

### Question 864

The emergence of a new plant species over a brief period of time followed by a long period of little change is consistent with which of the following theories?

- A) the gradual model of speciation
- B) allopatric speciation
- C) punctuated equilibrium
- D) adaptive radiation

Answer: <https://biology-forums.com/index.php?topic=1883467>

### Question 865

Which of the following diseases is thought to be an autoimmune disease?

- A) cancer of the bone marrow
- B) insulin-dependent diabetes mellitus
- C) measles and mumps
- D) duodenal ulcer

Answer: <https://biology-forums.com/index.php?topic=1881946>

### Question 866

An example of an organism that parasitizes a host plant is

- A) a mycorrhizal fungus.
- B) nitrogen-fixing bacteria in root nodules.
- C) a Venus flytrap.
- D) mistletoe.

Answer: <https://biology-forums.com/index.php?topic=1882425>

### Question 867

A gardener planted large, healthy flower bulbs in her garden. When spring arrived, green shoots emerged from the bulbs, and some of them, but not all, produced flowers. She decided to dig up a few bulbs that flowered and a few that didn't to see if she could see what the difference was. She was stunned to find that none of the bulbs looked healthy; they all appeared much smaller. What had happened?

- A) The bulbs were a sugar source; sugars from them traveled up the phloem to the aboveground sugar sink.
- B) The bulbs gave off water as they produced shoots; their smaller size was due to dehydration.
- C) All of the molecules in the bulb were transferred to the aboveground shoots.
- D) The bulbs were a sugar sink, so water flowed into them and out the roots, washing material from the bulb into the soil.

Answer: <https://biology-forums.com/index.php?topic=1882430>

### Question 868

Which of the following is an example of a photoautotroph?

- A) algae in freshwater and marine ecosystems
- B) grizzly bears in Alaska

- C) bacteria in our mouth
- D) mushrooms growing on the side of a dead tree

Answer: <https://biology-forums.com/index.php?topic=1882999>

### Question 869

During which phase of mitosis does the nuclear envelope re-form?

- A) anaphase
- B) metaphase
- C) prophase
- D) telophase

Answer: <https://biology-forums.com/index.php?topic=1883062>

### Question 870

In many dense forests, plants living near the ground level engage in intense competition for

- A) oxygen.
- B) water.
- C) carbon dioxide.
- D) sunlight.

Answer: <https://biology-forums.com/index.php?topic=1882505>

### Question 871

The ripened ovary of a flower, which is adapted to disperse seeds, is called a/an

- A) ovule.
- B) casing.
- C) fruit.
- D) sporangium.

Answer: <https://biology-forums.com/index.php?topic=1883680>

### Question 872

Approximately what percentage of the human genome is identical to that of a chimpanzee?

- A) 50.0%
- B) 62.3%
- C) 92.0%
- D) 98.8%

Answer: <https://biology-forums.com/index.php?topic=1883350>

### Question 873

Below is the structure of leucine, an amino acid. What type of bond is the arrow pointing to?

- A) a nonpolar covalent bond
- B) a polar covalent bond
- C) an ionic bond
- D) a hydrogen bond

Answer: <https://biology-forums.com/index.php?topic=1882778>

### Question 874

Which ocean zone describes the interface between ocean and land?

- A) intertidal
- B) pelagic
- C) abyssal
- D) upwelling

Answer: <https://biology-forums.com/index.php?topic=1882518>

### Question 875

Receptors that transduce when the plasma membrane becomes more permeable to positive ions as it changes shape are called

- A) pain receptors.
- B) thermoreceptors.
- C) mechanoreceptors.
- D) chemoreceptors.

Answer: <https://biology-forums.com/index.php?topic=1882207>

### Question 876

Which of the following organisms are common soil decomposers that grow in colonies of branched chains of cells that superficially resemble a fungus?

- A) actinomycetes
- B) yeasts
- C) halobacteria
- D) cocci

Answer: <https://biology-forums.com/index.php?topic=1883578>

### Question 877

In a process called phytoremediation, specific plants are planted in areas where toxic chemicals have contaminated groundwater. The roots absorb the contaminants to help eliminate the tainted water, which is often drinking water. This is an example of

- A) an endotoxin.
- B) a microbial community.
- C) bioremediation.
- D) a biofilm.

Answer: <https://biology-forums.com/index.php?topic=1883629>

### Question 878

An owl and a hawk both eat mice. Which of the following describes the relationship between a hawk and an owl?

- A) predation
- B) competition
- C) mutualism
- D) parasitism

Answer: <https://biology-forums.com/index.php?topic=1882654>

### Question 879

To obtain energy from starch and glycogen, the body must begin by

- A) hydrolyzing the starch to glucose and the glycogen to amino acids.
- B) hydrolyzing both starch and glycogen to glucose.
- C) converting both starch and glycogen to fatty acids.
- D) removing one glucose at a time with a condensation reaction.

Answer: <https://biology-forums.com/index.php?topic=1882975>

### Question 880

The incomplete decay of dead plants during the Carboniferous period led to

- A) global warming.
- B) the thinning of the ozone layer.
- C) the formation of coal.
- D) the formation of tropical swamps.

Answer: <https://biology-forums.com/index.php?topic=1883670>

### Question 881

Which of the following statements regarding the cell cycle control system is false?

- A) The cell cycle control system receives messages from outside the cell that influence cell division.
- B) The cell cycle control system triggers and controls major events in the cell cycle.
- C) The cell cycle control system includes three key checkpoints to complete a cell cycle.
- D) The cell cycle control system operates independently of the growth factors.

Answer: <https://biology-forums.com/index.php?topic=1883063>

### Question 882

Which of the following molecules is a product of photosynthesis?

- A) CO<sub>2</sub> and chlorophyll
- B) glucose and O<sub>2</sub>
- C) O<sub>2</sub> and CO<sub>2</sub>
- D) glucose and CO<sub>2</sub>

Answer: <https://biology-forums.com/index.php?topic=1883023>

### Question 883

Which of the following features would you expect to see in the flowers of wind-pollinated grasses?

- A) very large, fragrant, white flowers
- B) petals with UV-absorbing "nectar guides"
- C) very simple flowers that produce massive quantities of pollen
- D) red flowers with long nectar tubes

Answer: <https://biology-forums.com/index.php?topic=1883685>

### Question 884

A tennis player serving the ball uses fast muscle fibers. The ATP needed to accomplish this comes from

- A) anaerobic fermentation.
- B) aerobic respiration.
- C) conversion of lactic acid to ATP.
- D) conversion of  $\text{Ca}^{2+}$  to ATP.

Answer: <https://biology-forums.com/index.php?topic=1882291>

### Question 885

Which of the following cells are phagocytes?

- A) monocytes and neutrophils
- B) basophils and eosinophils
- C) lymphocytes only
- D) lymphocytes, basophils, and eosinophils

Answer: <https://biology-forums.com/index.php?topic=1881872>

### Question 886

Which of the following are not included among the eumetazoans that have true tissues?

- A) sea stars (Echinodermata)
- B) earthworms (Annelida)
- C) sea anemones (Cnidaria)
- D) sponges (Porifera)

Answer: <https://biology-forums.com/index.php?topic=1883737>

### Question 887

A fertilizer with which of the following nitrogen-phosphorous-potassium ratios would most likely solve the problem of yellowed leaves and stunted growth?

- A) 20:0:0
- B) 0:20:0
- C) 0:0:20
- D) 0:20:20

Answer: <https://biology-forums.com/index.php?topic=1882407>

### Question 888

Which of the following options lists major events in the history of life on Earth in the proper order, from earliest to most recent?

- A) first prokaryotes, photosynthesis, colonization of land by plants and fungi, first eukaryotes
- B) first eukaryotes, photosynthesis, colonization of land by plants and fungi, first prokaryotes
- C) first prokaryotes, first eukaryotes, photosynthesis, colonization of land by plants and fungi
- D) first prokaryotes, photosynthesis, first eukaryotes, colonization of land by plants and fungi

Answer: <https://biology-forums.com/index.php?topic=1883494>

### Question 889

After eating a Yummie cake, what molecule do you expect to be most abundant in your digestive system?

- A) amino acids
- B) monosaccharides
- C) cellulose
- D) triglycerides

Answer: <https://biology-forums.com/index.php?topic=1882827>

### Question 890

After being produced in the testes, sperm mature further in a structure called the

- A) vas deferens.
- B) epididymis.

- C) prostate.
- D) seminal vesicle.

Answer: <https://biology-forums.com/index.php?topic=1882088>

### Question 891

The ability to stain protein molecules with a fluorescent dye would most clearly allow researchers to go beyond what they could previously detect with a microscope by allowing them to

- A) detect ribosome activity.
- B) detect when DNA is replicating.
- C) distinguish a prokaryote from a eukaryote.
- D) determine whether a cell had cilia or flagella.

Answer: <https://biology-forums.com/index.php?topic=1882896>

### Question 892

After many hours of observation, Jennifer noticed that a squirrel in her backyard retreated up a certain tree every time it was frightened. At the base of that tree was a wheelbarrow. Jennifer wondered how the squirrel found the same tree each time. That night, she moved the wheelbarrow to the base of another tree. The next day, the squirrel retreated up the new tree. This experiment suggests that the squirrel was using

- A) spatial learning.
- B) imprinting.
- C) habituation.
- D) social learning.

Answer: <https://biology-forums.com/index.php?topic=1882573>

### Question 893

Over a span of several thousand years, a number of species show adaptations to climate change: Drier, warmer conditions select for succulent vegetation and deep taproots in plants, burrowing in mammals and amphibians, and other similar adaptive changes. What will happen if the climate shifts in the opposite direction and becomes progressively wetter and cooler?

- A) Ongoing processes of adaptation will continue because of evolutionary inertia.
- B) Different adaptive trends will probably be favored in the new climatic environment.
- C) Current adaptive trends will continue, but organisms will now also have to add on adaptations to deal with cool, wet conditions.
- D) Adaptation will cease because cool, wet conditions are generally favorable for life.

Answer: <https://biology-forums.com/index.php?topic=1883526>

### Question 894

Suppose you take two young cuttings of a house plant. You cut the roots off of one cutting and then place both cuttings in a jar of red dye. After 20 minutes, the roots, stem, and leaves of the cutting with roots have turned pink. The cutting without roots has not changed color at all. Why has the cutting without roots remained a normal, green color?

- A) Cutting the roots has damaged the xylem, so the plant can no longer take up water.
- B) Cutting the roots has damaged the phloem, so the plant can no longer take up water.
- C) Cutting the roots has damaged the apical meristem, so the plant can no longer take up water.
- D) Cutting the roots has damaged the sporangia, so the plant can no longer take up water.

Answer: <https://biology-forums.com/index.php?topic=1883713>

### Question 895

Which of the following accurately represents a food chain in the grasslands of Africa?

- A) grass, giraffes, lions, vultures, fungi
- B) grass, fungi, giraffes, vultures, lions
- C) grass, lions, giraffes, fungi, vultures
- D) grass, fungi, lions, vultures, giraffes

Answer: <https://biology-forums.com/index.php?topic=1882696>

### Question 896

Which of the following statements correctly describes the alternation of generations in a plant life cycle?

- A) Diploid sporophytes that produce spores by meiosis alternate with haploid gametophytes that produce gametes by mitosis.
- B) Diploid sporophytes that produce gametes by meiosis alternate with haploid sporophytes that produce gametes by mitosis.
- C) Diploid gametophytes that produce spores by mitosis alternate with haploid sporophytes that produce gametes by meiosis.
- D) Diploid gametophytes that produce gametes by meiosis alternate with haploid sporophytes that produce spores by mitosis.

Answer: <https://biology-forums.com/index.php?topic=1883663>

### Question 897

The first step in the formation of urine is the

- A) secretion of hydrogen ions into the kidney tubules.
- B) formation of filtrate that enters Bowman's capsule.
- C) secretion of urea into the renal pelvis.
- D) reabsorption of nutrients by Bowman's capsule.

Answer: <https://biology-forums.com/index.php?topic=1881997>

### Question 898

Geological evidence indicates that two landmasses became separated by a deep ocean channel 45 million years ago and have been moving apart ever since. You are studying a group of organisms that is widespread as a native part of the biota on both of the landmasses. What can you conclude about the group's evolutionary history?

- A) The group's ancestors were definitely present on the original landmass.
- B) The group's ancestors cannot have been present on the original landmass.
- C) If the group's ancestors could not move across the open ocean, it is very likely that they were present on the original landmass.
- D) The group's ancestors must have independently colonized each of the landmasses from a third location within the past 45 million years.

Answer: <https://biology-forums.com/index.php?topic=1883512>

### Question 899

Which of the following options incorrectly pairs a class of sensory receptor with one of the stimuli it detects?

- A) electromagnetic receptorslight
- B) chemoreceptorsmolecular structure
- C) mechanoreceptorssound
- D) thermoreceptorstouch

Answer: <https://biology-forums.com/index.php?topic=1882210>

### Question 900

Monocot floral parts usually occur in multiples of

- A) five.
- B) four.
- C) two.
- D) three.

Answer: <https://biology-forums.com/index.php?topic=1882314>

### Question 901

According to this graph of changes in Earth's atmosphere, which of the following took place between the years 1800 and 2000?

- A) Nitrous oxide (N<sub>2</sub>O) levels increased from 270 ppb to 390 ppb.
- B) Carbon dioxide (CO<sub>2</sub>) levels increased from 950 ppb to 1,800 ppb.
- C) Carbon dioxide (CO<sub>2</sub>) levels increased from 290 ppm to 380 ppm.
- D) Methane (CH<sub>4</sub>) levels increased from 270 ppm to almost 2,000 ppm.

Answer: <https://biology-forums.com/index.php?topic=1882746>

### Question 902

Sometimes when a person in a movie is stabbed or cut, blood forcefully sprays out of the wound. This is realistic only if the severed vessel is under a high degree of pressure. Which of the following vessels, if severed, would result in the most forceful spray of blood?

- A) pulmonary artery
- B) inferior vena cava
- C) capillaries in the body
- D) aorta

Answer: <https://biology-forums.com/index.php?topic=1881883>

### Question 903

The use of cloning to produce special embryonic stem cells is called

- A) regenerative cloning.
- B) transplantational cloning.
- C) reproductive cloning.
- D) therapeutic cloning.

Answer: <https://biology-forums.com/index.php?topic=1883268>

### Question 904

The sex chromosome complement of a normal human female is

- A) XO.
- B) XX.
- C) XY.
- D) YY.

Answer: <https://biology-forums.com/index.php?topic=1883142>

### Question 905

In photophosphorylation, energy from electron flow is used to transport \_\_\_\_\_ from the \_\_\_\_\_ to the thylakoid compartment, generating a concentration gradient of \_\_\_\_\_.

- A) electrons; grana; H<sup>+</sup>
- B) H<sup>+</sup>; grana; electrons
- C) H<sup>+</sup>; stroma; H<sup>+</sup>
- D) H<sup>+</sup>; stroma; ATP

Answer: <https://biology-forums.com/index.php?topic=1883031>

### Question 906

In Utah there is a clone of aspen trees that covers over 100 acres. Such clones can be considered to be a single plant with many stems. It appears that the first stem of this clone originated over 80,000 years ago, even before there were humans in North America. Which of the following likely contributes most to the long-term survival (long life span) of aspens?

- A) If parts of the organism (clone) are damaged, there are still other parts that can continue growing.
- B) All parts of the clone carry the same genes.
- C) A shared root system means that all stems receive the same nourishment.
- D) Sexual reproduction can occur more frequently in clones.

Answer: <https://biology-forums.com/index.php?topic=1882368>

### Question 907

A physician sees a new patient who is 25 years old. The patient reports that she has been experiencing recurrent ear, nose, and throat infections since she was about 5 years old. The infections last for long periods of time and are difficult to treat. The physician suspects that the patient may have

- A) an autoimmune disorder.
- B) an allergic reaction.
- C) an immunodeficiency disorder.
- D) abnormal levels of allergens.

Answer: <https://biology-forums.com/index.php?topic=1881954>

### Question 908

There was a third group (group 3) in this study that experienced the same test conditions as groups 1 and 2 except that the water to which group 3 was exposed always had a chloride concentration (mg/L) that salamander clutches would normally experience (that is, with no road salts in the water). How would you describe this group?

- A) an experimental group
- B) a control group
- C) a dependent variable
- D) an independent variable

Answer: <https://biology-forums.com/index.php?topic=1882031>

### Question 909

Rachel Carson's book Silent Spring deals with the

- A) destruction of polar habitats caused by global warming.
- B) environmental effects of pesticides.
- C) effects of lynx predation on snow hare populations.
- D) fate of tropical rain forests.

Answer: <https://biology-forums.com/index.php?topic=1882504>

### Question 910

A karyotype is most like

- A) a map showing the hidden location of buried treasure.
- B) a movie showing the stages of the reproductive cycle of a beetle.
- C) photographs of every couple at a high school prom.
- D) the answer key to a multiple-choice exam.

Answer: <https://biology-forums.com/index.php?topic=1883071>

### Question 911

Why must some hormones bind to a membrane receptor on a target cell's surface in order to activate it?

- A) for activation by ATP
- B) because they are not water-soluble
- C) because they cannot cross cell membranes
- D) to stimulate endocytosis to internalize the hormone

Answer: <https://biology-forums.com/index.php?topic=1882038>

### Question 912

What is the function of urea reabsorption in the collecting ducts of the kidney?

- A) It restores the correct concentration of blood urea.
- B) It increases the osmotic concentration of the interstitial fluid in the renal medulla so that more water can be extracted from the urine.
- C) It reduces the salinity of the renal medulla and thus helps regulate how much water is reabsorbed from the urine.
- D) It moves the urea into the ascending limb of the loop of Henle so that it can be excreted from there in the urine.

Answer: <https://biology-forums.com/index.php?topic=1882005>

### Question 913

Which of the following terms broadly describes any kind of interaction between two or more animals?

- A) competition
- B) dominance hierarchy
- C) foraging behavior
- D) social behavior

Answer: <https://biology-forums.com/index.php?topic=1882589>

### Question 914

A vasectomy is a form of male sterilization in which each vas deferens is cut, but most of the male's reproductive physiology remains intact. Which of the following will not continue to occur in a male who has had a vasectomy?

- A) Sperm will be produced in the seminiferous tubules.
- B) Seminal fluid will be ejaculated from the penis during orgasm.
- C) Glandular secretions will be ejaculated from the penis during orgasm.
- D) Sperm will be ejaculated from the penis during orgasm.

Answer: <https://biology-forums.com/index.php?topic=1882126>

### Question 915

Which part of a bone contains the cells that produce blood cells?

- A) compact bone
- B) cartilage
- C) spongy bone
- D) yellow bone marrow

Answer: <https://biology-forums.com/index.php?topic=1882270>

### Question 916

Which of the following statements about the age structure of Nigeria is false?

- A) The population of males and females ages 0 to 4 is approximately the same.
- B) The population of males ages 15 to 19 is smaller than the population of females ages 5 to 9.
- C) There are approximately 28 million males in Nigeria ages 0 to 14.
- D) The population of females ages 40 to 44 is smaller than the population of males ages 65 to 69.

Answer: <https://biology-forums.com/index.php?topic=1882652>

### Question 917

Why was drip irrigation developed?

- A) Drip irrigation uses less water than traditional methods.
- B) Drip irrigation increases soil erosion.
- C) Drip irrigation increases soil salinity.
- D) Drip irrigation increases evaporation and drainage.

Answer: <https://biology-forums.com/index.php?topic=1882411>

### Question 918

Oxygen crosses a plasma membrane by

- A) osmosis.
- B) active transport.
- C) pinocytosis.
- D) passive transport.

Answer: <https://biology-forums.com/index.php?topic=1882910>

### Question 919

If you examine the soil profile revealed by a fresh road cut through a grassy rise, which of the following features will you probably find in the B horizon?

- A) an abundance of worms and burrowing insects
- B) an abundance of decomposing organic material
- C) an abundance of fine clay but not much organic material
- D) a predominance of slightly weathered rock and gravel

Answer: <https://biology-forums.com/index.php?topic=1882409>

### Question 920

If these four cells resulted from cell division of a single cell with diploid chromosome number  $2n = 4$ , what best describes what just occurred?

- A) normal meiosis
- B) translocation
- C) inversion
- D) nondisjunction

Answer: <https://biology-forums.com/index.php?topic=1883091>

### Question 921

Which of the following structures is an essential part of most fungal reproductive systems?

- A) gametangia
- B) cellulose
- C) seeds
- D) spores

Answer: <https://biology-forums.com/index.php?topic=1883696>

### Question 922

Most adult insects have three major body parts or sections. They are the

- A) head, body, and legs.
- B) head, thorax, and abdomen.
- C) antennae, head, and abdomen.
- D) legs, wings, and body.

Answer: <https://biology-forums.com/index.php?topic=1883759>

### Question 923

Compared to the vital capacity, how much air can lungs actually hold?

- A) always less
- B) sometimes less
- C) always more
- D) sometimes more

Answer: <https://biology-forums.com/index.php?topic=1884029>

### Question 924

The last common ancestor of animals and fungi was probably \_\_\_\_\_, like the spores of \_\_\_\_\_ fungi.

- A) flagellated; chytrid
- B) flagellated; mold
- C) multicellular; chytrid
- D) nonflagellated; yeast

Answer: <https://biology-forums.com/index.php?topic=1883699>

### Question 925

In England, at a time when milk was still delivered to doorsteps each morning in foil-capped glass bottles, a songbird called the great tit started pecking through the caps and drinking the cream in the necks of the bottles. This behavior spread through the great tit population in a matter of years. The emergence and spread of this behavior probably depended on

- A) trial-and-error learning plus habituation.
- B) trial-and-error learning plus social learning.
- C) trial-and-error learning plus imprinting.
- D) habituation plus social learning.

Answer: <https://biology-forums.com/index.php?topic=1882575>

### Question 926

If you used flow cytometry to sort a sample of cancerous cells that have been treated with a drug to prevent them from replicating their DNA, what peaks would you expect to see on the resulting flow cytometry data set?

- A) A only
- B) C only
- C) A and B only
- D) A, B, and C

Answer: <https://biology-forums.com/index.php?topic=1883097>

### Question 927

Which of the following is closely associated with the digestive, respiratory, and urinary systems?

- A) the skeletal system
- B) the circulatory system
- C) the reproductive system
- D) the muscular system

Answer: <https://biology-forums.com/index.php?topic=1883886>

### Question 928

Which event of the Ironman would likely contribute the most to bone development and growth?

- A) swimming
- B) bicycling
- C) running
- D) All events would contribute equally.

Answer: <https://biology-forums.com/index.php?topic=1882305>

### Question 929

Air leaving human lungs during exhalation contains

- A) no oxygen.
- B) no carbon dioxide.
- C) mostly carbon dioxide and carbon monoxide.
- D) carbon dioxide and unused oxygen.

Answer: <https://biology-forums.com/index.php?topic=1884031>

### Question 930

Cormorants are sea-dwelling birds that consume high levels of salt from the seawater they drink. To get rid of this excess salt, cormorants "sneeze" out the salt that has collected in a localized area near their sinuses. This process is an example of

- A) osmoregulation.
- B) thermoregulation.
- C) conduction.
- D) radiation.

Answer: <https://biology-forums.com/index.php?topic=1882015>

### Question 931

During which of the following stages of food processing is undigested material removed from the digestive tract?

- A) absorption
- B) elimination
- C) digestion
- D) ingestion

Answer: <https://biology-forums.com/index.php?topic=1883907>

### Question 932

Yeasts can produce ATP by either fermentation or oxidative phosphorylation; thus, they are

- A) strict anaerobes.
- B) strict aerobes.

- C) facultative anaerobes.
- D) facultative aerobes.

Answer: <https://biology-forums.com/index.php?topic=1882973>

### Question 933

Aortic stenosis is a disease in which the aortic valve (the semilunar valve between the left ventricle and the aorta) narrows, resulting in increased left ventricular pressure and reduced ejection volume (the amount of blood that the left ventricle ejects). What would the pressure-volume graph for a patient with aortic stenosis look like compared to the graph shown above for a healthy young adult?

- A) taller and wider
- B) taller and narrower
- C) shorter and narrower
- D) shorter and wide

Answer: <https://biology-forums.com/index.php?topic=1881910>

### Question 934

The flow of \_\_\_\_\_ into ecosystems occurs in one direction only, while \_\_\_\_\_ are recycled within the ecosystem itself.

- A) minerals; energy compounds
- B) genetic information; genotypes
- C) organic compounds; minerals
- D) energy; chemicals

Answer: <https://biology-forums.com/index.php?topic=1882680>

### Question 935

Put the following steps of the Calvin cycle in the correct order:

1. Carbon fixation
2. Regeneration of RuBP
3. Release of G3P
4. Reduction

- A) 1, 2, 3, 4
- B) 1, 3, 4, 2
- C) 1, 4, 3, 2
- D) 4, 1, 2, 3

Answer: <https://biology-forums.com/index.php?topic=1883047>

### Question 936

What is the physical barrier in the root that regulates the flow of water to xylem via cell walls?

- A) phloem
- B) epidermis
- C) Casparian strip
- D) cortex

Answer: <https://biology-forums.com/index.php?topic=1882387>

### Question 937

Which type of tissue forms a communication and coordination system within the body?

- A) nervous
- B) epithelial
- C) connective
- D) muscle

Answer: <https://biology-forums.com/index.php?topic=1883874>

### Question 938

Two species interbreed occasionally and produce vigorous, fertile hybrids. When the hybrids breed with each other or with either parent species, however, the offspring are feeble or sterile. These species are affected by

- A) gametic isolation.
- B) reduced hybrid fertility.
- C) reduced hybrid viability.
- D) hybrid breakdown.

Answer: <https://biology-forums.com/index.php?topic=1883444>

### Question 939

Using the data from the graphs and what you know about membranes and metabolic pathways, predict which of the following is the likely reason why actions of aquaporins in a membrane can change so rapidly.

- A) The number of aquaporins in the membrane is constant, but the pores have to be activated.
- B) Aquaporins are inserted into the membrane as needed.
- C) Aquaporins are only in cells that need to be permeable to water.
- D) Aquaporins use ATP to pump water across the membrane, and their action is limited by the metabolic pathways that produce ATP.

Answer: <https://biology-forums.com/index.php?topic=1882951>

### Question 940

What is the correct order of structures in a chromosome from smallest to largest?

- A) nucleotide, nucleosome, histone, supercoil, tight helical fiber, chromosome
- B) nucleosome, nucleotide, histone, tight helical fiber, supercoil, chromosome
- C) nucleotide, histone, tight helical fiber, nucleosome, chromosome, supercoil
- D) nucleotide, histone, nucleosome, tight helical fiber, supercoil, chromosome

Answer: <https://biology-forums.com/index.php?topic=1883297>

### Question 941

Suppose you have a bag of assorted flavors of candy. You close your eyes, hold your nose, and pull out a piece of candy and eat it. Then you try to describe the candy's flavor. How accurate do you think your prediction will be?

- A) very accurate, because your taste receptors can detect multiple tastes at one time
- B) not very accurate, because you cannot fully experience the flavor of the candy
- C) not very accurate, because the production of glutamate will be decreased
- D) very accurate, because holding your nose heightens sensitivity of your taste receptors

Answer: <https://biology-forums.com/index.php?topic=1882249>

### Question 942

According to this graph of the population growth of fur seals, in what year did the population first reach its carrying capacity?

- A) 1925
- B) 1930
- C) 1940
- D) 1950

Answer: <https://biology-forums.com/index.php?topic=1882647>

### Question 943

Which of the following is a parasitic excavate that causes African sleeping sickness, a disease spread by the tsetse fly?

- A) Plasmodium
- B) Trypanosoma
- C) Paramecium
- D) Amoeba

Answer: <https://biology-forums.com/index.php?topic=1883617>

### Question 944

If a population has a birth rate of 40 individuals per 1,000 per year and a death rate of 30 individuals per 1,000 per year, how will the population change each year? (Assume that the population is below carrying capacity and that there is no immigration or emigration.)

- A) It will decrease by 70%.
- B) It will increase by 1%.
- C) It will increase by 5%.
- D) It will increase by 100%.

Answer: <https://biology-forums.com/index.php?topic=1882621>

### Question 945

Glycolysis is the first step of cellular respiration, in which glucose is used to generate ATP to power the cell. The major chemical reaction that takes place in glycolysis (ignoring some other reactants and products) is the conversion of glucose (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>) to pyruvate (C<sub>3</sub>H<sub>4</sub>O<sub>3</sub>) and hydrogen ions (H<sup>+</sup>). Using this information, what is the correct equation for the glycolysis chemical reaction?

- A) C<sub>6</sub>H<sub>12</sub>O<sub>6</sub> → C<sub>3</sub>H<sub>4</sub>O<sub>3</sub> + H<sup>+</sup>
- B) C<sub>6</sub>H<sub>12</sub>O<sub>6</sub> → 2 C<sub>3</sub>H<sub>4</sub>O<sub>3</sub> + 2 H<sup>+</sup>
- C) C<sub>6</sub>H<sub>12</sub>O<sub>6</sub> → 2 C<sub>3</sub>H<sub>4</sub>O<sub>3</sub> + H<sup>+</sup>
- D) 2 C<sub>6</sub>H<sub>12</sub>O<sub>6</sub> → C<sub>3</sub>H<sub>4</sub>O<sub>3</sub> + 2 H<sup>+</sup>

Answer: <https://biology-forums.com/index.php?topic=1882772>

### Question 946

You conduct a study with mice to determine whether giving them air with a higher than normal oxygen level results in their having a higher than normal oxygen content in their blood. What vessel should you draw blood from if you want to measure the highest potential level of oxygen content in the blood?

- A) superior vena cava
- B) pulmonary vein
- C) pulmonary artery
- D) aorta

Answer: <https://biology-forums.com/index.php?topic=1881884>

### Question 947

Stem cells found in the red marrow inside bones

- A) phagocytize bacterial cells.
- B) are primarily important in blood clotting.
- C) are responsible for an immune response.
- D) can differentiate into all blood cells and platelets.

Answer: <https://biology-forums.com/index.php?topic=1881879>

### Question 948

The use of prokaryotes and other organisms to clean up pollutants from soil, air, or water is called \_\_\_\_\_.

- A) decomposition
- B) nitrogen fixation
- C) bioremediation
- D) biocomposting

Answer: <https://biology-forums.com/index.php?topic=1883571>

### Question 949

Vegetarians who rely upon a single type of plant food

- A) may become severely dehydrated.
- B) run the risk of depleting their liver of glycogen.
- C) are soon unable to produce sufficient quantities of bile.
- D) may become protein-deficient.

Answer: <https://biology-forums.com/index.php?topic=1883952>

### Question 950

What type of behavior would explain the ability of the salmon to return to their home streams?

- A) imprinting
- B) associative learning
- C) social learning
- D) habituation

Answer: <https://biology-forums.com/index.php?topic=1882602>

### Question 951

If you were able to stop the process of cellular respiration after completing electron transport but prior to chemiosmosis, you would find the pH of a mitochondrion to be at its lowest

- A) on the outer membrane.
- B) on the inner membrane.
- C) in the mitochondrial matrix.
- D) in the intermembrane space.

Answer: <https://biology-forums.com/index.php?topic=1882964>

### Question 952

If you place an organism classified as a photoautotroph at the bottom of a lake and later see that it is able to acquire nutrients from dead plant material, you can conclude the photoautotroph is actually a

- A) photoheterotroph.
- B) chemoautotroph.
- C) chemoheterotroph.
- D) mixotroph.

Answer: <https://biology-forums.com/index.php?topic=1883638>

### Question 953

Which of the following components of the human eye forms the iris?

- A) sclera
- B) choroid
- C) retina
- D) pupil

Answer: <https://biology-forums.com/index.php?topic=188222>

### Question 954

Scientists worry that global warming will result in the oceans

- A) becoming more acidic.
- B) becoming more basic.
- C) containing less dissolved oxygen.
- D) containing less dissolved carbon dioxide.

Answer: <https://biology-forums.com/index.php?topic=1882718>

### Question 955

Mycorrhizal fungi are sometimes purposely introduced to new areas of land that are used for growing plants for commercial uses (e.g., landscaping, crop production, timber production). What would be the benefit of doing this?

- A) The fungi absorb toxic pesticides from the ground.
- B) The fungi help facilitate horticulture, agriculture, and forestry.
- C) The fungi promote the evolution of new fungus species.
- D) The fungi prevent competitive plant species from growing.

Answer: <https://biology-forums.com/index.php?topic=1883711>

### Question 956

The \_\_\_\_\_ suggests that speciation occurs in brief spurts.

- A) adaptive model of the origin of species
- B) allopatric speciation model
- C) gradual model of the origin of species
- D) punctuated equilibrium model

Answer: <https://biology-forums.com/index.php?topic=1883466>

### Question 957

Organisms suffering from malnutrition may have a diet deficient in

- A) one or more essential nutrients.
- B) bile and acids needed for digestion.
- C) digestive enzymes.
- D) water.

Answer: <https://biology-forums.com/index.php?topic=1883949>

### Question 958

Over the past 500 million years, there have been \_\_\_\_\_ mass extinctions, and each time, at least \_\_\_\_\_ of the species on Earth became extinct.

- A) two; 25%
- B) five; 25%
- C) five; 50%
- D) twelve; 96%

Answer: <https://biology-forums.com/index.php?topic=1883514>

### Question 959

After DNA fragments with matching sticky ends are temporarily joined by complementary base pairing, the union can be made permanent by the "pasting" enzyme

- A) DNA ligase.
- B) DNA polymerase.
- C) DNA helicase.
- D) ATP methylase.

Answer: <https://biology-forums.com/index.php?topic=1883314>

### Question 960

Which of the following digestive system structures is greatly expanded in size in koalas, resulting in a very large surface area for prokaryotes to digest plant material?

- A) stomach
- B) rumen
- C) cecum
- D) gall bladder

Answer: <https://biology-forums.com/index.php?topic=1883945>

### Question 961

The sugar "sink" in roots is the result of

- A) active transport of mineral ions into xylem cells.
- B) absorption of water from the soil through epidermal cells.
- C) active transport of sugars from phloem to root cells.
- D) the pull of gravity on sugar molecules.

Answer: <https://biology-forums.com/index.php?topic=1882400>

### Question 962

Which of the following statements regarding diffusion is false?

- A) Diffusion is a result of the thermal energy of atoms and molecules.
- B) Diffusion requires no input of energy into the system.
- C) Diffusion occurs when particles spread from areas where they are less concentrated to areas where they are more concentrated.
- D) Diffusion occurs even after equilibrium is reached and no net change is apparent.

Answer: <https://biology-forums.com/index.php?topic=1882911>

### Question 963

Which of the following statements regarding cross-breeding and hybridization is false?

- A) The offspring of two different varieties are called hybrids.
- B) The parental plants of a cross are the P generation.
- C) The hybrid offspring of a cross are the P1 generation.
- D) The hybrid offspring of an F1 cross are the F2 generation.

Answer: <https://biology-forums.com/index.php?topic=1883102>

### Question 964

Medullary breathing centers directly sense and respond to

- A) blood pH and CO<sub>2</sub> concentration.
- B) blood O<sub>2</sub> concentration.
- C) alveolar O<sub>2</sub> concentration.
- D) blood pH and O<sub>2</sub> concentration.

Answer: <https://biology-forums.com/index.php?topic=1884033>

### Question 965

Removing the terminal bud of a plant that shows apical dominance will cause

- A) an increase in the growth of the root system.
- B) increased growth of the terminal bud.
- C) increased growth of the axillary buds.
- D) an immediate flowering of the plant.

Answer: <https://biology-forums.com/index.php?topic=1882317>

### Question 966

Which of the following statements regarding spermatogenesis and oogenesis is true?

- A) Meiosis in spermatogenesis produces two cells from one primary spermatocyte.
- B) Meiosis in oogenesis produces one mature egg from one primary oocyte.
- C) Oogenesis begins at puberty.
- D) Spermatogenesis begins at birth.

Answer: <https://biology-forums.com/index.php?topic=1882090>

### Question 967

Which of the following permits a single gene to code for more than one polypeptide?

- A) retention of different introns in the final version of the different mRNA strands
- B) alternative RNA splicing
- C) genetic differentiation
- D) addition of different types of caps and tails to the final version of the mRNA strands

Answer: <https://biology-forums.com/index.php?topic=1883255>

### Question 968

In chloroplasts, ATP synthase

- A) catalyzes the Calvin cycle.
- B) phosphorylates ADP to ATP.
- C) is found in the stroma.
- D) helps produce the concentration gradient of H<sup>+</sup>.

Answer: <https://biology-forums.com/index.php?topic=1883032>

### Question 969

The hormone prolactin, found in distantly related vertebrates, exerts different effects in different species. From an evolutionary standpoint, this is an indication that prolactin

- A) can only have functions related to childbirth.
- B) is an ancient hormone whose function diversified through evolution.
- C) was a recent evolutionary adaptation.
- D) was not required in fish and amphibians.

Answer: <https://biology-forums.com/index.php?topic=1882063>

### Question 970

The production of multiple identical copies of gene-sized pieces of DNA defines

- A) gene cloning.
- B) transformation.
- C) DNA technology.
- D) genetic engineering.

Answer: <https://biology-forums.com/index.php?topic=1883309>

### Question 971

Which part of the ATP molecule breaks free of the rest when an ATP molecule is used for energy?

- A) part A
- B) part B
- C) part C
- D) part D

Answer: <https://biology-forums.com/index.php?topic=1882950>

### Question 972

Heterotrophic eukaryotes that digest their food externally and absorb the small molecules are referred to as

- A) bacteria.
- B) fungi.
- C) plants.
- D) multicellular algae.

Answer: <https://biology-forums.com/index.php?topic=1883691>

### Question 973

Which of the following options correctly represents the most likely sequence of the evolution of plants, from earliest to most recent?

- A) bryophytes, seedless vascular plants, gymnosperms, angiosperms
- B) seedless vascular plants, bryophytes, angiosperms, gymnosperms
- C) bryophytes, seedless vascular plants, angiosperms, gymnosperms
- D) bryophytes, gymnosperms, seedless vascular plants, angiosperms

Answer: <https://biology-forums.com/index.php?topic=1883661>

### Question 974

Which of the following would most quickly be eliminated by natural selection?

- A) a harmful allele in an asexual, haploid population

- B) a harmful recessive allele in a sexual, diploid population
- C) a harmful recessive allele in a sexual, polyploid population
- D) any harmful allele, regardless of the system of inheritance in a population

Answer: <https://biology-forums.com/index.php?topic=1883413>

### Question 975

The process of a white blood cell engulfing a bacterium is

- A) osmosis.
- B) receptor-mediated endocytosis.
- C) pinocytosis.
- D) phagocytosis.

Answer: <https://biology-forums.com/index.php?topic=1882921>

### Question 976

A dog breeder wishes to develop a breed that does not bark. She starts with a diverse mixture of dogs. Generation after generation, she allows only the quietest dogs to breed. After 30 years of work she has a new breed of dog with interesting traits, but on average, the dogs still bark at about the same rate as other dog breeds. Which of the following would be a logical explanation for her failure?

- A) There is no variation for the trait (barking).
- B) The tendency to bark is not a heritable trait.
- C) The selection was artificial, not natural, so it did not produce evolutionary change.
- D) There was no selection (differential reproductive success) related to barking behavior.

Answer: <https://biology-forums.com/index.php?topic=1883386>

### Question 977

While hiking, you must push aside thick branches that are near your face. One of them rips the skin on your arm and you begin to bleed from the cut. Which of the following plays an important role in initially protecting you from infection?

- A) nonspecific antibodies
- B) barriers such as dead skin cells and mucus because they are part of the innate immune system
- C) increased production of certain hormones and changes in microcirculation
- D) memory cells because they are part of the adaptive immune system

Answer: <https://biology-forums.com/index.php?topic=1881933>

### Question 978

Which of the following statements best summarizes the difference between ectothermic and endothermic organisms?

- A) Ectotherms are warm-blooded, but endotherms are cold-blooded.
- B) Endotherms are warm-blooded, but ectotherms are cold-blooded.
- C) Endotherms control their temperature, but ectotherms have no control over their temperature.
- D) Ectotherms absorb external heat, but endotherms use metabolic heat to maintain a warm, steady body temperature.

Answer: <https://biology-forums.com/index.php?topic=1883805>

### Question 979

Suppose you design a study to test this hypothesis. Your study participants are adults between the ages of 25 and 40 (mean age = 32). From the following choices, select the groups of individuals who would make the best participants for the experimental group in your study.

- A) a group of 100 vaccinated adult males and a group of 100 vaccinated adult females
- B) a group of 100 unvaccinated adult males and a group of 100 vaccinated adult males
- C) a group of 50 vaccinated adult males and a group of 150 vaccinated adult females
- D) a group of 100 unvaccinated adult males and a group of 100 unvaccinated adult females

Answer: <https://biology-forums.com/index.php?topic=1881972>

### Question 980

Biological responses to stress are enabled by the adrenal glands. If on your birthday your friends hid inside your house to surprise you with a collective "Happy birthday!" when you opened the door, you would experience short-term stress. Which action of the adrenal glands would help you overcome this surprise stress?

- A) suppressed immune system and increased blood volume
- B) increased alertness and increased blood glucose
- C) retention of sodium ions and water by the kidneys and increased metabolic rate
- D) increased blood pressure and breathing rate

Answer: <https://biology-forums.com/index.php?topic=1882053>

### Question 981

The Salalizard is a fictional vertebrate that lives in the forest and appears to be half salamander and half lizard. You are not allowed to collect any wild animals, so you decide to take a video of it to show your colleagues. What behavior best distinguishes the Salalizard as either a salamander (amphibian) or a lizard (reptile)?

- A) what the animal eats
- B) if it lives in trees
- C) where it reproduces
- D) whether it is active at night

Answer: <https://biology-forums.com/index.php?topic=1883822>

### Question 982

Which of the following statements about treatment or prevention of a prion infection is true?

- A) Antibiotic therapies such as penicillin are very effective cures.
- B) High doses of anti-inflammatory drugs such as ibuprofen reduce the symptoms of prion infections.
- C) Preventative vaccines have recently been shown to be effective in preventing prion infections.
- D) There is no known treatment or cure for prion infections.

Answer: <https://biology-forums.com/index.php?topic=1883212>

### Question 983

Which of the following occurs in the sexual reproduction phase of the fungus life cycle?

- A) Hyphae of two different mating types fuse.
- B) Diploid nuclei form, undergo meiosis, and produce haploid spores.
- C) Heterokaryotic cells separate to re-create the original haploid hyphae.
- D) Spores germinate and form a haploid mycelium.

Answer: <https://biology-forums.com/index.php?topic=1883703>

### Question 984

Monoclonal antibodies are a successful driving force of therapy in the treatment of asthma. The use of antibodies to treat asthma is an application of

- A) ecological research on human populations affected by asthma.
- B) medical research in a laboratory setting.
- C) field research in a natural setting.
- D) historical research on diseases that affect lung capacity.

Answer: <https://biology-forums.com/index.php?topic=1881967>

### Question 985

Which line on the graph corresponds to an amniote?

- A) A
- B) B
- C) C
- D) could be A or B

Answer: <https://biology-forums.com/index.php?topic=1883851>

### Question 986

Ron and Tiffany modified the experiment to see how long it would take to pass 1,000 mL of fluid through each tube. Based on these results shown in the table, which tube would it take the longest for 1,000 mL of fluid to flow through?

- A) tube A
- B) tube B
- C) tube C
- D) tube E

Answer: <https://biology-forums.com/index.php?topic=1881907>

### Question 987

Which of the following phyla is most closely related to echinoderms?

- A) Annelida
- B) Mollusca
- C) Arthropoda
- D) Chordata

Answer: <https://biology-forums.com/index.php?topic=1883766>

### Question 988

You work for a company that manufactures food products. A new "wonder food" is being distributed by a rival company. The researchers in your company determine that the "wonder food" contains only carbon, oxygen, and hydrogen. At this point, your researchers can say with certainty that the food

- A) includes proteins.
- B) could only be made of triglycerides.
- C) could only be made of carbohydrates.
- D) does not include proteins or nucleic acids.

Answer: <https://biology-forums.com/index.php?topic=1882806>

### Question 989

Which of the following statements regarding behavior is true?

- A) Innate behaviors are performed the same way in all members of a genus.
- B) Fixed action patterns are learned behavior sequences.
- C) A learned behavior triggers a fixed action pattern.
- D) A fixed action pattern is under strong genetic control.

Answer: <https://biology-forums.com/index.php?topic=1882563>

### Question 990

The liquid part of blood is called

- A) water.
- B) plasma.
- C) serum.
- D) interstitial fluid.

Answer: <https://biology-forums.com/index.php?topic=1881868>

### Question 991

Which of the following wavelengths of light would you expect to be reflected or transmitted by chlorophyll a?

- A) blue
- B) green
- C) yellow
- D) red

Answer: <https://biology-forums.com/index.php?topic=1883019>

### Question 992

About 95% of all modern plant species

- A) have a dominant sporophyte in their life cycle.
- B) have no gametophyte.
- C) have a gametophyte adapted to house a sporophyte stage.
- D) have flagellated sperm.

Answer: <https://biology-forums.com/index.php?topic=1883668>

### Question 993

Which location in the cell is unlikely to contain ribosomes or ribosomal subunits?

- A) nuclear envelope
- B) plasma membrane
- C) endoplasmic reticulum
- D) cytoplasm

Answer: <https://biology-forums.com/index.php?topic=1882856>

### Question 994

You are practicing throwing baseballs long distances with the members of your baseball team. At the same time that your partner throws the ball to you, another player across from you throws his baseball off-target, and it heads straight toward you. You hold your baseball glove up to catch your partner's ball, and you instinctively throw up your other arm to protect your face from the other incoming ball. The protective action of throwing up your arm is an example of a(n)

- A) nerve net.
- B) reflex.
- C) effector cell.
- D) blood-brain barrier.

Answer: <https://biology-forums.com/index.php?topic=1882196>

### Question 995

You are observing a single cell under a microscope. You go home for the night, and the next day you see four cells. The four cells look similar, and when you stain them with a dye that binds to DNA they all appear to contain the same amount of DNA. What likely happened overnight?

- A) The single cell divided once to form four new cells via asexual reproduction.
- B) The single cell divided once to form four new cells via sexual reproduction.
- C) The single cell divided to form two new cells, and the two new cells each divided to form four total cells, all by asexual reproduction.
- D) The single cell divided to form two new cells, and the two new cells each divided to form four total cells, all by sexual reproduction.

Answer: <https://biology-forums.com/index.php?topic=1883077>

### Question 996

A redox reaction involves the transfer of

- A) oxygen.
- B) water.
- C) an electron.
- D) carbon dioxide.

Answer: <https://biology-forums.com/index.php?topic=1883008>

### Question 997

During the process of electrophoresis, the \_\_\_\_\_ functions like a molecular sieve, separating the samples according to their size.

- A) sample mixture
- B) positively charged electrode
- C) negatively charged electrode
- D) agarose gel

Answer: <https://biology-forums.com/index.php?topic=1883335>

### Question 998

You hang a microscope slide from a submerged, L-shaped PVC pipe in lake water that is 2 feet deep. The slide hangs 6 inches below the surface of the water and remains there for eight weeks. When you remove it and bring it to your lab for observation, you see that algae, bacteria, and even some fungi have colonized the slide. You determine that you are looking at a/an

- A) biofilm.
- B) community of eukaryotes.
- C) biological weapon.
- D) endotoxin.

Answer: <https://biology-forums.com/index.php?topic=1883627>

### Question 999

All the offspring of a cross between a black-eyed Mendelian and an orange-eyed Mendelian have black eyes. What is the expected phenotypic ratio of a cross between two orange-eyed Mendelian?

- A) 3 black-eyed:1 orange-eyed
- B) 0 black-eyed:1 orange-eyed
- C) 1 black-eyed:3 orange-eyed
- D) 1 black-eyed:0 orange-eyed

Answer: <https://biology-forums.com/index.php?topic=1883103>

### Question 1000

When an antigen-presenting cell interacts successfully with a helper T cell, the antigen-presenting cell secretes a signal molecule that assists in the activation of the helper T cell. This signal molecule is

- A) interferon.
- B) complement.
- C) interleukin-1.
- D) perforin.

Answer: <https://biology-forums.com/index.php?topic=1881938>

### Question 1001

The evolution of easily modified flower colors that can make plants attractive to animals was an important factor in angiosperm evolution because

- A) plants have no way to cross-pollinate without the intervention of animals.
- B) animals are more effective at delivering pollen to other flowers than is the wind.
- C) flower color attracts animals that can disperse the seeds of the plant.
- D) successful evolution requires interactions between plants and animals.

Answer: <https://biology-forums.com/index.php?topic=1883721>

### Question 1002

The structure of the esophagus fits its function in that

- A) it can direct food to the lungs or stomach.
- B) it has smooth muscle for peristalsis.
- C) it is regulated by contractions in the pharynx.
- D) its length determines the volume of food an animal can ingest.

Answer: <https://biology-forums.com/index.php?topic=1883921>

### Question 1003

A grayling butterfly will normally fly toward the sun. This is an example of

- A) kinesis.
- B) migration.
- C) phototropism.
- D) taxis.

Answer: <https://biology-forums.com/index.php?topic=1882572>

### Question 1004

Which of the following statements regarding stem cells is false?

- A) Embryonic stem cells can give rise to all the different specialized cells in the body.
- B) Adult, but not embryonic, stem cells can be grown in laboratory culture.
- C) Adult stem cells are present in adult tissues.
- D) Adult stem cells are partway along the road to differentiation.

Answer: <https://biology-forums.com/index.php?topic=1883271>

### Question 1005

Which of the following statements about deserts and the organisms that live there is true?

- A) Air temperatures in cold deserts, such as those west of the Rocky Mountains, may never fall below 30C.
- B) Growth and reproduction occur year-round in deserts.
- C) Desert plants typically produce very few seeds.
- D) Many desert animals are nocturnal.

Answer: <https://biology-forums.com/index.php?topic=1882531>

### Question 1006

Tay-Sachs is inherited as an autosomal recessive allele. Homozygous individuals die within the first few years of life. However, there is some evidence that heterozygous individuals are more resistant to tuberculosis. Which of the following statements about Tay-Sachs is true?

- A) The allele for Tay-Sachs is selected against.
- B) This situation is an example of heterozygote advantage if tuberculosis is present in a population.
- C) This situation is an example of disruptive selection.
- D) Heterozygotes will be more fit than either homozygote regardless of environmental conditions.

Answer: <https://biology-forums.com/index.php?topic=1883416>

### Question 1007

You are studying a mini-ecosystem that you created from samples of lake water, plants, and sediment. Your teacher tells you to drop about 10 sesame seeds on the top of the water because they will attract some interesting organisms. One week later, you see that the seeds are surrounded by white fuzz that is extending off of the seeds, and you conclude that the decomposing seeds have been colonized by

- A) diatoms.
- B) brown algae.
- C) unikonts.
- D) water molds.

Answer: <https://biology-forums.com/index.php?topic=1883636>

### Question 1008

Which characteristic promoted the utilization of lipids as the first cell membrane?

- A) spontaneous degradation of the intracellular environment
- B) self-assembly into a simple membrane
- C) ability to form an impermeable membrane
- D) formation of a semi-solid membrane

Answer: <https://biology-forums.com/index.php?topic=1882906>

### Question 1009

Fertilization in the female reproductive tract typically occurs in the

- A) ovary.
- B) upper part of the oviduct.
- C) lower part of the oviduct.
- D) uterus.

Answer: <https://biology-forums.com/index.php?topic=1882085>

### Question 1010

Bronchitis can be easily acquired by individuals with immunodeficiency disorders. In these situations, bronchitis is an example of

- A) a virus.
- B) an opportunistic infection.
- C) adaptive immunity.
- D) an autoimmune disorder.

Answer: <https://biology-forums.com/index.php?topic=1881955>

### Question 1011

Below is the structure of octane, the major component of gasoline. What type(s) of bond is (are) found in a molecule of octane?

- A) only nonpolar covalent bonds
- B) only polar covalent bonds
- C) hydrogen bonds and polar covalent bonds
- D) ionic bonds and nonpolar covalent bonds

Answer: <https://biology-forums.com/index.php?topic=1882777>

### Question 1012

A dog's head is at its \_\_\_\_\_ end, and its belly is its \_\_\_\_\_ surface.

- A) posterior; dorsal
- B) anterior; dorsal
- C) posterior; ventral
- D) anterior; ventral

Answer: <https://biology-forums.com/index.php?topic=1883735>

### Question 1013

Mothers and teachers often say they need another pair of eyes on the backs of their heads. And another pair of hands would come in handy in many situations. You can imagine that these traits would have been advantageous to our early hunter-gatherer ancestors as well. According to sound evolutionary reasoning, what is the most likely explanation for why humans do not have these traits?

- A) Because they actually would not be beneficial to the fitness of individuals who possessed them. Natural selection always produces the most beneficial traits for a particular organism in a particular environment.
- B) Because every time they have arisen before, the individual mutants bearing these traits have been killed by chance events. Chance and natural selection interact.
- C) Because these variations have probably never appeared in a healthy human. As tetrapods, we are pretty much stuck with a four-limbed, two-eyed body plan; natural selection can only edit existing variations.
- D) Because humans are a relatively young species. If we stick around and adapt for long enough, it is inevitable that the required adaptations will arise.

Answer: <https://biology-forums.com/index.php?topic=1883418>

### Question 1014

Which of the following statements about proto-oncogenes is false?

- A) Proto-oncogenes are normal genes with the potential to become oncogenes.
- B) Many proto-oncogenes code for growth factors.
- C) A mutation must occur in a cell's DNA for a proto-oncogene to become an oncogene.
- D) If a proto-oncogene's gene product is produced in smaller quantities, a cell may become cancerous.

Answer: <https://biology-forums.com/index.php?topic=1883274>

### Question 1015

In angiosperms, pollen grains develop in the \_\_\_\_\_ and land on the \_\_\_\_\_.

- A) anther; stigma
- B) stigma; anther

- C) anther; ovary
- D) carpel; stamen

Answer: <https://biology-forums.com/index.php?topic=1883676>

### Question 1016

The full range of electromagnetic energy is called the \_\_\_\_\_ spectrum.

- A) visible
- B) electromagnetic
- C) energy
- D) ultraviolet

Answer: <https://biology-forums.com/index.php?topic=1883016>

### Question 1017

During which stage of meiosis could this nondisjunction have occurred?

- A) telophase I
- B) prophase I
- C) anaphase II
- D) telophase II

Answer: <https://biology-forums.com/index.php?topic=1883092>

### Question 1018

In order for gene therapy to be permanent in the patient being treated,

- A) the defective gene must first be removed from all somatic cells.
- B) the normal gene must be added to the germ line cells.
- C) the normal gene must first be treated with UV radiation to ensure noninfectivity.
- D) the normal gene must be transferred to somatic cells that can continuously multiply.

Answer: <https://biology-forums.com/index.php?topic=1883329>

### Question 1019

Which of the following statements regarding the currently available fossil record is false?

- A) The currently available fossil record shows that the earliest fossils of life are about 3.5 billion years old.
- B) The currently available fossil record shows that younger strata were laid down on top of older strata.
- C) The currently available fossil record documents gradual evolutionary changes that link one group of organisms to another.
- D) The currently available fossil record shows that the first life-forms were eukaryotes.

Answer: <https://biology-forums.com/index.php?topic=1883389>

### Question 1020

Plasma proteins are involved in all of the following activities except

- A) fighting infection.
- B) maintaining osmotic balance.
- C) carrying oxygen.
- D) blood clotting.

Answer: <https://biology-forums.com/index.php?topic=1881870>

### Question 1021

Blood is pumped from the heart to the lungs by the

- A) left atrium.
- B) right atrium.
- C) left ventricle.
- D) right ventricle.

Answer: <https://biology-forums.com/index.php?topic=1881844>

### Question 1022

Which of the following statements about the inner mitochondrial membrane is false?

- A) ATP synthase is found in the inner mitochondrial membrane.
- B) The inner mitochondrial membrane plays a role in the production of pyruvate.
- C) Electron carriers are found in the inner mitochondrial membrane.
- D) A gradient of H<sup>+</sup> exists across the inner mitochondrial membrane.

Answer: <https://biology-forums.com/index.php?topic=1882961>

### Question 1023

Reabsorption of water is a major function of the

- A) esophagus.
- B) colon.
- C) rectum.
- D) appendix.

Answer: <https://biology-forums.com/index.php?topic=1883941>

### Question 1024

Which of the following molecules are not required to express a gene in eukaryotic cells?

- A) RNA polymerase
- B) DNA-bending protein
- C) activator protein
- D) repressor protein

Answer: <https://biology-forums.com/index.php?topic=1883288>

### Question 1025

Which of the following lists structures involved only in the sense of hearing?

- A) middle ear bones, semicircular canals, basilar membrane
- B) eardrum, utricle, organ of Corti
- C) oval window, cochlea, aqueous humor
- D) oval window, basilar membrane, organ of Corti

Answer: <https://biology-forums.com/index.php?topic=1882214>

### Question 1026

The geographic isolation of a population from other members of the species and the subsequent evolution of reproductive barriers between it and the parent species describes \_\_\_\_\_ speciation.

- A) punctuated
- B) sympatric
- C) allopatric
- D) biogeographic

Answer: <https://biology-forums.com/index.php?topic=1883447>

### Question 1027

Small pieces of RNA that can regulate translation of mRNA are called

- A) microRNA.
- B) interfering RNA.
- C) transfer RNA.
- D) messenger RNA.

Answer: <https://biology-forums.com/index.php?topic=1883256>

### Question 1028

Contractions in uterine smooth muscle during labor are initiated by

- A) epinephrine.
- B) estrogen.
- C) oxytocin.
- D) prolactin.

Answer: <https://biology-forums.com/index.php?topic=1882121>

### Question 1029

Which of the following is one adaptive advantage for deciduous plants that lose their leaves during the winter?

- A) It prevents water loss from leaves when soil water is unavailable due to freezing.
- B) Production of new leaves each spring is more efficient than supporting old leaves all winter.
- C) If leaves are damaged by frost, the tree will die.
- D) A layer of leaves on the ground helps keep plant roots warm.

Answer: <https://biology-forums.com/index.php?topic=1882466>

### Question 1030

Which of the following plant responses is affected by photoperiod?

- A) gravitropism
- B) apical dominance
- C) onset of dormancy
- D) cell division

Answer: <https://biology-forums.com/index.php?topic=1882477>

### Question 1031

Which of the following describes a complete defense system?

- A) antibodies of the adaptive humoral immune response and interferons
- B) antibodies of the adaptive humoral immune response and components of innate immunity
- C) phagocytosis only
- D) complement system only

Answer: <https://biology-forums.com/index.php?topic=1881966>

### Question 1032

It has been suggested that global warming could be halted by fertilizing the oceans to increase the growth of algae. How might this affect the greenhouse effect?

- A) Algal photosynthesis would use up more CO<sub>2</sub>, which traps heat.
- B) Algal photosynthesis would produce more O<sub>2</sub>, which blocks light.
- C) Algal photosynthesis would be inhibited by the addition of fertilizer.
- D) Algae photosynthesis would use heat in place of photons.

Answer: <https://biology-forums.com/index.php?topic=1883052>

### Question 1033

Which of the following statements provides the best evidence that there is a common genetic code that demonstrates the unity of life?

- A) Bees, birds, and bats all have wings and fly.
- B) Bacteria, mushrooms, and cats all have DNA.
- C) Many insects can pollinate only a particular species of plant due to many generations of evolutionary adaptation.
- D) Through genetic engineering, a gene from a firefly can be inserted into a bacterium to make it glow.

Answer: <https://biology-forums.com/index.php?topic=1884105>

### Question 1034

A man with a dirty cut on his hand appears at the emergency department for treatment. In order to clean the wound, the health-care provider should use

- A) a solution of very low pH to help kill any bacteria present.
- B) a solution of sterilized tap water.
- C) a weak (low concentration) solution of salt water.
- D) distilled water.

Answer: <https://biology-forums.com/index.php?topic=1882947>

### Question 1035

A bilaterally symmetrical, wormlike animal that has a complete digestive tract and a cuticle could be a member of which of the following phyla?

- A) Cnidaria
- B) Annelida
- C) Nematoda
- D) Chordata

Answer: <https://biology-forums.com/index.php?topic=1883746>

### Question 1036

Divergence time estimates based on molecular clocks are

- A) best interpreted with caution, since they depend on assumptions that are difficult to test.
- B) likely to be correct plus or minus a few decades.
- C) usually worthless since we cannot directly observe divergence times unless we invent a time machine.
- D) more reliable than divergence dates that are based on analysis of the fossil record.

Answer: <https://biology-forums.com/index.php?topic=1883543>

### Question 1037

Which of the following will tend to produce adaptive changes in populations?

- A) genetic drift

- B) gene flow
- C) natural selection
- D) the founder effect

Answer: <https://biology-forums.com/index.php?topic=1883405>

### Question 1038

Which of the following structures is exclusively associated with prokaryotic cells?

- A) membrane-bound nucleus
- B) nucleoid
- C) chromosome
- D) ribosomes

Answer: <https://biology-forums.com/index.php?topic=1882844>

### Question 1039

Which butterfly has changed gradually but significantly from its ancestor through microevolutionary events that were not part of a speciation event?

- A) butterfly A
- B) butterfly B
- C) butterfly C
- D) butterfly D

Answer: <https://biology-forums.com/index.php?topic=1883479>

### Question 1040

Potassium-40 can be used to date \_\_\_\_\_ that are \_\_\_\_\_ old.

- A) fossils; thousands of years
- B) volcanic rocks and associated fossils; hundreds of millions of years
- C) potassium-rich fossils; millions of years
- D) carbon-containing materials; up to 75,000 years

Answer: <https://biology-forums.com/index.php?topic=1883501>

### Question 1041

Mutations in the proto-oncogene ras and the tumor suppressor gene p53

- A) increase protein synthesis by the cell.
- B) can improve the chance of avoiding cancer as one ages.
- C) can enhance further mutations, which can develop into cancer.
- D) disrupt normal regulation of the cell cycle.

Answer: <https://biology-forums.com/index.php?topic=1883277>

### Question 1042

Lampreys differ from fishes in that lampreys

- A) lack a backbone.
- B) lack an endoskeleton.
- C) lack jaws.
- D) possess a backbone and skull.

Answer: <https://biology-forums.com/index.php?topic=1883795>

### Question 1043

The African country of Nigeria had a 4.55% population growth rate from 2005 to 2010, the highest in the world. Which of the following statements is consistent with this fact?

- A) Nigeria's age structure likely looks like a pyramid with a broad base.
- B) Nigerian birth rates are likely to be slightly lower than death rates.
- C) Nigeria is likely in the first phase of the demographic transition.
- D) Nigerian emigration rates are likely higher than immigration rates.

Answer: <https://biology-forums.com/index.php?topic=1882641>

### Question 1044

A photograph of a Victorian trophy room shows the heads of 15 species of hoofed mammals, all shot within a day's walk of a single hunting camp in Africa. This camp was probably located in

- A) tropical rain forest.
- B) chaparral.

- C) savanna.
- D) desert.

Answer: <https://biology-forums.com/index.php?topic=1882528>

### Question 1045

One type of virus that infects bacteria is called a

- A) phage.
- B) retrovirus.
- C) rhinovirus.
- D) coronavirus.

Answer: <https://biology-forums.com/index.php?topic=1883171>

### Question 1046

The ancestors of land plants were probably \_\_\_\_\_ that lived in \_\_\_\_\_.

- A) green algae similar to charophytes; the open ocean
- B) green algae similar to charophytes; coastal marshes or lake fringes
- C) cyanobacteria; coastal marshes or lake fringes
- D) cyanobacteria; moist soil crust communities

Answer: <https://biology-forums.com/index.php?topic=1883651>

### Question 1047

When a chemical signal from a group of embryonic cells causes a different, nearby group of cells to embark on a particular developmental course (say, differentiating into a leg), the interaction between the two groups of cells is called

- A) induction.
- B) coordinated differentiation.
- C) implantation.
- D) potentiation.

Answer: <https://biology-forums.com/index.php?topic=1882107>

### Question 1048

Which of the following is a typical feature of an ATP-driven active transport mechanism?

- A) The transport protein must cross to the correct side of the membrane before the solute can bind to it.
- B) The transport protein is irreversibly phosphorylated as transport takes place.
- C) The transport protein catalyzes the conversion of ADP to ATP.
- D) The solute moves against the concentration gradient.

Answer: <https://biology-forums.com/index.php?topic=1882919>

### Question 1049

Small areas that are home to a large number of threatened species and an exceptional concentration of species found nowhere else on Earth are called

- A) biomes.
- B) movement corridors.
- C) biodiversity hot spots.
- D) local populations

Answer: <https://biology-forums.com/index.php?topic=1882726>

### Question 1050

If a population of 5,000 zebras is growing logistically and has a carrying capacity of 10,000, what would the per capita rate of increase be if the population grew by 50 zebras in one year?

- A) 0.2
- B) 0.1
- C) 0.02
- D) 0.01

Answer: <https://biology-forums.com/index.php?topic=1882640>

### Question 1051

One predator avoidance mechanism that has evolved in prey is

- A) chemical defenses.
- B) secretion of digestive enzymes that hydrolyze glucose.
- C) secretion of enzymes that break down toxic plant compounds.

D) development of a short gestation period.

Answer: <https://biology-forums.com/index.php?topic=1882663>

### Question 1052

What stimulates germination of desert plant seeds after a hard rain?

- A) production of auxins
- B) removal of abscisic acid
- C) cooler temperatures
- D) activation of cytokinins

Answer: <https://biology-forums.com/index.php?topic=1882463>

### Question 1053

Which meal is high in fiber, low in saturated fats, and high in unsaturated fats?

- A) a rib eye steak, mashed potatoes, and side salad with ranch dressing
- B) a plate of scrambled eggs with a side of cottage cheese
- C) a black bean, cheese, lettuce, and sour cream burrito in a flour tortilla
- D) a bowl of spaghetti tossed with olive oil, artichokes, and broccoli

Answer: <https://biology-forums.com/index.php?topic=1882811>

### Question 1054

When you cut yourself, the damaged cells immediately release chemical alarm signals, such as

- A) interferon.
- B) complement.
- C) histamine.
- D) antihistamine.

Answer: <https://biology-forums.com/index.php?topic=1881916>

### Question 1055

The carcinogen known to cause the most cases and types of cancer is

- A) X-rays.
- B) ultraviolet light.
- C) alcohol.
- D) tobacco.

Answer: <https://biology-forums.com/index.php?topic=1883279>

### Question 1056

The eyes of a planarian provide

- A) a three-dimensional image, but in black and white.
- B) a two-dimensional image.
- C) a higher degree of resolution than human eyes.
- D) information about light intensity and direction.

Answer: <https://biology-forums.com/index.php?topic=1882218>

### Question 1057

When a nipple is placed in a newborn baby's mouth, the infant will immediately begin to suckle. This is an example of

- A) imprinted behavior.
- B) classical conditioning.
- C) innate behavior.
- D) imitation.

Answer: <https://biology-forums.com/index.php?topic=1882562>

### Question 1058

The famous pink-colored sand of Bermuda's beaches is due to crushed shells of \_\_\_\_\_, marine organisms with tests (porous shells) made of organic material hardened by calcium carbonate.

- A) radiolarians
- B) green algae
- C) foraminifera
- D) lobsters

Answer: <https://biology-forums.com/index.php?topic=1883635>

### Question 1059

Which of the following shows the steps of a viral infection in the proper order?

Exposure to the HIV virus doesn't necessarily mean that a person will develop AIDS. Some people have genetic resistance to infection by HIV. Dr. Stephen O'Brien from the U.S. National Cancer Institute has recently identified a mutant form of a gene, called CCR5, that can protect against HIV infection. The mutation probably originated in Europe among survivors of the bubonic plague. The mutated gene prevents the plague bacteria from attaching to cell membranes and, therefore, from entering and infecting body cells.

Although the HIV virus is very different from the bacteria that causes the plague, both diseases affect the exact same cells and use the same method of infection. The presence of the mutated gene in descendants of plague survivors helps prevent them from contracting AIDS. Pharmaceutical companies are using this information as the basis for a new approach to AIDS prevention. This could be very important in areas of the world where the mutation is scarce or absent, such as Africa.

- A) virus locates host cell enters nucleus alters host cell DNA destroys cell membrane
- B) virus locates host cell alters host cell DNA host cell produces copies of virus copies enter host cell nucleus nucleus leaves cell
- C) virus locates host cell penetrates cell membrane enters nucleus alters host cell DNA host cell produces copies of virus
- D) virus locates host cell forms hydrogen bonds changes DNA to RNA host cell produces copies of virus

Answer: <https://biology-forums.com/index.php?topic=1883233>

### Question 1060

Evolution has provided enormous diversity in the number of vertebrae among vertebrate species. Vertebrae are differentiated during embryonic development by

- A) hormone induction.
- B) the length of the backbone.
- C) the degree of structural support needed.
- D) the pattern of homeotic gene expression.

Answer: <https://biology-forums.com/index.php?topic=1882267>

### Question 1061

The type of recombinant bacteria most often used to mass-produce genes is

- A) *Pseudomonas aeruginosa*.
- B) *Agrobacterium tumefaciens*.
- C) *Escherichia coli*.
- D) *Saccharomyces cerevisiae*.

Answer: <https://biology-forums.com/index.php?topic=1883322>

### Question 1062

Which of the following animals has a single circuit of blood flow and two heart chambers?

- A) salamander
- B) salmon
- C) snake
- D) squirrel

Answer: <https://biology-forums.com/index.php?topic=1881837>

### Question 1063

The body structure where gas exchange occurs is called the

- A) integumentary surface.
- B) respiratory surface.
- C) exchange network.
- D) capillary network.

Answer: <https://biology-forums.com/index.php?topic=1883999>

### Question 1064

Territories are typically used for activities such as

- A) feeding, mating, and rearing young.
- B) migration and feeding.
- C) identification of kin and rearing young.
- D) feeding and identification of kin.

Answer: <https://biology-forums.com/index.php?topic=1882590>

### Question 1065

Anaphylactic shock is an example of an

- A) autoimmune disease.
- B) immunodeficiency disease.
- C) allergic response.
- D) acquired autoimmune disease.

Answer: <https://biology-forums.com/index.php?topic=1881949>

### Question 1066

After a copper smelter begins operation, local downwind populations of plants begin to adapt to the resulting air pollution. Scientists document, for example, that the acid tolerance of several plant species has increased significantly in the polluted area. This is an example of

- A) stabilizing selection.
- B) disruptive selection.
- C) directional selection.
- D) genetic drift.

Answer: <https://biology-forums.com/index.php?topic=1883407>

### Question 1067

The \_\_\_\_\_ is a flagellated cell that sweeps water through a sponge's body.

- A) choanocyte
- B) amoebocyte
- C) spicule
- D) spongin

Answer: <https://biology-forums.com/index.php?topic=1883739>

### Question 1068

At the end of gastrulation, the ectoderm makes up the

- A) lining of the embryonic digestive tract.
- B) embryonic nervous system.
- C) outer layer of the gastrula.
- D) inner layer of the gastrula.

Answer: <https://biology-forums.com/index.php?topic=1882103>

### Question 1069

A protein coat enclosing a viral genome is known as a(n)

- A) capsule.
- B) envelope.
- C) capsid.
- D) prophage.

Answer: <https://biology-forums.com/index.php?topic=1883202>

### Question 1070

Which of the following options lists the events of protist evolution in the correct order, according to current science?

- A) Mitochondria evolved through primary endosymbiosis; chloroplasts then evolved through secondary endosymbiosis.
- B) Mitochondria and then chloroplasts evolved through primary endosymbiosis; later, protozoans were incorporated into several other groups of protists through secondary endosymbiosis.
- C) Chloroplasts and then mitochondria evolved through primary endosymbiosis; later, algae were incorporated into several other groups of protists through secondary endosymbiosis.
- D) Mitochondria and then chloroplasts evolved through primary endosymbiosis; later, algae were incorporated into several other groups of protists through secondary endosymbiosis.

Answer: <https://biology-forums.com/index.php?topic=1883607>

### Question 1071

Below are the structures of three fatty acids, palmitic acid, stearic acid, and oleic acid. What combination of these fatty acids could you use to make a fat that is liquid at room temperature?

- A) one palmitic acid, one stearic acid, and one oleic acid
- B) three palmitic acids
- C) two palmitic acids and one stearic acid
- D) one stearic acid, one oleic acid, and one phosphate group

Answer: <https://biology-forums.com/index.php?topic=1882820>

### Question 1072

What is the age structure of a population?

- A) the curve that results when the likelihood of dying is plotted as a function of age
- B) the curve that results when the likelihood of being alive is plotted as a function of age
- C) the proportion of individuals alive in different age-groups
- D) the difference in the age distribution of a population at two different points in time

Answer: <https://biology-forums.com/index.php?topic=1882635>

### Question 1073

Pica is a disorder that is characterized by a desire to consume dirt or clay, both of which contain iron. Pica can be associated with an iron deficiency that may cause

- A) muscle cramps.
- B) tooth decay.
- C) anemia.
- D) paralysis.

Answer: <https://biology-forums.com/index.php?topic=1883970>

### Question 1074

Which of the following situations could represent kin selection in action?

- A) You help your friend with linguistics, and your friend helps you with biology.
- B) You help your brother pay for his children's college tuition, even though he may not be able to pay you back.
- C) When your mother gets old, you help her pay her property taxes.
- D) You inexplicably forget to use birth control, and a child results.

Answer: <https://biology-forums.com/index.php?topic=1882594>

### Question 1075

Which of the following statements regarding the flow of genetic information is false?

- A) Polypeptides form proteins that determine the appearance and function of the cell and organism.
- B) Eukaryotic mRNA is processed in several ways before export out of the nucleus.
- C) Transcription occurs in the cytoplasm of eukaryotic cells.
- D) Ribosomes function as factories that coordinate the functioning of mRNA and tRNA.

Answer: <https://biology-forums.com/index.php?topic=1883198>

### Question 1076

Dinoflagellates are important to coral and coral-dwelling animals because they

- A) produce energy that is used by coral animals through photosynthesis.
- B) provide shelter for the fast-growing seaweeds associated with coral.
- C) produce CO<sub>2</sub> and nitrogen for coral.
- D) are toxic to species that prey on reef-dwelling fish.

Answer: <https://biology-forums.com/index.php?topic=1882661>

### Question 1077

Which extinct hominin first appeared about 1.9 million years ago and had a larger brain than Homo habilis, its immediate predecessor?

- A) Homo ergaster
- B) Homo neanderthalensis
- C) Homo sapiens
- D) Australopithecus

Answer: <https://biology-forums.com/index.php?topic=1883830>

### Question 1078

When bar-headed geese fly at very high altitudes (possibly over Mount Everest!), they breathe very thin air where the partial pressure of oxygen is very low compared to that at sea level. Which of the following adaptations would help the geese efficiently exchange gases when flying at high altitudes?

- A) hemoglobin that has a high affinity for oxygen
- B) hemoglobin that has a low affinity for oxygen
- C) hemoglobin that has a high affinity for carbon dioxide
- D) hemoglobin that has a low affinity for carbon dioxide

Answer: <https://biology-forums.com/index.php?topic=1884043>

### Question 1079

ATP can be used as the cell's energy exchange mechanism because

- A) endergonic reactions can be fueled by coupling them with the formation of ATP from ADP.
- B) ATP is the most energy-rich small molecule in the cell.
- C) endergonic reactions can be fueled by coupling them with the hydrolysis of high-energy phosphate bonds in ATP.
- D) ATP is a disposable form of chemical energy, used once and then discarded by the cell.

Answer: <https://biology-forums.com/index.php?topic=1882936>

### Question 1080

Which of the following statements regarding exercise is true?

- A) The main source of energy during aerobic exercise is ATP from aerobic respiration.
- B) For an activity such as jogging or long-distance running, the primary source of energy is stored ATP and PCr.
- C) During a short burst of activity such as a sprint, the main source of energy is aerobic respiration.
- D) If the demand for ATP outstrips oxygen supply, muscles switch to aerobic fermentation.

Answer: <https://biology-forums.com/index.php?topic=1882289>

### Question 1081

Which of the following statements about electron microscopes is true?

- A) Electron microscopes focus electron beams to create a magnified image of an object.
- B) Scanning electron microscopes are used to study the details of internal cell structure.
- C) Transmission electron microscopes are mainly used to study cell surfaces.
- D) Specimens must be sectioned to be viewed under a scanning electron microscope.

Answer: <https://biology-forums.com/index.php?topic=1882832>

### Question 1082

Which of the following is an example of a transgenic organism?

- A) a fern grown from a single fern root cell
- B) a rat with rabbit hemoglobin genes
- C) a cow that has been fed pig growth hormone in its food
- D) a human given a corrected human blood-clotting gene

Answer: <https://biology-forums.com/index.php?topic=1883358>

### Question 1083

In order for bacterial cells to be able to produce the human insulin protein, which of the following do not have to be true?

Diabetes mellitus is a metabolic disease that is characterized by the buildup of glucose in the blood, or hyperglycemia. Diabetes results either from the pancreas not being able to produce the hormone insulin (type 1 diabetes) or if the body's cells become resistant to insulin (type 2 diabetes). Insulin is a protein that binds to receptors on cell surfaces to allow glucose to enter the cell.

In order to manage the disease, type 1 diabetics require frequent insulin injections. Until the 1970s, insulin was obtained from processing the pancreases of large mammals such as cows and pigs; it was then purified for medicinal use. This all changed in the 1970s with the advent of recombinant DNA technology, which allows scientists to insert genes from other species into bacterial plasmids and have bacteria produce proteins from these other species' genes. In 1978, the gene that codes for human insulin was added to a bacterial plasmid and bacteria were used to produce human insulin. These bacteria acted as mini-factories that produced human insulin for type 1 diabetes patients. Today, the production of human insulin from bacteria is commonplace and is a multibillion dollar market for pharmaceutical companies.

- A) Bacteria and humans have to use the same genetic code.
- B) Bacterial RNA polymerases have to recognize human promoters.
- C) Bacterial ribosomes have to recognize human start and stop codons.
- D) Bacteria have to have a gene for a bacterial form of insulin.

Answer: <https://biology-forums.com/index.php?topic=1883235>

### Question 1084

A physician is trying to determine if a patient has functioning helper T cells. Which of the following events would provide evidence that helper T cells are acting normally?

- A) Antibodies recognize and bind to antigens.
- B) Memory cells are produced after the secondary immune response.
- C) Stimulatory proteins are secreted that help activate B cells, thus stimulating the humoral immune response.
- D) The inflammatory response is triggered.

Answer: <https://biology-forums.com/index.php?topic=1881959>

### Question 1085

Like many insects, some amphibians undergo \_\_\_\_\_ in their life cycle as they have distinct larval and adult stages.

- A) aquatic development followed by terrestrial existence
- B) development in a nest followed by flight
- C) metamorphosis
- D) alternation of generations

Answer: <https://biology-forums.com/index.php?topic=1883844>

### Question 1086

In what ways are zones A and C similar to other biomes?

- A) In abiotic factors, A is similar to rivers and C is most like lakes.
- B) In species diversity, A is most like tropical rain forests and C is like temperate broadleaf forests.
- C) In sunlight, A is most like the tundra and C is like coniferous forests.
- D) In organism sizes, A is most like savannas and C is most like deserts.

Answer: <https://biology-forums.com/index.php?topic=1882547>

### Question 1087

Which of the following structures is the first to emerge from the germinating seed of a eudicot such as the garden bean?

- A) the embryonic shoot hook
- B) cotyledons
- C) the embryonic root
- D) the shoot sheath

Answer: <https://biology-forums.com/index.php?topic=1882355>

### Question 1088

Which of the following are produced during the Calvin cycle?

- A) glucose, ADP, NADP+
- B) glucose, ADP, NADP+, CO<sub>2</sub>
- C) ATP, NADPH, O<sub>2</sub>
- D) ATP, NADPH, CO<sub>2</sub>

Answer: <https://biology-forums.com/index.php?topic=1883015>

### Question 1089

The hair cells in the utricle detect

- A) subsonic sound vibrations.
- B) rotation of the head in an anteroposterior plane (a plane that cuts through you from front to back).
- C) rotation of the head in a coronal plane (a plane that cuts through you from side to side).
- D) the position of the head with respect to gravity.

Answer: <https://biology-forums.com/index.php?topic=1882215>

### Question 1090

Ferns and mosses are similar because both

- A) produce drought-resistant seeds.
- B) have dominant sporophytes.
- C) have flagellated sperm.
- D) have sporophytes that produce diploid spores.

Answer: <https://biology-forums.com/index.php?topic=1883665>

### Question 1091

In this experiment, the area that had never had a road is useful to the experiment because

- A) at least three samples are necessary to have a valid experiment.
- B) the area never roaded serves as a control for the experimental variables of recontoured and abandoned.
- C) the researchers need to know what species of plants were common to all three areas.
- D) since all three areas had existed for the same amount of time, the third area allowed time to be controlled as a variable.

Answer: <https://biology-forums.com/index.php?topic=1884116>

### Question 1092

Which of the following describes the type of speciation event that is occurring in these whales?

- A) sympatric speciation
- B) allopatric speciation
- C) geographic speciation

D) polyploid speciation

Answer: <https://biology-forums.com/index.php?topic=1883483>

### Question 1093

\_\_\_\_\_ can destroy infected cells.

- A) Macrophages
- B) Plasma cells
- C) B cells
- D) Cytotoxic T cells

Answer: <https://biology-forums.com/index.php?topic=1881942>

### Question 1094

If an isotope has a half-life of 4 million years, and a fossil is 16 million years old, how much of the original isotope will be found in the fossil?

- A) one-half of the original amount
- B) one-quarter of the original amount
- C) one-eighth of the original amount
- D) one-sixteenth of the original amount

Answer: <https://biology-forums.com/index.php?topic=1883500>

### Question 1095

The data provide evidence for which of the following?

- A) The copper removal percentage was approximately doubled by the presence of the plants used to remediate the soil.
- B) Before restoration efforts, there was twice as much lead in the soil as cadmium.
- C) Phytoremediation is especially effective at removing zinc from the soil.
- D) The most toxic product in the soil is lead.

Answer: <https://biology-forums.com/index.php?topic=1882440>

### Question 1096

A woody plant lives through five years of drought, followed by five years of good growing conditions. The ring of xylem cells formed during the five good years will

- A) be thicker than those formed during the drought years.
- B) be living, whereas those formed during the drought years will be dead.
- C) be thinner than those formed during the drought years.
- D) conduct a higher ratio of sugar to water than those formed during the drought years.

Answer: <https://biology-forums.com/index.php?topic=1882337>

### Question 1097

You spray your lawn with a pesticide. The concentration of the pesticide in the tissues of the grass on your lawn is 10-6 parts per million (ppm). Grasshoppers eat the grass and are in turn eaten by rats, which are then eaten by owls. At each successive trophic level, the concentration of pesticides increases. The term for this process is

- A) extirpation.
- B) biological magnification.
- C) habitat loss.
- D) climate change.

Answer: <https://biology-forums.com/index.php?topic=1882715>

### Question 1098

Which of the following options lists the sequence of events in the cell-signaling process in the correct order?

- A) reception, response, signal transduction
- B) signal transduction, reception, response
- C) signal transduction, response, reception
- D) reception, signal transduction, response

Answer: <https://biology-forums.com/index.php?topic=1882037>

### Question 1099

Jacobsen syndrome, which can cause heart defects, intellectual deficiencies, and bleeding disorders, is caused by a deletion of the terminal end of chromosome 11. What method could you use to determine whether an individual has Jacobsen syndrome?

- A) Look at a person's skin cells in G1 under a light microscope.
- B) Perform a karyotype using a person's white blood cells.
- C) Place a person's red blood cells in culture to see if they grow.

D) Count the number of chromosomes present.

Answer: <https://biology-forums.com/index.php?topic=1883086>

### Question 1100

Red algae are found in relatively deep water. In order for light to penetrate to these depths, it must be high in energy. Which wavelengths of light would you expect red algae to use?

- A) red
- B) yellow
- C) green
- D) blue

Answer: <https://biology-forums.com/index.php?topic=1883051>

### Question 1101

If the aqueous humor circulates but does not drain properly, the likely result will be the development of

- A) glaucoma.
- B) myopia.
- C) astigmatism.
- D) hyperopia.

Answer: <https://biology-forums.com/index.php?topic=1882223>

### Question 1102

The main function of muscle tissue is

- A) sensation.
- B) support.
- C) contraction.
- D) covering surfaces.

Answer: <https://biology-forums.com/index.php?topic=1883873>

### Question 1103

The lac operon of *E. coli* is \_\_\_\_\_ when the repressor is bound to lactose.

- A) active
- B) inactive
- C) cloned
- D) unregulated

Answer: <https://biology-forums.com/index.php?topic=1883243>

### Question 1104

Traditional animal phylogenetic trees and the most recent molecular phylogenetic trees have many similarities. Which is a feature of the recent trees that was not present in the traditional phylogeny?

- A) the placement of Echinodermata and Chordata together in a clade of deuterostomes
- B) the status of sponges as the first group to diverge from the other animals
- C) the grouping of nematodes and arthropods into a clade called the Ecdysozoa
- D) the grouping of all bilaterally symmetric animals within a single clade

Answer: <https://biology-forums.com/index.php?topic=1883773>

### Question 1105

The signal that crosses a synapse is stopped when

- A) a second action potential traveling down the signaling cell "sounds a retreat," and the neurotransmitters return to the signaling cell.
- B) the responding cell runs out of sodium and is no longer able to respond to the stimulus.
- C) the responding cell runs out of potassium and is no longer able to respond to the stimulus.
- D) the neurotransmitter is enzymatically broken down or transported back to the signaling cell.

Answer: <https://biology-forums.com/index.php?topic=1882153>

### Question 1106

In some cats, black coat color (B) is dominant over brown (b) and a striped fur pattern (S) is dominant over a marbled fur pattern (s). You rescued a black striped cat from an animal shelter but could not determine its exact genotype. To do so, you mated the cat with a brown marbled cat. The mating produced 3 brown marbled, 2 brown striped, 2 black marbled, and 3 black striped. Immediately, you concluded the genotype of your rescued cat was

- A) BBSS.
- B) BBSs.
- C) BbSS.

D) BbSs.

Answer: <https://biology-forums.com/index.php?topic=1883156>

### Question 1107

Evolutionary adaptations for survival on land produced tetrapods, which later evolved into

- A) only amphibians.
- B) amphibians, reptiles, and mammals.
- C) only reptiles.
- D) only birds.

Answer: <https://biology-forums.com/index.php?topic=1884012>

### Question 1108

The Kissimmee River Restoration Project is intended to

- A) drain natural wetlands in the central Florida region.
- B) increase biodiversity of the region.
- C) restrict ecotourism and other recreational usage in the impacted region.
- D) provide areas for homes and businesses.

Answer: <https://biology-forums.com/index.php?topic=1882737>

### Question 1109

Which of the following statements regarding endocrine glands is true?

- A) Some endocrine glands, like the pituitary, have other endocrine glands as their targets.
- B) The sex organs and the thyroid gland produce steroid hormones.
- C) The pancreas has only nonendocrine functions.
- D) Most of the endocrine glands produce steroid hormones.

Answer: <https://biology-forums.com/index.php?topic=1882044>

### Question 1110

You are trying to produce a cDNA library starting from mRNA in skeletal muscle cells. You add the following components to a tube and let the reaction proceed: skeletal muscle mRNA, free nucleotides, and DNA polymerase. After inspecting the products of the reaction, you do not find any cDNA molecules at all. What is the most likely explanation for this result?

- A) You used mRNA instead of genomic DNA as the source material.
- B) You used DNA polymerase instead of reverse transcriptase.
- C) cDNA libraries can only be made from skin cell mRNA molecules.
- D) You forgot to add a radiolabeled nucleic acid probe to the tube.

Answer: <https://biology-forums.com/index.php?topic=1883363>

### Question 1111

Nutrients absorbed by the intestines move directly to the liver, which

- A) converts the nutrients into monomers.
- B) converts excess glucose to glycogen.
- C) manages the amount of glucose that is converted to amylase.
- D) converts glucose to alcohol.

Answer: <https://biology-forums.com/index.php?topic=1883940>

### Question 1112

Which part of the body is likely to be much more diverse in mammals compared to that in other groups?

- A) the teeth
- B) the structure of the vertebrae
- C) the structure of the limbs
- D) the jawbone

Answer: <https://biology-forums.com/index.php?topic=1883809>

### Question 1113

The role of the nontreated males in this experiment is

- A) to increase the sample size.
- B) to act as controls.
- C) to show that not all matings are successful.
- D) to determine number of matings per frog.

Answer: <https://biology-forums.com/index.php?topic=1882603>

### Question 1114

Which of the following describes apoptosis?

- A) programmed cell death
- B) gastrulation
- C) phagocytosis
- D) neural tube formation

Answer: <https://biology-forums.com/index.php?topic=1882109>

### Question 1115

Pulmonary fibrosis is a lung disease that is characterized by damage and scarring of lung tissue. This results in the lungs becoming stiff and inelastic. What function is most likely to be impaired in someone with pulmonary fibrosis?

- A) contraction of the diaphragm
- B) relaxation of the diaphragm
- C) gas exchange at the alveoli
- D) expansion of the lungs

Answer: <https://biology-forums.com/index.php?topic=1884046>

### Question 1116

Sieve-tube elements are plant cells that are part of a plant tissue called

- A) xylem.
- B) tracheids.
- C) phloem.
- D) sclereids.

Answer: <https://biology-forums.com/index.php?topic=1882324>

### Question 1117

Proteins that bind to DNA and turn on operons by making it easier for RNA polymerase to bind to a promoter are called

- A) regulators.
- B) operators.
- C) activators.
- D) repressors.

Answer: <https://biology-forums.com/index.php?topic=1883242>

### Question 1118

Compared to other primates, anthropoids have

- A) a decreased reliance upon vision.
- B) a stronger reliance upon smell.
- C) a fully opposable thumb.
- D) smaller total body size in most cases.

Answer: <https://biology-forums.com/index.php?topic=1883814>

### Question 1119

Which of the following statements about skeletal muscle fibers is true?

- A) Each muscle fiber is composed of multinucleated cells.
- B) Each muscle fiber is composed of globular proteins.
- C) Each muscle fiber contains one sarcomere.
- D) Each muscle fiber contains actin and myosin.

Answer: <https://biology-forums.com/index.php?topic=1882275>

### Question 1120

Which of the following glands is/are located nearest the kidneys?

- A) ovaries
- B) pancreas
- C) pineal glands
- D) adrenal glands

Answer: <https://biology-forums.com/index.php?topic=1882059>

### Question 1121

A test tube is inoculated with  $1 \times 10^3$  cells of a bacterial strain that has a generation time of 30 minutes. The carrying capacity of the test tube for this strain is  $6 \times 10^9$  cells. What will the bacterial population be after 90 minutes of culturing?

- A)  $3 \times 10^3$
- B)  $8 \times 10^3$
- C)  $1 \times 10^9$
- D)  $6 \times 10^9$

Answer: <https://biology-forums.com/index.php?topic=1882619>

### Question 1122

Inhibition of an enzyme is irreversible when

- A) a competitive inhibitor is involved.
- B) a noncompetitive inhibitor is involved.
- C) the shape of the enzyme is changed.
- D) covalent bonds form between inhibitor and enzyme.

Answer: <https://biology-forums.com/index.php?topic=1882946>

### Question 1123

Fossil and genetic evidence strongly supports the idea that modern humans

- A) independently arose from three different ancestral Homo species in Africa and Eurasia.
- B) all derive from a single African lineage that spread from there into other parts of the world starting about 50,000 years ago.
- C) derive from an African lineage but also have genes derived from mixing with several Eurasian descendants of Homo erectus.
- D) derive from Neanderthals that independently evolved the features of modern humans in Europe and Africa.

Answer: <https://biology-forums.com/index.php?topic=1883834>

### Question 1124

The stomata found on fossil plants can be a reliable way to measure past carbon dioxide levels. Normally, fossil plants with high density of stomata indicate \_\_\_\_\_ carbon dioxide levels and fossil plants with only a few stomata indicate \_\_\_\_\_ carbon dioxide levels.

- A) low; high
- B) high; high
- C) low; low
- D) high; low

Answer: <https://biology-forums.com/index.php?topic=1883723>

### Question 1125

According to the Krispy Kracker label, which of the following contains the highest percentage of nutrients needed for human diets?

- A) calcium
- B) iron
- C) sodium
- D) cholesterol

Answer: <https://biology-forums.com/index.php?topic=1883993>

### Question 1126

One result of Costa Rica's commitment to conservation is that

- A) destructive practices such as massive logging and large-scale single-crop agriculture have been nearly eliminated.
- B) both protected park areas and the buffer zones around them have suffered only negligible deforestation.
- C) ecotourism generates many jobs and brings in a significant fraction of the country's revenue.
- D) about 95% of the country's land is protected in some way.

Answer: <https://biology-forums.com/index.php?topic=1882730>

### Question 1127

The only cells that can correctly attach sugars to proteins to form glycoprotein products are

- A) yeast cells.
- B) E. coli cells.
- C) mammalian cells.
- D) algal cells.

Answer: <https://biology-forums.com/index.php?topic=1883323>

### Question 1128

The earliest known flowering plants date to the

- A) Paleozoic.

- B) Triassic (early Mesozoic era).
- C) Cretaceous (late Mesozoic era).
- D) Cenozoic.

Answer: <https://biology-forums.com/index.php?topic=1883505>

### Question 1129

One of the key contributions of the punctuated equilibrium model is that it helps explain

- A) why transitional fossils are more common than Darwin would have predicted.
- B) why transitional fossils tend to be rare and certain common fossil species remain unchanged for long time spans.
- C) how new species arise from hybridization events.
- D) why large, widespread populations tend to be the ones that evolve most rapidly and unpredictably.

Answer: <https://biology-forums.com/index.php?topic=1883468>

### Question 1130

Which of the following results from stimulation by the parasympathetic nervous system?

- A) increased heart rate
- B) inhibition of the digestive organs
- C) inhibition of urination
- D) stimulation of saliva secretion

Answer: <https://biology-forums.com/index.php?topic=1882169>

### Question 1131

Approximately what percentage of human DNA is noncoding?

- A) 49%
- B) 79%
- C) 98.5%
- D) 99.9%

Answer: <https://biology-forums.com/index.php?topic=1883343>

### Question 1132

Below is a molecule of caffeine. Which of the following features are not present in a molecule of caffeine?

- A) a carbonyl group
- B) a carboxyl group
- C) a methyl group
- D) one or more double bonds

Answer: <https://biology-forums.com/index.php?topic=1882821>

### Question 1133

Given that CO<sub>2</sub> is produced by cellular respiration, why does the amount of CO<sub>2</sub> in the atmosphere remain relatively constant? (When answering this question, exclude the impact of human activities on atmospheric CO<sub>2</sub>.)

- A) CO<sub>2</sub> is converted in photosynthesis to carbohydrates.
- B) CO<sub>2</sub> is split apart during photosynthesis.
- C) CO<sub>2</sub> mostly forms carbonate rocks.
- D) CO<sub>2</sub> is trapped in dead organisms' bodies.

Answer: <https://biology-forums.com/index.php?topic=1882688>

### Question 1134

Amphibians were diverse and abundant in the lush swamp forests of the \_\_\_\_\_, which is sometimes referred to as the age of the amphibians.

- A) Cambrian period
- B) Pleistocene epoch
- C) Mesozoic era
- D) Carboniferous period

Answer: <https://biology-forums.com/index.php?topic=1883801>

### Question 1135

A prehensile tail is like an opposable thumb in that both

- A) evolved before the anthropoids.
- B) are used for grasping.
- C) can be fully bent in any direction.

D) are characteristics of the earliest primates.

Answer: <https://biology-forums.com/index.php?topic=1883815>

### Question 1136

The electrons lost from the reaction center of photosystem II are replaced by electrons from

- A) CO<sub>2</sub>.
- B) ATP.
- C) H<sub>2</sub>O.
- D) photosystem I.

Answer: <https://biology-forums.com/index.php?topic=1883029>

### Question 1137

Most of the world's deserts are located at latitudes where

- A) hot, dry air moving toward the equator rises.
- B) hot, dry air moving toward the poles rises.
- C) cold, dry air moving toward the poles descends.
- D) cold, dry air moving toward the equator descends.

Answer: <https://biology-forums.com/index.php?topic=1882514>

### Question 1138

Which of the following is an endocrine gland that raises blood calcium levels?

- A) parathyroid
- B) thyroid gland
- C) pituitary gland
- D) testes

Answer: <https://biology-forums.com/index.php?topic=1882048>

### Question 1139

How can a phylogenetic tree be used to make predictions?

- A) Current trends of evolution will continue into the future. Complex models can be used to accurately predict future branching patterns and the nature of future adaptations.
- B) Features shared between two groups are likely to have been present in their common ancestor.
- C) Features found in one clade are likely to be found in other clades inhabiting different environments.
- D) An existing organism's characteristics can be confidently assumed to fit the patterns in the tree. This procedure eliminates the need to collect data about organisms through direct observation or sampling.

Answer: <https://biology-forums.com/index.php?topic=1883537>

### Question 1140

A 20-foot-tall tree that seemed to have stopped growing was cut down by the forester who had planted it 43 years earlier, who was concerned that it might be diseased. Measurements over the past 10 years had shown that the tree's height varied only 2 or 3 inches each year, some years with a height increase and some years with a height decrease. Other data indicated that the tree had 41 rings of similar width and had produced similar numbers of nuts every year for the last 30 years. Based on these data, which conclusion was most likely a part of the forester's report on the tree's health?

- A) All growth in this tree stopped 10 years ago.
- B) This was a healthy tree that had reached its mature height but otherwise continued normal growth.
- C) Overactivity of the tree's apical meristems likely caused the stunted growth.
- D) The tree did not grow taller because it was putting all of its energy production into nut production.

Answer: <https://biology-forums.com/index.php?topic=1882371>

### Question 1141

In the 1920s, Frederick Griffith conducted an experiment in which he mixed the dead cells of a bacterial strain that can cause pneumonia with live cells of a bacterial strain that cannot. When he cultured the live cells, some of the daughter colonies proved able to cause pneumonia. Which of the following processes of bacterial DNA transfer does this experiment demonstrate?

- A) transduction
- B) conjugation
- C) transformation
- D) transposition

Answer: <https://biology-forums.com/index.php?topic=1883213>

### Question 1142

In the process of human gene cloning using plasmids, the bacterial plasmid

- A) is used as the vector.
- B) is the source of the gene to be cloned.
- C) is cultured inside the human cell, which contains the gene to be cloned.
- D) is used to insert the human gene into the bacterial chromosome.

Answer: <https://biology-forums.com/index.php?topic=1883310>

### Question 1143

How does the sperm of an angiosperm reach the egg?

- A) via the pollen tube that grows from the pollen grain through the carpel tissues to the ovule
- B) via the pollen tube that grows from the ovule to reach the pollen grain on the stigma
- C) usually via an insect, which places sperm in the ovary while probing for nectar
- D) by actively swimming down through the style to the egg

Answer: <https://biology-forums.com/index.php?topic=1882347>

### Question 1144

In this sample of cells, what stage of the cell cycle are most of the cells in?

- A) G1
- B) S
- C) G2
- D) mitosis

Answer: <https://biology-forums.com/index.php?topic=1883096>

### Question 1145

Photosynthetic organisms derive their carbon from

- A) carbon monoxide.
- B) carbon dioxide.
- C) hydrocarbons.
- D) methane.

Answer: <https://biology-forums.com/index.php?topic=1883035>

### Question 1146

The loss of water from the leaves of plants is

- A) adhesion.
- B) cohesion.
- C) transpiration.
- D) osmosis.

Answer: <https://biology-forums.com/index.php?topic=1882389>

### Question 1147

Under what circumstances would guard cells look like those in the right panel?

- A) a cool rainy day
- B) a hot humid day
- C) at elevated levels of CO<sub>2</sub>
- D) a hot dry day

Answer: <https://biology-forums.com/index.php?topic=1882433>

### Question 1148

Viral DNA incorporated into host cell DNA is known as a(n)

- A) capsid.
- B) prophage.
- C) envelope.
- D) phage.

Answer: <https://biology-forums.com/index.php?topic=1883204>

### Question 1149

Lyell's book Principles of Geology, which Darwin read on board the H.M.S. Beagle, argued in favor of which of the following concepts?

- A) Earth's surface is shaped mainly by occasional catastrophic events.
- B) Meteorite impacts may have been a major cause of periodic mass extinctions.
- C) Earth's surface is shaped by natural forces that act gradually and are still acting.

D) The processes that shape Earth today are very different from those that were at work in the past.

Answer: <https://biology-forums.com/index.php?topic=1883378>

### Question 1150

Which of the following plant cells or tissues help regulate the movement of carbon dioxide into and out of a leaf?

- A) guard cells
- B) root hairs
- C) sieve tubes
- D) xylem

Answer: <https://biology-forums.com/index.php?topic=1882320>

### Question 1151

A slimy layer of bacteria coating a surface is also known as a \_\_\_\_\_.

- A) bioaggregate
- B) tissue
- C) biofilm
- D) plague

Answer: <https://biology-forums.com/index.php?topic=1883570>

### Question 1152

By the year 1980, a wolf species (*Canis rufus*) once common to the southeastern region of the United States disappeared from all areas except for one small part of eastern Texas. This is an example of

- A) extirpation.
- B) extinction.
- C) an invasive species.
- D) genetic diversity.

Answer: <https://biology-forums.com/index.php?topic=1882707>

### Question 1153

The \_\_\_\_\_ of a mitochondrion is/are an adaptation that increases the surface area and enhances a mitochondrion's ability to produce ATP.

- A) stroma
- B) intermembrane space
- C) cristae
- D) matrix

Answer: <https://biology-forums.com/index.php?topic=1882870>

### Question 1154

"Smart" plants can reduce overuse of fertilizers by

- A) using photosynthesis and fungal relationships to generate their own fertilizer.
- B) informing the grower of a nutrient deficiency before damage occurs.
- C) slowing the process of minerals washing out of the soils.
- D) binding specifically to certain fertilizers before they are needed and storing them in their root systems.

Answer: <https://biology-forums.com/index.php?topic=1882413>

### Question 1155

What would be the best experiment for a manufacturer to conduct in order to determine the false negative rate of their test kits?

- A) Have a group of women who are less than five weeks pregnant use the test and count the number of false negative results.
- B) Have a woman use the test before she is pregnant and again after she is pregnant and determine whether the tests were positive or negative.
- C) Have a group of women who are 32 weeks pregnant use the test and count the number of false negative results.
- D) Have a group of women who are not pregnant use the test and count the number of false negative results.

Answer: <https://biology-forums.com/index.php?topic=1882140>

### Question 1156

During ventricular systole, the \_\_\_\_\_ valves \_\_\_\_\_.

- A) AV; open
- B) semilunar; close
- C) semilunar; open
- D) AV and semilunar; close

Answer: <https://biology-forums.com/index.php?topic=1881849>

### Question 1157

The age structure data for Nigeria shows that the country has many more individuals under the age of 15 than over the age of 40. What does this imply about the future population of Nigeria?

- A) The population will probably remain stable.
- B) The population will probably decrease.
- C) The population will probably grow rapidly.
- D) The number of older people will probably increase rapidly.

Answer: <https://biology-forums.com/index.php?topic=1882650>

### Question 1158

Bush beans grow as small bushes rather than as vines because their internodes are short and they branch close to the apical meristem. Which of the following substances, if applied to a bush bean, might cause it to grow as a vine?

- A) a cytokinin
- B) a gibberellin
- C) abscisic acid
- D) ethylene

Answer: <https://biology-forums.com/index.php?topic=1882457>

### Question 1159

Which of the following hormones stimulates and maintains metabolic processes?

- A) calcitonin
- B) thyroxine
- C) oxytocin
- D) melatonin

Answer: <https://biology-forums.com/index.php?topic=1882046>

### Question 1160

Carbon mainly cycles between the biotic and abiotic worlds through the processes of

- A) cellular respiration and transpiration.
- B) transpiration and photosynthesis.
- C) evaporation and photosynthesis.
- D) cellular respiration and photosynthesis.

Answer: <https://biology-forums.com/index.php?topic=1882689>

### Question 1161

A cell has a mutation in both alleles of its p53 gene that causes the p53 protein to be three times as effective as normal. What do you predict would happen to this cell?

- A) The cell would divide three times as fast and would lead to cancer.
- B) The cell would divide into six daughter cells instead of two and would lead to cancer.
- C) The cell would divide with mutated DNA and would lead to cancer.
- D) The cell would divide normally or possibly not at all.

Answer: <https://biology-forums.com/index.php?topic=1883287>

### Question 1162

What likely caused the loss of metals in the control soil?

- A) being washed away by water draining through the soil
- B) evaporation of the metal molecules into the air
- C) absorption of the metal molecules by clay particles
- D) buildup of humus

Answer: <https://biology-forums.com/index.php?topic=1882437>

### Question 1163

Which of the following occurs when RNA polymerase attaches to the promoter DNA?

- A) elongation of the growing RNA molecule
- B) termination of the RNA molecule
- C) initiation of a new RNA molecule
- D) initiation of a new polypeptide chain

Answer: <https://biology-forums.com/index.php?topic=1883191>

### Question 1164

Which layer of the skin contains connective tissue?

- A) epidermis
- B) dermis
- C) hypodermis
- D) Skin does not contain connective tissue.

Answer: <https://biology-forums.com/index.php?topic=1883894>

### Question 1165

In some social insects, there are individuals that do not mate or may not be fertile but help look after other members of their group. Which statement regarding this situation is true?

- A) There is no way that natural selection can act on the genes of nonreproducers since they do not leave offspring.
- B) The ultimate cause of this behavior is the need to keep their group safe.
- C) By protecting relatives, the nonreproducers increase the probability that their genes will be passed to the next generation.
- D) Lack of mating is an agonistic behavior.

Answer: <https://biology-forums.com/index.php?topic=1882574>

### Question 1166

A cell that has neither a net gain of water nor net loss of water when it is immersed in a solution must be

- A) isotonic to its environment.
- B) hypertonic to its environment.
- C) hypotonic to its environment.
- D) metabolically inactive.

Answer: <https://biology-forums.com/index.php?topic=1882913>

### Question 1167

Which of the following is a function of the nasal cavities in humans?

- A) secreting enzymes for digestion
- B) warming inhaled air
- C) secreting excess carbon dioxide into exhaled air
- D) determining O<sub>2</sub> content in inhaled air

Answer: <https://biology-forums.com/index.php?topic=1884016>

### Question 1168

In plants, the vascular tissue that consists of living cells that distribute sugars throughout the plant is called

- A) xylem.
- B) phloem.
- C) conducting tissue.
- D) meristem.

Answer: <https://biology-forums.com/index.php?topic=1883655>

### Question 1169

In the plasma membrane, the phospholipid heads

- A) are hydrophilic and face outward toward the aqueous solution on both sides of the membrane.
- B) are hydrophilic and face inward, shielded from water.
- C) are hydrophobic and face outward toward the aqueous solution on both sides of the membrane.
- D) are hydrophobic and face inward, shielded from water.

Answer: <https://biology-forums.com/index.php?topic=1882843>

### Question 1170

When you are breathing normally, exhalation results mainly from

- A) the contraction of muscles in the chest.
- B) the contraction of the diaphragm.
- C) the relaxation of the chest muscles and diaphragm.
- D) low pressure in the lungs.

Answer: <https://biology-forums.com/index.php?topic=1884028>

### Question 1171

Which of the following statements about erythrocytes is true?

- A) The main function of erythrocytes is to carry nutrients.
- B) Erythrocytes are shaped like biconcave disks.
- C) Each erythrocyte contains about 1 million molecules of hemoglobin.
- D) Erythrocytes in adult humans have nuclei.

Answer: <https://biology-forums.com/index.php?topic=1881871>

### Question 1172

Suppose you are trying to convince your sick child to drink some medicine that he knows does not taste good. You tell him to hold his nose while he drinks it because that will help take the bad taste away. Does your statement have any truth to it?

- A) Yes. Holding your nose allows you to detect multiple tastes at one time.
- B) Yes. Holding your nose increases production of glutamate.
- C) Yes. Holding your nose dulls the sensitivity of taste receptors.
- D) Yes. Holding your nose has the same effect as having a congested nose.

Answer: <https://biology-forums.com/index.php?topic=1882248>

### Question 1173

Which of the following is an advantage of cloning horticultural crops over sexual propagation?

- A) Cloned plants are healthier and less susceptible to disease.
- B) Cloning plants can allow growers to produce large numbers of plants with minimal effort and expense.
- C) Cloned plants grow more slowly but have stronger stems.
- D) Cloning provides more variation in flower color and size.

Answer: <https://biology-forums.com/index.php?topic=1882360>

### Question 1174

Which statement best summarizes the results of the experiment?

- A) The larger the tube diameter, the greater the flow volume.
- B) The larger the tube diameter, the smaller the flow volume.
- C) The tube diameter shows no clear relationship to flow volume.
- D) The flow rate through the largest tube is approximately twice that through the smallest tube.

Answer: <https://biology-forums.com/index.php?topic=1881896>

### Question 1175

Consider an animal that exchanges gases through its skin. Which of the following body shapes would provide the most surface area for gas exchange?

- A) a flat rectangle with sides measuring 3 inches and 4 inches
- B) a flat square with sides measuring 2 inches each
- C) a flat rectangle with sides measuring 2 inches and 9 inches
- D) a flat square with sides measuring 4 inches each

Answer: <https://biology-forums.com/index.php?topic=1884030>

### Question 1176

Experiments have demonstrated that the "words" of the genetic code (the units that specify amino acids) are

- A) single nucleotides.
- B) two-nucleotide sequences.
- C) three-nucleotide sequences.
- D) nucleotide sequences of various lengths.

Answer: <https://biology-forums.com/index.php?topic=1883187>

### Question 1177

Innate defenses are described in the text as "always standing by, ready to be used in their current form." Which of the following are examples of innate immunity?

1. stomach pH
2. natural killer cells
3. B lymphocytes
4. fever

- A) 1, 2
- B) 2, 3, 4
- C) 1, 3, 4
- D) 1, 2, 4

Answer: <https://biology-forums.com/index.php?topic=1881963>

### Question 1178

Secretion is the movement of substances such as drugs or toxic molecules from the \_\_\_\_\_ into the \_\_\_\_\_.

- A) nephron tubule; glomerulus
- B) glomerulus; nephron tubule
- C) blood; filtrate
- D) urinary bladder; outside

Answer: <https://biology-forums.com/index.php?topic=1882000>

### Question 1179

Based on the results of this study, you can conclude that

- A) petal color won't contribute to speciation, since pollinators will select familiar plant species regardless of petal color.
- B) gene mutations that affect petal color will also affect nectar production.
- C) gene mutations affecting petal color can contribute to speciation through a shift in pollinator species.
- D) flower color does not appear to be an important factor in the speciation of flowering angiosperms.

Answer: <https://biology-forums.com/index.php?topic=1883720>

### Question 1180

What part of the human brain contains the primary breathing control center?

- A) neocortex
- B) cerebellum
- C) medulla oblongata
- D) thalamus

Answer: <https://biology-forums.com/index.php?topic=1884032>

### Question 1181

Which of the following statements about plant hormones is true?

- A) Plant hormones are produced in very small concentrations.
- B) Plant hormones mainly affect reproductive processes.
- C) Individual hormones typically have single, specific effects.
- D) Plant hormones play a vital role in photosynthesis.

Answer: <https://biology-forums.com/index.php?topic=1882447>

### Question 1182

The major cause of tropical deforestation is

- A) hurricane destruction of large regions.
- B) people clearing forests to open up land for agriculture.
- C) governments clearing forests to build cities.
- D) natural succession as global warming occurs.

Answer: <https://biology-forums.com/index.php?topic=1882527>

### Question 1183

Which respiratory structure likely has the largest surface area for gas exchange to occur?

- A) the body surface of a worm
- B) the alveoli of a pig
- C) the tracheal system of a house fly
- D) the gills of a trout

Answer: <https://biology-forums.com/index.php?topic=1884050>

### Question 1184

Of the over 19,000 new species described for the first time in 2009, more than half were

- A) marine organisms.
- B) plants.
- C) insects.
- D) vertebrates.

Answer: <https://biology-forums.com/index.php?topic=1883839>

### Question 1185

The human population on Earth is expected to reach 9.5 billion people by

- A) 2015.
- B) 2050.
- C) 2093.
- D) 3150.

Answer: <https://biology-forums.com/index.php?topic=1882638>

### Question 1186

What was the probable role of oxygen gas in the early stages of life's appearance on Earth?

- A) Cellular respiration, which depends on oxygen availability, provided abundant energy to the first life-forms.
- B) Oxygen promoted the formation of complex organic molecules through physical processes.
- C) Oxygen gas tends to disrupt organic molecules, so its absence promoted the formation and stability of complex organic molecules on the early Earth.
- D) Abundant atmospheric oxygen would have created an ozone layer, which blocked out ultraviolet light and thereby protected the earliest life-forms.

Answer: <https://biology-forums.com/index.php?topic=1883489>

### Question 1187

From the data in the table, it is reasonable to conclude that

Many amphibians (including many frogs, toads, and salamanders) spend the early part of their lives in water but live on land as adults. The adults of many species return to water to breed and lay their eggs. Frogs have small lungs and supplement their oxygen intake by breathing through the skin. Although large frogs have more total surface area than smaller frogs, the larger frogs have a lower surface area/volume ratio (less skin surface relative to their total body volume). To keep their respiratory surfaces moist, frogs are generally found in wet or very moist locations.

In an experiment designed to investigate oxygen consumption in relation to body size, frogs from five different species were weighed and placed in a respirometer (a machine that measures oxygen consumption) for 1 hour. The table shows the results of the experiment.

- A) smaller frogs consume less oxygen per gram of body weight.
- B) each tested species consumes a different amount of oxygen per gram of body weight.
- C) oxygen consumption per gram of body weight is the same for all tested species.
- D) oxygen consumption per gram of body weight for the largest species is much higher than that for the smallest species.

Answer: <https://biology-forums.com/index.php?topic=1884077>

### Question 1188

Which of the following cellular structures is characteristic of amoebas?

- A) pseudopodia
- B) microvilli
- C) cilia
- D) flagella

Answer: <https://biology-forums.com/index.php?topic=1883615>

### Question 1189

Corn, rice, wheat, fleshy fruits such as apples and berries, and many spices are all produced by

- A) gymnosperms.
- B) ferns.
- C) angiosperms.
- D) seedless plants.

Answer: <https://biology-forums.com/index.php?topic=1883682>

### Question 1190

Based on von Frisch's work on honeybee communication, which of the following types of information is communicated to other workers by a honeybee's "dance"?

- A) the direction of the nectar source
- B) the distance of the nectar source from the nearest water
- C) the color of the flowers producing the nectar
- D) the quality of the nectar

Answer: <https://biology-forums.com/index.php?topic=1882583>

### Question 1191

What is the complementary sequence to the DNA strand TCGATGG?

- A) TCGATGG
- B) GGTAGCT
- C) AGCUACC

D) AGCTACC

Answer: <https://biology-forums.com/index.php?topic=1882816>

### Question 1192

Anti-evolutionary thinkers sometimes argue that natural selection could not produce a complex structure like the vertebrate eye. They claim that all of the parts of the eye must have arisen at once, asking why natural selection would favor the development of part of an eye that is not yet capable of forming a focused image. Which of the following statements is consistent with a survey of eye structure in the molluscs?

- A) The argument has a great deal of merit. Only full-blown image-forming eyes are present in modern organisms.
- B) There are many intermediate stages of eye complexity that fulfill different adaptive functions.
- C) The vertebrate eye is the ancestral form, and other types of organisms have degenerate eyes that have lost most of their original structure and function.
- D) The vertebrate eye works in a way that is completely different from the eyes found in molluscs and other invertebrates.

Answer: <https://biology-forums.com/index.php?topic=1883524>

### Question 1193

An unknown bacterial species is recovered from a sick patient's digestive tract. It has a membrane outside the cell wall that contains toxic lipids. This observation indicates that

- A) the infection should be relatively easy to control with common antibiotics, because the pathogen is a gram-positive species.
- B) the infection should be relatively easy to control with common antibiotics, because the pathogen is a gram-negative species.
- C) the infection may be quite threatening and difficult to control, because the pathogen is a gram-positive species.
- D) the infection may be quite threatening and difficult to control, because the pathogen is a gram-negative species.

Answer: <https://biology-forums.com/index.php?topic=1883564>

### Question 1194

Scientists suspected that the condors eating marine mammals were ingesting DDT, causing the kind of shell fragility found in the middle part of the last century before DDT was banned. Which of the following actions would provide the best evidence that poor egg quality rather than predation or some other factor was the cause of failed condor reproduction?

- A) Swap eggs from nests of reintroduced condors with eggs from successfully reproducing condors in captivity.
- B) Compare the number of eggs in nests of birds in captivity with the number of eggs in the nests of birds in the wild.
- C) Count the number of mating pairs in each area in the wild.
- D) Monitor food eaten by condors in each of the areas where condors have been reintroduced.

Answer: <https://biology-forums.com/index.php?topic=1882557>

### Question 1195

Which of the following statements about the ATP molecule is true?

- A) It contains five phosphate groups.
- B) Extremely stable bonds link the second and third phosphate groups.
- C) It contains the sugar glucose.
- D) It releases energy when one phosphate group leaves ATP.

Answer: <https://biology-forums.com/index.php?topic=1882934>

### Question 1196

The increase in girth associated with production of wood and bark in trees occurs as a consequence of

- A) primary growth.
- B) secondary growth.
- C) growth in apical meristems.
- D) indeterminate growth.

Answer: <https://biology-forums.com/index.php?topic=1882335>

### Question 1197

E. coli can synthesize the amino acid threonine or absorb it from the environment. In the thr operon, the repressor is active when it is bound to threonine. If an E. coli bacterium is in an environment where threonine is absent, will transcription of threonine synthesis genes take place? Why or why not?

- A) Yes, because threonine will not be bound to the repressor, so the repressor will be inactive.
- B) No, because threonine will not be bound to the repressor, so the repressor will be inactive.
- C) Yes, because threonine will not be bound to the repressor, so the repressor will be active.
- D) No, because threonine will not be bound to the repressor, so the repressor will be active.

Answer: <https://biology-forums.com/index.php?topic=1883281>

### Question 1198

The stomach mixes food with secretions of the stomach wall to form

- A) gastric juice.
- B) a parietal bolus.
- C) gastrin.
- D) chyme.

Answer: <https://biology-forums.com/index.php?topic=1883926>

### Question 1199

The \_\_\_\_\_ represents the sporophyte generation of a conifer, and the \_\_\_\_\_ produces gametophytes.

- A) cone; tree
- B) tree; cone
- C) tree; pollen
- D) seed; tree

Answer: <https://biology-forums.com/index.php?topic=1883674>

### Question 1200

Which of the following is the factor that initiates flowering in long-day plants?

- A) nights shorter than a critical length
- B) nights longer than a critical length
- C) days longer than the intervening nights
- D) days shorter than a critical length

Answer: <https://biology-forums.com/index.php?topic=1882481>

### Question 1201

Most genetic disorders of humans are caused by

- A) multiple alleles.
- B) recessive alleles.
- C) a mutation that occurs in the egg, sperm, or zygote.
- D) dominant alleles.

Answer: <https://biology-forums.com/index.php?topic=1883122>

### Question 1202

When cloning a gene, one of the steps is to use restriction enzymes to insert the gene of interest into a vector. If you separated the empty vector (the vector without the gene of interest) and the cloned vector (the vector that has the gene of interest added) using agarose gel electrophoresis, what do you expect to observe on the agarose gel if both vectors are loaded at the same position at the top of the gel?

- A) The empty vector would migrate farther down than the cloned vector.
- B) The cloned vector would migrate farther down than the cloned vector.
- C) The empty vector would migrate the same distance as the cloned vector.
- D) It is impossible to know without knowing the identity of the gene of interest.

Answer: <https://biology-forums.com/index.php?topic=1883357>

### Question 1203

In 1865, a biologist, St. George Jackson Mivart, constructed an evolutionary tree of existing primate species with many branches based on analysis of spinal columns. But to his dismay, another tree based on limb comparison was quite different. Which of the following analyses would be best to include today to determine which tree is more accurate?

- A) comparison of genes that control development
- B) comparison of eyes of primates
- C) comparison of DNA sequences of primates
- D) examination of evolutionary trees constructed by others.

Answer: <https://biology-forums.com/index.php?topic=1883554>

### Question 1204

Which step of the citric acid cycle requires both NAD<sup>+</sup> and ADP as reactants?

- A) step 1
- B) step 2
- C) step 3
- D) step 4

Answer: <https://biology-forums.com/index.php?topic=1882991>

### Question 1205

Which of the following plant parts commonly contributes to asexual reproduction?

- A) seeds
- B) roots
- C) flowers
- D) fruits

Answer: <https://biology-forums.com/index.php?topic=1882358>

### Question 1206

\_\_\_\_\_ are a component of the immune system that are able to destroy cancer cells by deploying toxins into infected cells as a means of killing them. In this role they are cytotoxic that is, "cell killing."

- A) Natural killer cells
- B) Phagocytes
- C) Antibodies
- D) B cells

Answer: <https://biology-forums.com/index.php?topic=1881962>

### Question 1207

The hominin group includes \_\_\_\_\_.

- A) Homo sapiens only
- B) Homo sapiens and several extinct human relatives.
- C) humans and all other apes.
- D) all anthropoids.

Answer: <https://biology-forums.com/index.php?topic=1883825>

### Question 1208

Which of the following correctly lists organisms from least complex in overall development to most complex?

- A) hydras, sponges, lobsters, clams, tunicates
- B) sponges, hydras, clams, lobsters, tunicates
- C) sponges, clams, lobsters, tunicates, hydras
- D) clams, sponges, hydras, tunicates, lobsters

Answer: <https://biology-forums.com/index.php?topic=1883778>

### Question 1209

You arrive at your office and are startled by the sounds of building construction outside your window. As you settle in to your work for the day, you forget about the construction noises. When a visitor comes to your office later that day, the first thing she comments on is how disruptive the construction noise must be to your concentration. You realize that you have not even noticed it for over an hour. This is due to

- A) sensory transduction.
- B) sensory adaptation.
- C) resting potential.
- D) action potential firing.

Answer: <https://biology-forums.com/index.php?topic=1882201>

### Question 1210

The structural and functional unit of nervous tissue is the

- A) dendrite.
- B) axon.
- C) neuron.
- D) nerve.

Answer: <https://biology-forums.com/index.php?topic=1883875>

### Question 1211

According to the fossil record, the genus Homo first arose in

- A) North America.
- B) Europe.
- C) Asia.
- D) Africa.

Answer: <https://biology-forums.com/index.php?topic=1883831>

### Question 1212

Which of the following statements best explains why dominant alleles that cause lethal disorders are less common than recessive alleles that cause lethal disorders?

- A) Lethal disorders caused by dominant alleles are usually more severe than lethal disorders caused by recessive alleles.
- B) Unlike lethal disorders caused by recessive alleles, lethal disorders caused by dominant alleles usually cause the death of the embryo.
- C) Most individuals carrying a lethal dominant allele have the disorder and die before they reproduce, whereas individuals carrying a lethal recessive allele are more likely to be healthy and reproduce.
- D) The presence of a lethal dominant allele causes sterility.

Answer: <https://biology-forums.com/index.php?topic=1883124>

### Question 1213

Which of the following experiments would be best for testing the hypothesis that the enzymes did not perform as expected because the temperature was too high?

- A) Produce one batch of blue jeans with twice as much enzyme as another batch of blue jeans while keeping the temperature the same, then compare how the lightness of the blue jeans varies between batches.
- B) Produce multiple batches of blue jeans at several different temperatures but with the same enzyme concentration and then compare how the lightness of the blue jeans varies between batches.
- C) Produce multiple batches of blue jeans at several different temperatures and with different enzyme concentrations and then compare how the lightness of the blue jeans varies between batches.
- D) Produce one batch of blue jeans at a high temperature without the enzyme and another batch of blue jeans at a low temperature with the enzyme and then compare how the lightness of the blue jeans varies between batches.

Answer: <https://biology-forums.com/index.php?topic=1882825>

### Question 1214

After binding to an infected cell, the cytotoxic T cell

- A) releases interleukin-1.
- B) becomes a phagocytic cell.
- C) neutralizes the infecting bacteria or viruses.
- D) releases a protein called perforin.

Answer: <https://biology-forums.com/index.php?topic=1881941>

### Question 1215

Which of the following statements regarding thermodynamics is false?

- A) Thermodynamics is the study of energy transformations that occur in a collection of matter.
- B) A single cell or the planet Earth could be a thermodynamic system.
- C) An open system exchanges both energy and matter with its surroundings.
- D) An automobile engine is a closed system because it does not exchange energy and matter with its surroundings.

Answer: <https://biology-forums.com/index.php?topic=1882926>

### Question 1216

To be scientifically valid, a hypothesis must be

- A) part of a theory.
- B) controlled.
- C) reasonable.
- D) testable and falsifiable.

Answer: <https://biology-forums.com/index.php?topic=1884099>

### Question 1217

Most CO<sub>2</sub> is transported to the lungs in which of the following ways?

- A) dissolved in the plasma
- B) as carbonic anhydrase
- C) as carboxyl
- D) attached to hemoglobin or as bicarbonate ions

Answer: <https://biology-forums.com/index.php?topic=1884039>

### Question 1218

Complete the analogy: \_\_\_\_\_ is/are to birds as \_\_\_\_\_ is/are to mammals.

- A) Wings; legs
- B) Water; milk

- C) Feathers; hair
- D) Wings; opposable thumbs

Answer: <https://biology-forums.com/index.php?topic=1883817>

### Question 1219

Which of the following statements regarding natural selection is false?

- A) Natural selection depends on the local environment at the current time.
- B) Natural selection starts with the creation of new alleles that are directed toward improving an organism's fitness.
- C) Natural selection and evolutionary change can occur in a short period of time (a few generations).
- D) Natural selection can be observed working in organisms alive today.

Answer: <https://biology-forums.com/index.php?topic=1883387>

### Question 1220

Which of the following animals requires the largest and most complex lungs proportional to its overall body size?

- A) frog
- B) turtle
- C) bear
- D) newt

Answer: <https://biology-forums.com/index.php?topic=1884013>

### Question 1221

When farsightedness develops with age (called presbyopia), the

- A) lens becomes less elastic and so gradually loses its ability to focus on nearby objects.
- B) eyeball lengthens and so gradually loses its ability to focus on objects that are far away.
- C) lens becomes more elastic and so gradually loses its ability to focus on nearby objects.
- D) eyeball lengthens and so gradually loses its ability to focus on nearby objects.

Answer: <https://biology-forums.com/index.php?topic=1882227>

### Question 1222

A scientist suspects that the food in an ecosystem may have been contaminated with radioactive nitrogen over a period of months. Which of the following substances could be examined for radioactivity to test the hypothesis?

- A) the cell walls of plants growing in the ecosystem
- B) the hair produced by humans living in the ecosystem
- C) the sugars produced during photosynthesis by plants growing in the ecosystem
- D) the cholesterol in the cell membranes of organisms living in the ecosystem

Answer: <https://biology-forums.com/index.php?topic=1882796>

### Question 1223

Which of the following processes underlies the thigmotropic behavior of a green bean tendril?

- A) rotation of the tendril in response to photoperiod
- B) rotation of the tendril in response to a biological clock
- C) extra proliferation of cells on the shaded side of the tendril
- D) slower growth on the side where an object is touching the tendril

Answer: <https://biology-forums.com/index.php?topic=1882474>

### Question 1224

Over the past 400 years, humans have documented the extinction of more than \_\_\_\_\_ species. This modern rate of species extinction is estimated to be \_\_\_\_\_ the normal extinction rate seen in the fossil record.

- A) 100; about the same as
- B) 400; about double
- C) 1,000; over 100 times greater than
- D) 10,000; at least 1 million times greater than

Answer: <https://biology-forums.com/index.php?topic=1883518>

### Question 1225

What is the current standard tool used for DNA profiling by forensic scientists?

- A) STR analysis
- B) gene cloning
- C) genetic engineering
- D) RFLP analysis

Answer: <https://biology-forums.com/index.php?topic=1883337>

### Question 1226

\_\_\_\_\_ makes it possible to trace phylogenies among microbial groups for which there is no fossil record.

- A) Convergent evolution
- B) Comparison to vertebrate outgroups
- C) Horizontal gene transfer
- D) Molecular systematics

Answer: <https://biology-forums.com/index.php?topic=1883539>

### Question 1227

Which of the following statements regarding compound eyes is true?

- A) Compound eyes have one light-focusing lens.
- B) Compound eyes are poor motion detectors.
- C) Most insect compound eyes provide excellent color vision.
- D) Compound eyes can perceive only visible light.

Answer: <https://biology-forums.com/index.php?topic=1882219>

### Question 1228

You drive through Iowa in the spring and notice that along a stretch of several kilometers, every third fence post has a male redwing blackbird perched on it defending its nesting territory. This is an example of

- A) clumped dispersion.
- B) random dispersion.
- C) uniform dispersion.
- D) artificial dispersion.

Answer: <https://biology-forums.com/index.php?topic=1882609>

### Question 1229

Which two groups of protists produce hard, mineralized skeletal structures or cell walls that contribute to marine sediments and form fossils?

- A) green algae and brown algae
- B) foraminiferans and radiolarians
- C) dinoflagellates and diatoms
- D) cellular slime molds and water molds

Answer: <https://biology-forums.com/index.php?topic=1883616>

### Question 1230

Which of the following tissues would likely be found in the small intestine?

- A) cardiac muscle
- B) nervous tissue
- C) bone tissue
- D) tendons

Answer: <https://biology-forums.com/index.php?topic=1883878>

### Question 1231

You are observing a developing embryo under a microscope and see that it has a space in the middle of the endoderm, but no features of a notochord are present. In which stage of development is this embryo?

- A) zygote
- B) blastula
- C) gastrula
- D) fetus

Answer: <https://biology-forums.com/index.php?topic=1882130>

### Question 1232

Assuming that the probability of having a female child is 50% and the probability of having a male child is also 50%, what is the probability that a couple's first-born child will be female and that their second-born child will be male?

- A) 20%
- B) 25%
- C) 50%
- D) 75%

Answer: <https://biology-forums.com/index.php?topic=1883120>

### Question 1233

Some populations, especially those with high genetic variability and short life spans, may avoid extinction as the climate changes through

- A) enforcement of the Endangered Species Act.
- B) bioprospecting.
- C) distribution of populations.
- D) evolutionary adaptation.

Answer: <https://biology-forums.com/index.php?topic=1882722>

### Question 1234

An alimentary canal is best defined as

- A) the compartment in which an animal temporarily stores its food.
- B) a digestive cavity in which food is churned and mixed.
- C) a tube-shaped compartment for the transport, digestion, and absorption of food.
- D) an organ designed for regulation of food passage.

Answer: <https://biology-forums.com/index.php?topic=1883913>

### Question 1235

Which of the following terms refers to a situation where a single phenotypic character is determined by the additive effects of two or more genes?

- A) incomplete dominance
- B) codominance
- C) pleiotropy
- D) polygenic inheritance

Answer: <https://biology-forums.com/index.php?topic=1883133>

### Question 1236

If ATP accumulates in a cell,

- A) the cell receives a signal that there is a need for more energy.
- B) feedback inhibition speeds up cellular respiration.
- C) feedback inhibition slows down cellular respiration.
- D) the rate of cellular respiration does not change.

Answer: <https://biology-forums.com/index.php?topic=1882981>

### Question 1237

Red maples and other wind-pollinated plants invest relatively little in producing \_\_\_\_\_ but must invest a great deal in producing \_\_\_\_\_ to achieve good pollination rates.

- A) floral scents; showy petals
- B) showy or scented flowers; massive amounts of pollen
- C) pollen; showy or scented flowers
- D) seeds; massive amounts of pollen

Answer: <https://biology-forums.com/index.php?topic=1883684>

### Question 1238

Which of the following cells has the greatest surface-to-volume ratio?

- A) bacterium
- B) human red blood cell
- C) human muscle cell
- D) ostrich egg

Answer: <https://biology-forums.com/index.php?topic=1882839>

### Question 1239

Individuals medically diagnosed with "dry eyes" experience feelings of dryness, itchiness, burning, and general irritation in their eyes. Dry eyes can be caused by a decreased production of tears by the tear-producing glands in the eyes. Which of the following would help alleviate dry eyes?

- A) Stimulate production of aqueous humor.
- B) Block the eyelid openings used to drain tears so that the limited amount of tears produced can stay longer on the eyes' surface.
- C) Stimulate production of vitreous humor.
- D) Avoid environments with dry climates (little moisture).

Answer: <https://biology-forums.com/index.php?topic=1882242>

### Question 1240

Arsenic is a poison that binds to a molecule needed to build acetyl CoA. Based on this information, which part of cellular respiration would be stopped if arsenic were ingested?

- A) glycolysis
- B) citric acid cycle
- C) electron transport chain
- D) ATP synthase

Answer: <https://biology-forums.com/index.php?topic=1882988>

### Question 1241

A waste product of respiration is

- A) electrons.
- B) hydrogen peroxide.
- C) carbon dioxide.
- D) glucose.

Answer: <https://biology-forums.com/index.php?topic=1883997>

### Question 1242

Which of the following are not included among the bilateria, a clade of animals with bilateral symmetry at some stage of development?

- A) sea stars (Echinodermata)
- B) earthworms (Annelida)
- C) sea anemones (Cnidaria)
- D) octopus (Mollusca)

Answer: <https://biology-forums.com/index.php?topic=1883738>

### Question 1243

Fat Away prevents ATP from being made by

- A) destroying the H<sup>+</sup> gradient that allows ATP synthase to work.
- B) preventing glycolysis from occurring.
- C) preventing the conversion of NADH to NAD<sup>+</sup>.
- D) slowing down the citric acid cycle.

Answer: <https://biology-forums.com/index.php?topic=1882996>

### Question 1244

Which bird adaptation is probably less well-developed in flightless birds such as penguins and ostriches?

- A) honeycombed bone structure
- B) amniotic egg
- C) vertebrae
- D) presence of feathers

Answer: <https://biology-forums.com/index.php?topic=1883807>

### Question 1245

The main function of the hindgut in the grasshopper is to

- A) reabsorb water and compact wastes.
- B) digest food.
- C) absorb nutrients.
- D) absorb vitamins and pulverize food.

Answer: <https://biology-forums.com/index.php?topic=1883915>

### Question 1246

Fungi contact and absorb food through the \_\_\_\_\_, a branching network of \_\_\_\_\_.

- A) mycelium; hyphae
- B) hyphae; mycelia
- C) mycorrhiza; mushrooms
- D) mushroom; hyphae

Answer: <https://biology-forums.com/index.php?topic=1883695>

### Question 1247

Considering only the steps that take place during translation, which of the following is not needed in order for translation to occur?

- A) DNA template
- B) ribosomes
- C) tRNA
- D) sources of energy, including ATP

Answer: <https://biology-forums.com/index.php?topic=1883196>

### Question 1248

In plants, most differentiated cells retain

- A) only a tiny fraction of their original set of genes.
- B) a complete set of their genes but lose the ability to express most of those genes.
- C) a complete set of their genes and retain the ability to express those genes under certain circumstances.
- D) the ability to dedifferentiate but then cannot return to their original differentiated state.

Answer: <https://biology-forums.com/index.php?topic=1883265>

### Question 1249

In angiosperms, the process of \_\_\_\_\_ ensures that the endosperm will develop only in ovules containing a fertilized egg.

- A) cytogenesis
- B) meiosis
- C) double fertilization
- D) cytokinesis

Answer: <https://biology-forums.com/index.php?topic=1882348>

### Question 1250

The results suggest that the smallest flow volume would be found in the \_\_\_\_\_ of the human body.

- A) arteries
- B) veins
- C) capillaries
- D) arterioles

Answer: <https://biology-forums.com/index.php?topic=1881906>

### Question 1251

You are told that the song of males among a particular songbird species has an innate component but is also largely learned. Nestling males imprint on their father's song and then sing it themselves when they reach sexual maturity. Which of the following observations would lead you to doubt this information?

- A) A male chick reared in isolation but introduced as an older juvenile into an aviary containing normal males of his species sings his species' song.
- B) A male chick who is reared in isolation but hears tape recordings of his species' song grows up to sing normally.
- C) A male chick who is reared in isolation but hears tape recordings of a different species' song grows up to sing that species' song.
- D) A male chick fostered in the nest of a different species grows up to sing the song of its foster species.

Answer: <https://biology-forums.com/index.php?topic=1882569>

### Question 1252

One neurotransmitter associated with sleep, mood, attention, and learning is

- A) acetylcholine.
- B) nitric oxide.
- C) epinephrine.
- D) serotonin.

Answer: <https://biology-forums.com/index.php?topic=1882157>

### Question 1253

The greatest challenge facing the zoned reserve systems of Costa Rica is

- A) high predation by jaguars.
- B) forest fires.
- C) soil erosion.
- D) the growing human population.

Answer: <https://biology-forums.com/index.php?topic=1882729>

### Question 1254

Which of the following would have been a surprise to wildlife biologists who, after successfully breeding and raising condors, were reintroducing the condors to the wild following a precipitous decline in their number in the 1970s? (In 1982 there were only 19 condors in the wild.)

- A) Twelve of 19 nests had no hatchlings, and nests of the coastal population had shell fragments 34% thinner than those of condor populations more inland.
- B) Only some of the released condors fed on marine mammals; others fed on carcasses of animals as different as wolves and cows.
- C) Sea otter and sea lion populations declined in areas where the condors were released.
- D) Reintroduced condors laid the same number of eggs as condor pairs in captivity.

Answer: <https://biology-forums.com/index.php?topic=1882556>

### Question 1255

- A new plant species may arise in a single generation by
- A) errors in meiosis leading to polyploidy.
- B) a sudden geological disruption causing separation of two populations.
- C) mutations in genes for flower color.
- D) changes in the pollinator species.

Answer: <https://biology-forums.com/index.php?topic=1883475>

### Question 1256

- Assume that there are five alligators per acre in a swamp in northern Florida. This is a measure of the alligator population's
- A) dispersion.
- B) intrinsic rate of increase.
- C) range.
- D) density.

Answer: <https://biology-forums.com/index.php?topic=1882607>

### Question 1257

- A scientist wants to examine living cells lining the respiratory tract to determine how the cells use tiny hairs to move dirt and mucus away from the lungs. Which of the following instruments would be best, and why?
- A) a light microscope, because it allows observations of whole, live cells
- B) a transmission electron microscope, because it has high resolution
- C) a scanning electron microscope, because it can reveal structures on cell surfaces
- D) a scanning electron microscope, because it can be used to observe whole cells without slicing them

Answer: <https://biology-forums.com/index.php?topic=1882833>

### Question 1258

- Which of the following statements regarding prenatal testing is false?
- A) Results from chorionic villus sampling come faster than those from amniocentesis.
- B) Chorionic villus sampling is typically performed later in the pregnancy than amniocentesis.
- C) Ultrasound imaging has no known risk.
- D) Chorionic villus sampling and amniocentesis are usually reserved for pregnancies with higher than usual risks of complications.

Answer: <https://biology-forums.com/index.php?topic=1883126>

### Question 1259

- The pupil of the eye is similar to what part of a camera?
- A) lens
- B) aperture (light opener)
- C) film
- D) flash

Answer: <https://biology-forums.com/index.php?topic=1882240>

### Question 1260

- Under the biological species concept, a species is a group of organisms that
- A) are physically similar.
- B) share a recent common ancestor.
- C) live together in a location and carry out identical ecological roles.
- D) have the potential to interbreed in nature and produce fertile offspring.

Answer: <https://biology-forums.com/index.php?topic=1883436>

### Question 1261

- Mutations in the p53 gene can lead to cancer by
- A) causing the production of excessive amounts of relay proteins.
- B) causing the production of a faulty protein that is no longer able to inhibit cell division.

C) promoting the expression of mRNA that can interact with DNA, resulting in new mutations.  
D) increasing the production of growth hormones, which trigger faster cell cycles.  
Answer: <https://biology-forums.com/index.php?topic=1883278>

### Question 1262

A red blood cell is in an artery in the right leg. How many capillary beds will it pass through before it returns to the left atrium of the heart?  
A) none  
B) one  
C) two  
D) three  
Answer: <https://biology-forums.com/index.php?topic=1881889>

### Question 1263

Which of the following could best explain how condor reproduction along the coast is being harmed by DDT in the condors' foods now, even though DDT was banned in 1972?  
A) Condors may be feeding on animals that contain DDT.  
B) Eggshells are made of a material that accumulates tiny amounts of DDT from the environment.  
C) A chemical company dumped a large amount of DDT in the ocean near Southern California.  
D) Condors are very large and long-lived animals.  
Answer: <https://biology-forums.com/index.php?topic=1882559>

### Question 1264

Which of the following statements regarding cells is false?  
A) All cells are enclosed in a membrane that maintains internal conditions different from the surroundings.  
B) All cells have a cell wall.  
C) All cells can interconvert forms of energy.  
D) All cells have DNA as their genetic material.  
Answer: <https://biology-forums.com/index.php?topic=1882884>

### Question 1265

What kind of curve represents exponential growth?  
A) ascending straight line  
B) J-shaped  
C) S-shaped  
D) descending straight line  
Answer: <https://biology-forums.com/index.php?topic=1882643>

### Question 1266

Which of the following thinkers argued that much of human suffering was the result of human populations increasing faster than food supply, an argument that later influenced Charles Darwin's ideas of natural selection?  
A) Charles Lyell  
B) Thomas Malthus  
C) Jean-Baptiste Lamarck  
D) Gregor Mendel  
Answer: <https://biology-forums.com/index.php?topic=1883385>

### Question 1267

A Type I survivorship curve is associated with which of the following life history traits?  
A) parents providing extended care for their young  
B) large numbers of offspring being produced  
C) infant mortality being much greater than adult mortality  
D) a short life span for most individuals  
Answer: <https://biology-forums.com/index.php?topic=1882613>

### Question 1268

The calcium that triggers muscle contraction is stored in  
A) the motor neuron.  
B) synaptic vesicles.  
C) the endoplasmic reticulum.  
D) the mitochondria.

Answer: <https://biology-forums.com/index.php?topic=1882286>

### Question 1269

A major type of lipid found in cell membranes is

- A) triglycerides.
- B) phospholipids.
- C) glycerol.
- D) waxes.

Answer: <https://biology-forums.com/index.php?topic=1882791>

### Question 1270

A common knee injury in athletes involves the anterior cruciate ligament, or ACL. The ACL consists of tissue that connects the bones of the femur (upper leg bone) and tibia (lower leg bone). What kind of tissue would you expect to be damaged in an ACL injury?

- A) bone tissue
- B) striated muscle tissue
- C) fibrous connective tissue
- D) cartilage

Answer: <https://biology-forums.com/index.php?topic=1883882>

### Question 1271

Suppose that you have scratched a mosquito bite and, in the process, damaged some of your stratified squamous epithelial cells. What will happen?

- A) The damaged cells will heal themselves.
- B) The cells near the base of the epithelium will rapidly replicate to replace the damaged cells.
- C) Vitamin D synthesis will begin, thus encouraging cell replacement.
- D) The function of the skin will be totally lost.

Answer: <https://biology-forums.com/index.php?topic=1883885>

### Question 1272

Similar to vertebrates, some invertebrate species such as earthworms and some crustaceans have a layer of insulation used for increasing the speed of electrical impulse transmission. This commonly shared physical feature is called the

- A) basal ganglia and hippocampus.
- B) cerebellum and cerebrum.
- C) thalamus and hypothalamus.
- D) medulla oblongata and pons.

Answer: <https://biology-forums.com/index.php?topic=1882175>

### Question 1273

Hormones are chemicals produced by the endocrine system that

- A) control the formation of urine.
- B) regulate a variety of body functions, such as metabolism.
- C) are stimulated by the action of metabolic enzymes.
- D) function to prevent a variety of diseases, such as diabetes.

Answer: <https://biology-forums.com/index.php?topic=1882033>

### Question 1274

The sophisticated behavior of mammals and birds is directly related to

- A) their relatively large cerebrum.
- B) the presence of a hindbrain.
- C) their relatively large midbrain.
- D) the presence of a forebrain.

Answer: <https://biology-forums.com/index.php?topic=1882174>

### Question 1275

Which of the following is a kingdom within the domain Eukarya?

- A) Viruses
- B) Fungi
- C) Archaea
- D) Bacteria

Answer: <https://biology-forums.com/index.php?topic=1884094>

### Question 1276

At which gestational age does a developing human fetus first look obviously human and not like other vertebrate embryos?

- A) 2 weeks
- B) 4 weeks
- C) 9 weeks
- D) 4 months

Answer: <https://biology-forums.com/index.php?topic=1882119>

### Question 1277

A child dies following a series of chronic bacterial infections. At the autopsy, the physicians are startled to see that the child's white blood cells are loaded with vacuoles containing intact bacteria. Which of the following explanations could account for this finding?

- A) A defect in the Golgi apparatus prevented the cells from processing and excreting the bacteria.
- B) A defect in the rough endoplasmic reticulum prevented the synthesis of the antibodies (defensive proteins) that would have inactivated the bacteria.
- C) A defect in the cell walls of the white blood cells permitted bacteria to enter the cells.
- D) A defect in the lysosomes of the white blood cells prevented the cells from destroying engulfed bacteria.

Answer: <https://biology-forums.com/index.php?topic=1882885>

### Question 1278

Imagine that a pharmaceutical company was successful at producing a drug based on the CCR5 gene product that is effective at preventing the contraction of AIDS. However, shortly after the drug has been in use, patients and doctors report that the drug is not as effective as it once was. What is the most likely explanation for this result?

Exposure to the HIV virus doesn't necessarily mean that a person will develop AIDS. Some people have genetic resistance to infection by HIV. Dr. Stephen O'Brien from the U.S. National Cancer Institute has recently identified a mutant form of a gene, called CCR5, that can protect against HIV infection. The mutation probably originated in Europe among survivors of the bubonic plague. The mutated gene prevents the plague bacteria from attaching to cell membranes and, therefore, from entering and infecting body cells.

Although the HIV virus is very different from the bacteria that causes the plague, both diseases affect the exact same cells and use the same method of infection. The presence of the mutated gene in descendants of plague survivors helps prevent them from contracting AIDS. Pharmaceutical companies are using this information as the basis for a new approach to AIDS prevention. This could be very important in areas of the world where the mutation is scarce or absent, such as Africa.

- A) The people taking the drug have built up a tolerance to the drug.
- B) Some HIV viruses have genetic variations in the RNA genome that provide resistance to the actions of the drug.
- C) The HIV virus gained mutations in its DNA genome in order to become resistant to the actions of the drug.
- D) The DNA of white blood cells of the people taking the drug have mutated to become resistant to the drug.

Answer: <https://biology-forums.com/index.php?topic=1883234>

### Question 1279

Which of the following statements about adaptation is true?

- A) An individual that has learned how to survive cold winters has become adapted to the cold.
- B) A population that has an increase in frequency of alleles for thicker fur has become adapted to the cold.
- C) Adaptation results when cold temperatures cause mutations for longer fur.
- D) Adaptation is possible when all the alleles in a gene pool are the same.

Answer: <https://biology-forums.com/index.php?topic=1883424>

### Question 1280

The contacting surfaces of a moving joint, such as your hip joint, consist of

- A) red bone marrow.
- B) cartilage.
- C) spongy bone.
- D) compact bone.

Answer: <https://biology-forums.com/index.php?topic=1882268>

### Question 1281

In Clackamas, Oregon, a stand of hybrid poplar trees was planted on an area of land that is contaminated with volatile organic compounds (VOCs). Why would someone purposely plant trees in an area with contaminated soil?

- A) to use the trees as a means of phytoremediation
- B) to use the trees as a means of eliminating insect species that consume nearby endemic plants
- C) to use the trees for lumber for houses
- D) to see if animals will make nests in trees that grow in contaminated soil.

Answer: <https://biology-forums.com/index.php?topic=1882743>

### Question 1282

The forward-facing eyes shared by all primates help them in

- A) manipulating small objects.
- B) depth perception as they navigate through forests.
- C) swinging from tree branches.
- D) seeing in the dark.

Answer: <https://biology-forums.com/index.php?topic=1883812>

### Question 1283

Carbon dioxide absorption is an appropriate indicator of photosynthesis because

- A) CO<sub>2</sub> is needed to produce sugars in the Calvin cycle.
- B) CO<sub>2</sub> is needed to complete the light reactions.
- C) plants produce oxygen gas by splitting CO<sub>2</sub>.
- D) the energy in CO<sub>2</sub> is used to produce ATP and NADPH.

Answer: <https://biology-forums.com/index.php?topic=1883059>

### Question 1284

Organisms that are nocturnal are more likely to communicate using

- A) sight and sound.
- B) sight and smell.
- C) smell and sound.
- D) touch and taste.

Answer: <https://biology-forums.com/index.php?topic=1882582>

### Question 1285

A woman is having trouble becoming pregnant. Examination of her partner's sperm indicates that dynein feet are missing from the flagella in his sperm cells. A physician explains that this could interfere with fertility by

- A) preventing the sperm from attaching to the egg cell.
- B) preventing the sperm from swimming to the egg cell.
- C) preventing the sperm from producing enough energy to power swimming.
- D) interfering with the attachment of the flagella to the sperm.

Answer: <https://biology-forums.com/index.php?topic=1882877>

### Question 1286

Flatworms (Platyhelminthes) are \_\_\_\_\_ and typically have \_\_\_\_\_.

- A) radially symmetrical; no digestive system
- B) bilaterally symmetrical; a gastrovascular cavity with one opening
- C) bilaterally symmetrical; a complete digestive tract with a mouth and anus
- D) all parasites; no digestive system

Answer: <https://biology-forums.com/index.php?topic=1883744>

### Question 1287

Most familiar types of mushrooms, along with puffballs and shelf fungi, are

- A) chytrids.
- B) ascomycetes.
- C) zygomycetes.
- D) basidiomycetes.

Answer: <https://biology-forums.com/index.php?topic=1883701>

### Question 1288

Allopatric speciation is not likely to occur when

- A) there is no disruption in gene flow between two populations.
- B) a geographic barrier forms between two populations.
- C) several populations become isolated from one another as drying conditions cause a large body of water to become separate smaller bodies of water.
- D) separated populations adapt to different environmental conditions.

Answer: <https://biology-forums.com/index.php?topic=1883472>

### Question 1289

Water's surface tension and heat storage capacity are accounted for by its

- A) orbitals.
- B) hydrogen bonds.
- C) mass.
- D) size.

Answer: <https://biology-forums.com/index.php?topic=1882761>

### Question 1290

Which plant in Went's experiment shows auxin stimulating elongation in the left side of the plant only?

- A) plant A
- B) plant B
- C) plant C
- D) plant D

Answer: <https://biology-forums.com/index.php?topic=1882493>

### Question 1291

Consider two plant types:

1. Plants that grow in arid (dry) environments
2. Plants that grow in moist (e.g., wetland) environments

Which plant would you expect to have more stomata, and why?

- A) the first type, because plants in arid environments need to release as much water as possible
- B) the first type, because plants in arid environments need to conserve as much water as possible
- C) the second type, because plants in moist environments need to conserve as much water as possible
- D) The two types should have equal numbers of stomata, because they both need to maintain the same water balance in their cells.

Answer: <https://biology-forums.com/index.php?topic=1883722>

### Question 1292

Which of the following is not an observed effect of global warming on organisms?

- A) Some species of birds and frogs now begin their breeding seasons later in the year.
- B) Corals "bleach" when increased water temperatures cause them to expel their symbiotic algae.
- C) Many butterfly populations have shifted their ranges to the north.
- D) Many polar bears show signs of starvation as their hunting grounds melt away.

Answer: <https://biology-forums.com/index.php?topic=1882720>

### Question 1293

Why must water that has moved to the interstitial fluid in the medulla be quickly removed from the interstitial fluid?

- A) to prevent dilution of urine
- B) to prevent destruction of the concentration gradient necessary for water reabsorption
- C) to equilibrate the concentration of solutes in the cortex and medulla
- D) to maintain an environment for transport of nutrients

Answer: <https://biology-forums.com/index.php?topic=1882004>

### Question 1294

According to this graph of population growth in Mexico, in what year was the rate of population increase in Mexico the greatest?

- A) 1912
- B) 1930
- C) 1965
- D) 2000

Answer: <https://biology-forums.com/index.php?topic=1882648>

### Question 1295

When a crocodile eats a fish, the interspecific interaction between the two could be expressed as \_\_\_\_\_ for the crocodile and \_\_\_\_\_ for the fish.

- A) -; -
- B) +; +
- C) +; -
- D) -; +

Answer: <https://biology-forums.com/index.php?topic=1882656>

### Question 1296

In the equation  $2 \text{H}_2 + \text{O}_2 \rightarrow 2 \text{H}_2\text{O}$ , the  $\text{H}_2$  molecules are \_\_\_\_\_ and the  $\text{H}_2\text{O}$  molecules are \_\_\_\_\_.

- A) reactants; products
- B) products; reactants
- C) created; destroyed
- D) used; stored

Answer: <https://biology-forums.com/index.php?topic=1882759>

### Question 1297

Which of the following adaptations allowed reptiles to complete their life cycles on land?

- A) lungs
- B) ectothermic metabolism
- C) an amniotic egg
- D) four legs

Answer: <https://biology-forums.com/index.php?topic=1883803>

### Question 1298

As a physician caring for a nursing woman who has chosen to dress in a way that covers her skin but who is concerned about rickets developing in her baby, you might advise her to

- A) exercise more.
- B) eats lots of meat and potatoes.
- C) take vitamin D and calcium supplements.
- D) give up smoking.

Answer: <https://biology-forums.com/index.php?topic=1882301>

### Question 1299

Which of the following statements about coniferous forests is true?

- A) Coniferous forests are the smallest terrestrial biome.
- B) Coniferous forests are characterized by long but mild winters and short, dry summers that are sometimes warm.
- C) Coniferous forests usually have nutrient-rich soils.
- D) Coniferous forests may experience considerable precipitation, usually in the form of snow.

Answer: <https://biology-forums.com/index.php?topic=1882540>

### Question 1300

Some of the unique adaptations of angiosperms include their beneficial relationships with \_\_\_\_\_ and their relatively \_\_\_\_\_.

- A) animals; well-developed vascular system
- B) animals; rapid fertilization and seed production
- C) animals; large sporophyte
- D) fungi; well-developed vascular system

Answer: <https://biology-forums.com/index.php?topic=1883679>

### Question 1301

When does the human blastocyst implant in the wall of the uterus?

- A) within a few hours of fertilization
- B) about a day after conception
- C) about a week after conception
- D) only after all four extraembryonic membranes become established

Answer: <https://biology-forums.com/index.php?topic=1882114>

### Question 1302

Most of the animals alive today

- A) are vertebrates.
- B) are invertebrates.
- C) are choanoflagellates.
- D) are really colonies of protist cells.

Answer: <https://biology-forums.com/index.php?topic=1883730>

### Question 1303

You predict that a side effect of Fat Away will be

- A) increased production of NADH.
- B) increased production of pyruvate.
- C) increased production of lactate.
- D) increased body temperature.

Answer: <https://biology-forums.com/index.php?topic=1882997>

### Question 1304

The vertebrate group that describes all jawed vertebrates with two pairs of limbs is the

- A) craniates.
- B) amniotes.
- C) tetrapods.
- D) mammals.

Answer: <https://biology-forums.com/index.php?topic=1883793>

### Question 1305

Diffusion does not require the cell to expend ATP. Therefore, diffusion is considered a type of

- A) exocytosis.
- B) passive transport.
- C) active transport.
- D) endocytosis.

Answer: <https://biology-forums.com/index.php?topic=1882912>

### Question 1306

To enhance heat loss, humans sweat; this is an adaptation known as

- A) insulation.
- B) evaporative cooling.
- C) irradiation.
- D) conduction.

Answer: <https://biology-forums.com/index.php?topic=1881980>

### Question 1307

Which of the following assumptions or observations is not part of Darwin's idea of natural selection?

- A) Whether an organism survives and reproduces is almost entirely a matter of random chance.
- B) Heritable traits that promote successful reproduction should gradually become more common in a population.
- C) Populations produce more offspring than their environment can support.
- D) Organisms compete for limited resources.

Answer: <https://biology-forums.com/index.php?topic=1883384>

### Question 1308

Kelp, a seaweed that is anchored to the seafloor by rootlike structures and can grow to heights of 60 m, is a kind of

- A) water mold.
- B) brown alga.
- C) green alga.
- D) diatoms.

Answer: <https://biology-forums.com/index.php?topic=1883613>

### Question 1309

Which of the following options most accurately lists the sequence of events in translation?

- A) codon recognition translocation peptide bond formation termination
- B) peptide bond formation codon recognition translocation termination
- C) codon recognition peptide bond formation translocation termination
- D) codon recognition peptide bond formation termination translocation

Answer: <https://biology-forums.com/index.php?topic=1883197>

### Question 1310

For speciation to occur there must be

- A) sexual reproduction.
- B) genetic variation.
- C) isolation.
- D) natural selection.

Answer: <https://biology-forums.com/index.php?topic=1883476>

### Question 1311

A vascular cambium cell divides to produce an inner and an outer daughter cell. Which of the following represents the probable fate of these cells?

- A) Both cells continue to divide to produce wood.
- B) The inner cell will differentiate into xylem, and the outer cell will divide again.
- C) The inner cell will differentiate into phloem, and the outer cell will differentiate into xylem.
- D) Both cells will continue to divide without differentiating into specialized cells.

Answer: <https://biology-forums.com/index.php?topic=1882336>

### Question 1312

A bacterial cell's DNA is found in its

- A) ribosomes.
- B) nucleus.
- C) nucleoid region.
- D) capsule.

Answer: <https://biology-forums.com/index.php?topic=1882847>

### Question 1313

The Monterey pine and the Bishop's pine inhabit some of the same areas of central California. The Monterey pine releases pollen in February, while the Bishop's pine does so in April. This is an example of \_\_\_\_\_ isolation.

- A) postzygotic
- B) temporal
- C) habitat
- D) mechanical

Answer: <https://biology-forums.com/index.php?topic=1883446>

### Question 1314

An immune system cell called the plasma cell produces thousands of antibodies per second for release into the body. What type of intracellular structure would you expect to be very prominent within the cell?

- A) nucleus
- B) endoplasmic reticulum
- C) peroxisome
- D) microtubules

Answer: <https://biology-forums.com/index.php?topic=1882859>

### Question 1315

Which of the following statements characterizes the lytic cycle of a viral infection?

- A) The cycle typically ends when the host bacterium divides.
- B) The cycle typically leads to the lysis of the host cell.
- C) The virus reproduces outside of the host cell.
- D) The viral genes typically remain inactive once they are inside the host cell.

Answer: <https://biology-forums.com/index.php?topic=1883203>

### Question 1316

Suppose that you have a younger sibling who excels in mathematics and logic but has extreme difficulty remembering the faces of people she meets, even if she sees them again only a few hours after first meeting them. What other evidence would indicate that your sibling is left-brained?

- A) an fMRI indicating high levels of activity in the left parietal lobe
- B) an fMRI indicating high levels of activity in the left occipital lobe
- C) an fMRI indicating high levels of activity in the left temporal lobe
- D) an fMRI indicating high levels of activity in the left cerebral hemisphere

Answer: <https://biology-forums.com/index.php?topic=1882192>

### Question 1317

Regulation of the passage of food from the stomach is accomplished by

- A) peristalsis.

- B) nutrient absorption.
- C) sphincters.
- D) the stomach lining.

Answer: <https://biology-forums.com/index.php?topic=1883918>

### Question 1318

A leiomyoma is a benign tumor that affects smooth muscle. A large tumor of this type might be predicted to

- A) impair a patient's ability to walk.
- B) result in heart problems.
- C) cause uterine pain in female patients.
- D) do all of the above.

Answer: <https://biology-forums.com/index.php?topic=1883862>

### Question 1319

The main function of the inflammatory response is to

- A) initiate the production of antibodies.
- B) remove contaminating microorganisms and initiate repair of damaged tissues.
- C) initiate T cell-mediated immune responses.
- D) initiate the production of killer cells.

Answer: <https://biology-forums.com/index.php?topic=1881918>

### Question 1320

Mammalian muscles can shorten approximately 35% of their resting length when all sarcomeres contract. If a sarcomere passes through maximal tension generation during this 35% contraction, what is the likely starting point for contraction of a sarcomere?

- A) point A
- B) point B
- C) point D
- D) point E

Answer: <https://biology-forums.com/index.php?topic=1882310>

### Question 1321

If all of Earth's history were compressed into an hour, humans would first appear less than

- A) 1 second ago.
- B) 10 seconds ago.
- C) 1 minute ago.
- D) 10 minutes ago.

Answer: <https://biology-forums.com/index.php?topic=1883496>

### Question 1322

Which of the following animals would be most likely to be able to effectively exchange gases when placed in a dry desert environment?

- A) an earthworm
- B) a dolphin
- C) a sea snail
- D) a tuna fish

Answer: <https://biology-forums.com/index.php?topic=1883994>

### Question 1323

One of the finest available sequences of fossils shows how horses have changed slowly and by subtle steps from small shrub-browsing ancestors to the large, grass-grazing modern horse. A large number of fossil species have been named, and it is often difficult to decide on the identity of a fossil horse because transitional forms are common. This record of evolution best fits the idea of

- A) the gradual model of speciation.
- B) punctuated equilibrium.
- C) adaptive radiation.
- D) hybrid breakdown.

Answer: <https://biology-forums.com/index.php?topic=1883470>

### Question 1324

Stratified squamous epithelium is well-suited for

- A) exchanging materials by diffusion.
- B) lining our lungs.

- C) lining body surfaces subject to abrasion.
- D) secreting mucus.

Answer: <https://biology-forums.com/index.php?topic=1883864>

### Question 1325

In a hypothetical food chain consisting of grass, grasshoppers, sparrows, and hawks, the grasshoppers are

- A) primary consumers.
- B) primary producers.
- C) secondary consumers.
- D) secondary producers.

Answer: <https://biology-forums.com/index.php?topic=1882670>

### Question 1326

Unlike archaean and eukaryote cell walls, bacterial cell walls contain a unique substance called

- A) cellulose.
- B) peptidoglycan.
- C) phospholipid.
- D) glycogen.

Answer: <https://biology-forums.com/index.php?topic=1883574>

### Question 1327

In your backyard you overturn a large rock. In the damp soil underneath the rock, you see various insects scurrying for cover: one black spider, five black ants, two brown beetles, and three gray pillbugs. In this community of organisms, species richness is represented by

- A) the ants, since there are more of them than any other organism.
- B) eleven total organisms.
- C) four different species of organisms.
- D) the ants and the spider equally, since they have the greatest number of organisms of the same color.

Answer: <https://biology-forums.com/index.php?topic=1882697>

### Question 1328

Threadlike fungal filaments are called

- A) mycelia.
- B) hyphae.
- C) vascular bundles.
- D) mold.

Answer: <https://biology-forums.com/index.php?topic=1883694>

### Question 1329

The second vaccination is beneficial because

- A) it contains plasma cells that survive longer than 45 days.
- B) it stimulates production of a higher concentration of antibodies in the bloodstream.
- C) it requires two injections to stimulate antibody formation.
- D) it keeps previously produced plasma cells circulating in the bloodstream.

Answer: <https://biology-forums.com/index.php?topic=1881971>

### Question 1330

As global temperatures continue to rise, what is a likely outcome?

- A) loss of populations of fish
- B) greater overharvesting of medicinal plant species
- C) less greenhouse gas emissions
- D) formation of new glaciers

Answer: <https://biology-forums.com/index.php?topic=1882740>

### Question 1331

If you hadn't eaten for several hours, which hormone would be responsible for returning your glucose levels to the set point?

- A) insulin
- B) glucagon
- C) liver
- D) pancreas

Answer: <https://biology-forums.com/index.php?topic=1883905>

### Question 1332

The sequence of events that cause a sarcomere to contract can be summed up in the correct order as

- A) detach, extend, contract, attach.
- B) detach, pull, extend, contract.
- C) detach, extend, attach, pull.
- D) pull, contract, detach, recoil.

Answer: <https://biology-forums.com/index.php?topic=1882284>

### Question 1333

According to the data, this remediation plan is most effective with which element?

- A) cadmium (Cd)
- B) copper (Cu)
- C) lead (Pb)
- D) zinc (Zn)

Answer: <https://biology-forums.com/index.php?topic=1882436>

### Question 1334

If valuable solutes were not adequately reabsorbed from filtrate, what would occur?

- A) The excretion process could not be completed.
- B) The solutes would be excreted.
- C) The filtration process could not be completed.
- D) The solutes would be reabsorbed.

Answer: <https://biology-forums.com/index.php?topic=1882017>

### Question 1335

Which of the following particles are found in the nucleus of an atom?

- A) protons and neutrons
- B) protons and electrons
- C) only protons
- D) only electrons

Answer: <https://biology-forums.com/index.php?topic=1882755>

### Question 1336

Based on your knowledge of the process of photosynthesis, the plant in the container placed under red light would probably

- A) absorb no CO<sub>2</sub>.
- B) absorb the same amount of CO<sub>2</sub> as the plants under the green light.
- C) absorb less CO<sub>2</sub> than the plants under the green light.
- D) absorb more CO<sub>2</sub> than the plants under the green light.

Answer: <https://biology-forums.com/index.php?topic=1883058>

### Question 1337

Which of the following statements regarding membrane protein function is false?

- A) Membrane proteins serve as enzymes.
- B) Membrane proteins act as receptors to molecules like hormones.
- C) Membrane proteins form junctions between cells.
- D) Membrane proteins transfer genetic information to the cytoplasm.

Answer: <https://biology-forums.com/index.php?topic=1882903>

### Question 1338

One simple thing that you can do to help safeguard the environment is to eat a diet consisting only of organisms that are

- A) producers.
- B) primary consumers.
- C) secondary consumers.
- D) a mix of producers and consumers.

Answer: <https://biology-forums.com/index.php?topic=1882686>

### Question 1339

In a mammal, blood leaving the lungs goes to

- A) the heart.
- B) the limbs.
- C) the liver.
- D) the brain.

Answer: <https://biology-forums.com/index.php?topic=1884034>

### Question 1340

Which type of reproduction is typical in molds?

- A) sexual reproduction through mating of two diploid parent mycelia
- B) sexual reproduction through fusion of two haploid parent mycelia and subsequent production of haploid spores
- C) asexual reproduction through budding
- D) asexual reproduction through the production of spores

Answer: <https://biology-forums.com/index.php?topic=1883698>

### Question 1341

DNA differs from RNA because DNA

- A) contains thymine in place of uracil.
- B) consists of a single rather than a double polynucleotide strand.
- C) contains the sugar ribose rather than the sugar deoxyribose.
- D) contains phosphate groups not found in RNA.

Answer: <https://biology-forums.com/index.php?topic=1882805>

### Question 1342

Which of these teeth is an incisor?

- A) tooth A
- B) tooth B
- C) tooth C
- D) tooth D

Answer: <https://biology-forums.com/index.php?topic=1883973>

### Question 1343

Which of the following statements regarding cancer risk factors is false?

- A) Factors that alter DNA and make cells cancerous are called carcinogens.
- B) Mutagens are usually not carcinogens.
- C) X-rays and ultraviolet radiation are two of the most potent carcinogens.
- D) Eating 20-30 grams of plant fiber daily and reducing the intake of animal fat can reduce your risk of developing colon cancer.

Answer: <https://biology-forums.com/index.php?topic=1883280>

### Question 1344

A logical treatment plan for patients with high ADH levels would include

- A) less fluids.
- B) more fluids.
- C) less potassium.
- D) more potassium.

Answer: <https://biology-forums.com/index.php?topic=1882018>

### Question 1345

Gel electrophoresis is normally set up with the negative electrode at the top of the gel and the positive electrode at the bottom of the gel. The DNA products are loaded at the top of the gel, and then a current is applied to separate them. However, when preparing to run a gel, you accidentally switched the locations of the negative and positive electrodes such that the positive electrode is at the top and the negative electrode is at the bottom. You still loaded the DNA products at the top of the gel as normal. What result are you most likely to observe if you apply an electric current to this gel setup?

- A) All DNA molecules will migrate up the gel toward the positive electrode.
- B) All DNA molecules will migrate down the gel toward the negative electrode.
- C) Shorter DNA molecules will move up the gel, and longer DNA molecules will move down the gel.
- D) Longer DNA molecules will move up the gel, and shorter DNA molecules will move down the gel.

Answer: <https://biology-forums.com/index.php?topic=1883364>

### Question 1346

Flowers bear seeds that develop from ovules housed in protective chambers called

- A) stamens.
- B) sepals.
- C) ovaries.
- D) antheridia.

Answer: <https://biology-forums.com/index.php?topic=1882343>

### Question 1347

The nucleoid region of a prokaryotic cell

- A) contains the cell's DNA.
- B) separates the RNA from the cytoplasm.
- C) is surrounded by a nucleoid membrane.
- D) contains the cell's nucleoli.

Answer: <https://biology-forums.com/index.php?topic=1882845>

### Question 1348

In order to match the pilot's remains to the correct family using DNA profiling,

- A) the majority of the STR bands must match.
- B) each of the 13 STR bands must match.
- C) the bands for site 13 must match.
- D) bands 5 and 7 must match.

Answer: <https://biology-forums.com/index.php?topic=1883369>

### Question 1349

Invertebrate diversity contributes to all of the following except

- A) medicines.
- B) food sources for humans.
- C) bioremediation.
- D) cosmetics.

Answer: <https://biology-forums.com/index.php?topic=1883779>

### Question 1350

If you were able to chemically analyze your stomach fluids 30 minutes after taking two tablets, you would find

- A) more hydrogen ions.
- B) fewer hydrogen ions.
- C) the same number of hydrogen ions.
- D) that the pH in your stomach has decreased.

Answer: <https://biology-forums.com/index.php?topic=1882781>

### Question 1351

The human embryo's first blood cells arise in the

- A) developing liver.
- B) developing bone marrow.
- C) yolk sac.
- D) allantois.

Answer: <https://biology-forums.com/index.php?topic=1882116>

### Question 1352

Which of the following will likely decrease a population's size?

- A) improving the quality of its habitat
- B) increasing the size of its habitat
- C) practicing sustainable resource management in its habitat
- D) decreasing the food supply available to the population

Answer: <https://biology-forums.com/index.php?topic=1882631>

### Question 1353

Which of the following best describes the protective action of blinking?

- A) An interneuron detects motion and sends this message to the peripheral nervous system (PNS), and the PNS sends a message back to blink.
- B) A sensory receptor detects motion, a sensory neuron sends this information to the spinal cord, and the information in the central nervous system (CNS) sends a message back to blink.

- C) A cell body detects motion, a sensory neuron sends this message to the peripheral nervous system (PNS), and the PNS sends a message back to blink.
- D) A cell body detects motion, a sensory neuron sends this message to the spinal cord, and the information in the central nervous system (CNS) sends a message back to blink.

Answer: <https://biology-forums.com/index.php?topic=1882195>

### Question 1354

You hypothesize that a tablet of PEPCID AC can neutralize more stomach acid than a tablet of Alka-Seltzer. If you placed a tablet of each antacid in a beaker of acid at an initial pH of 2, which of the following experimental results would support your hypothesis?

- A) After 1 hour, the pH of the solution in the PEPCID AC beaker was 9.2 and the pH of the solution in the Alka-Seltzer beaker was 8.3.
- B) After 1 hour, the pH of the solution in the PEPCID AC beaker was 7.9 and the pH of the solution in the Alka-Seltzer beaker was 9.6.
- C) After 1 hour, the pH of the solution in the PEPCID AC beaker was equal to that of the pH of the solution in the Alka-Seltzer beaker.
- D) It took 3 minutes for the PEPCID AC tablet to fully dissolve and it took 5 minutes for the Alka-Seltzer tablet to fully dissolve.

Answer: <https://biology-forums.com/index.php?topic=1882783>

### Question 1355

The genetically identical organisms that result from asexual reproduction are called

- A) clones.
- B) seeds.
- C) seedlings.
- D) rootlets.

Answer: <https://biology-forums.com/index.php?topic=1882359>

### Question 1356

Which of the following is characteristic of all vertebrates?

- A) a skull and a backbone consisting of vertebrae
- B) a calcified (hard) skeleton and four legs
- C) a hinged jaw
- D) lungs or lung derivatives

Answer: <https://biology-forums.com/index.php?topic=1883792>

### Question 1357

What part of the brain sorts incoming information, such as touch signals from your hand, into categories before relaying it to the cerebral cortex?

- A) thalamus
- B) hypothalamus
- C) pons
- D) hippocampus

Answer: <https://biology-forums.com/index.php?topic=1882178>

### Question 1358

In this drawing of a chloroplast, which structure represents the thylakoid membrane?

- A) structure A
- B) structure B
- C) structure C
- D) structure D

Answer: <https://biology-forums.com/index.php?topic=1883053>

### Question 1359

Which of the following is characteristic of the circulatory system of arthropods?

- A) lack of a heart
- B) lack of blood
- C) lack of blood vessels
- D) lack of distinction between blood and interstitial fluid

Answer: <https://biology-forums.com/index.php?topic=1881834>

### Question 1360

Justin has type A blood and his wife Brittany has type B blood. Justin's parents both have type AB blood, and Brittany's parents also both have type AB blood. What are the chances that Justin and Brittany's son Theodore has type A blood?

- A) 100%

- B) 75%
- C) 25%
- D) 0%

Answer: <https://biology-forums.com/index.php?topic=1883160>

### Question 1361

The term "carnivorous" as applied to carnivorous plants is not considered accurate by some biologists because

- A) carnivorous plants do not use insects for food (which must be a source of energy and matter).
- B) carnivorous plants only use insects as pollinators and do not gain any nutrients from them.
- C) carnivorous plants do not actually take in and digest whole insects.
- D) carnivorous plants do not move around; an organism must be able to locomote to be considered a carnivore.

Answer: <https://biology-forums.com/index.php?topic=1882429>

### Question 1362

In addition to biological reasons, what other implications does the role of oxytocin have?

- A) Oxytocin can decrease the amount of time it takes for a female to give birth.
- B) Oxytocin can decrease the chance that women in monogamous relationships will be attracted to men other than their mate.
- C) Oxytocin can affect human social behaviors.
- D) Oxytocin can weaken the bond that men and women share in a relationship.

Answer: <https://biology-forums.com/index.php?topic=1882079>

### Question 1363

Xerostomia is the scientific name for "dry mouth." Dry mouth can be a medical concern because chronic dry mouth can lead to dental problems as well as problems tasting, chewing, and swallowing. Dry mouth is likely due to an inadequate production of \_\_\_\_\_.

- A) saliva
- B) chyme
- C) amylase
- D) bile

Answer: <https://biology-forums.com/index.php?topic=1883960>

### Question 1364

The energy that excites the photosystems is supplied by

- A) electrons passing down the electron transport chain.
- B) ATP.
- C) photons.
- D) NADPH.

Answer: <https://biology-forums.com/index.php?topic=1883026>

### Question 1365

What part of the brain allows us to recognize the emotional content of facial expressions and also helps lay down emotional memories?

- A) hippocampus
- B) amygdala
- C) prefrontal cortex
- D) corpus callosum

Answer: <https://biology-forums.com/index.php?topic=1882187>

### Question 1366

Christmas cactus is a short-day plant that usually blooms in the winter. Which of the following strategies might induce it to bloom for the 4th of July?

- A) putting it in a cool, well-lighted place from time to time during June
- B) leaving it in a dark closet all night and part of each morning during June
- C) putting it in a dark closet for a short time every afternoon during June
- D) exposing it to light several times during each night in June

Answer: <https://biology-forums.com/index.php?topic=1882482>

### Question 1367

Fall is coming, with the prospect of frost, so you decide to pick the last tomatoes on the vine even though they are still green. If you wanted to ripen these tomatoes, which method would be most effective?

- A) Put all the green tomatoes in a closed paper bag.
- B) Put the green tomatoes in a dark closet, but with a flash of light about every 4 hours.
- C) Put the green tomatoes in a plastic bag with an overripe apple.

D) Store each green tomato in a separate plastic bag and put them in the dark.

Answer: <https://biology-forums.com/index.php?topic=1882487>

### Question 1368

What do you predict that group 3 demonstrated?

- A) higher mass lost from its initial conditions than group 2
- B) the same mass lost from its initial conditions as group 1
- C) no mass lost from its initial conditions
- D) the highest mass loss of all groups

Answer: <https://biology-forums.com/index.php?topic=1882032>

### Question 1369

A cell is initially diploid, but it has a unique cell cycle in that this cell goes through two S phases instead of one. What would the remainder of its cell cycle consist of if this cell is to produce four identical diploid daughter cells at the end of its cell cycle?

- A) two rounds of mitosis and one round of cytokinesis
- B) one round of mitosis and one round of cytokinesis
- C) one round of mitosis and two rounds of cytokinesis
- D) two rounds of mitosis and two rounds of cytokinesis

Answer: <https://biology-forums.com/index.php?topic=1883079>

### Question 1370

Which of the following statements about the energy yield of aerobic respiration is false?

- A) Less than 50% of the chemical energy available in glucose is converted to ATP energy.
- B) Most of the ATP derived during aerobic respiration results from oxidative phosphorylation.
- C) Oxidative phosphorylation resulting from 1 glucose molecule yields about 12 ATP molecules.
- D) The total yield of ATP molecules per glucose molecule is about 32.

Answer: <https://biology-forums.com/index.php?topic=1882969>

### Question 1371

Unlike animal cells, plant cells have \_\_\_\_\_ and \_\_\_\_\_. Unlike plant cells, animal cells have \_\_\_\_\_.

- A) chloroplasts; cell walls; centrioles
- B) centrioles; chloroplasts; cell walls
- C) chloroplasts; cell walls; a nucleus
- D) centrioles; cell walls; large central vacuoles

Answer: <https://biology-forums.com/index.php?topic=1882851>

### Question 1372

In an attempt to determine the source of a growing plant's mass, van Helmont planted a willow seedling in a pot of soil. After five years, the willow weighed 76.8 kg, and the soil had lost 0.06 kg of weight. Only water had been added to the pot. Which of the following conclusions should van Helmont have drawn?

- A) Plants get their mass from water.
- B) Plants get their mass from water and air.
- C) Plants get their mass from water and atmospheric CO<sub>2</sub>.
- D) Plants get all or almost all of their mass from a source other than soil.

Answer: <https://biology-forums.com/index.php?topic=1882385>

### Question 1373

You prepare a karyotype from a cell from an unknown organism. Upon analysis, you find 22 pairs of chromosomes that are each of equal length, and also a single pair that has one chromosome longer than the other. What can you conclude from this information?

- A) The organism that this cell came from is likely a female.
- B) The organism that this cell came from is likely a male.
- C) The organism that this cell came from has a genetic disease.
- D) This cell is likely haploid.

Answer: <https://biology-forums.com/index.php?topic=1883157>

### Question 1374

*Araschnia levana* is a species of butterfly that breeds several times a year. It has two distinctly colored pupae: Those that emerge in spring are orange and those that emerge in summer are brown. The seasonal color variations in pupae mean that the pupae blend into the colors in their environment.

This is an example of

- A) a threatened species.

- B) an endemic species.
- C) a keystone species.
- D) phenotypic plasticity.

Answer: <https://biology-forums.com/index.php?topic=1882738>

### Question 1375

Which of the following represents a pair of homologous structures?

- A) the wing of a bat and the scales of a fish
- B) the wing of a bat and the flipper of a whale
- C) the antennae of an insect and the eyes of a bird
- D) the wing of a bat and the wing of a butterfly

Answer: <https://biology-forums.com/index.php?topic=1883392>

### Question 1376

Blood samples are taken from the heel of newborn babies to test for a mutation in the PKU gene, which, if left untreated and in severe cases, can lead to mental retardation, reduced skin pigmentation, and seizures. Which concept is being illustrated by this example?

- A) incomplete dominance
- B) polygenic inheritance
- C) pleiotropy
- D) codominance

Answer: <https://biology-forums.com/index.php?topic=1883152>

### Question 1377

The CEO of Acme Remediation Company is always trying to improve the company's effectiveness by keeping up with current research. Which of the following research topics should have the highest priority for that research?

- A) comparison of plant species' tolerance of clay versus sandy soils
- B) comparison of plant species' ability to live in dry versus moist soils
- C) comparison of plant species' tolerance of heavy metals in soils
- D) comparison of plant species' bioaccumulation of metal ions

Answer: <https://biology-forums.com/index.php?topic=1882439>

### Question 1378

Scientists have studied the effects of television watching on the metabolic rate of children and its potential implications for childhood obesity. In a study of 15 obese children and 16 normal weight children, it was found that the metabolic rate of all children significantly decreased while watching television compared to their metabolic rate when they were at normal rest. The drop was greater for obese children, but the difference in drops between the two groups of children was not statistically significant. What is a reasonable conclusion to draw from this study?

- A) Television watching does not affect childhood obesity.
- B) Television watching is an activity that should be carefully considered when studying factors that may affect adult obesity.
- C) Television watching contributes more to childhood obesity than the overconsumption of sugary foods.
- D) Television watching is an activity that should be carefully considered when studying factors that may affect childhood obesity.

Answer: <https://biology-forums.com/index.php?topic=1883968>

### Question 1379

Which of the following is an invasive species?

- A) mallard duck in the western United States
- B) brown tree snake in Guam
- C) elephant in India
- D) carrier pigeon in the continental United States

Answer: <https://biology-forums.com/index.php?topic=1882712>

### Question 1380

The current rate of extinction may be as much as \_\_\_\_\_ times higher than at any other time in the past 100,000 years.

- A) 10
- B) 100
- C) 1,000
- D) 10,000

Answer: <https://biology-forums.com/index.php?topic=1882708>

### Question 1381

The experimental plants were more drought resistant because

- A) their vacuoles pumped water directly into the cytoplasm.
- B) salt stored in their vacuoles enabled the cytoplasm to retain water better.
- C) salt stored in their vacuoles was equal in amount to the salt in the soil.
- D) water was stored in their vacuoles until the next rainfall.

Answer: <https://biology-forums.com/index.php?topic=1882441>

### Question 1382

Segments of eukaryotic DNA that can move or be copied from one site to another in the genome are called

- A) exons.
- B) plasmids.
- C) transposable elements.
- D) vectors.

Answer: <https://biology-forums.com/index.php?topic=1883345>

### Question 1383

One way that substances move between blood and interstitial fluid is by

- A) alternatively breaking and regenerating membranes of cells lining capillaries.
- B) osmosis.
- C) pressure-driven flow through clefts between the epithelial cells of the capillary wall.
- D) active transport utilizing ATP.

Answer: <https://biology-forums.com/index.php?topic=1881866>

### Question 1384

The human egg is swept through the oviduct toward the uterus by

- A) the beating of the egg's cilia.
- B) rhythmic contractions of the oviduct.
- C) rhythmic contractions of the uterus.
- D) the beating of cilia in the oviduct.

Answer: <https://biology-forums.com/index.php?topic=1882084>

### Question 1385

Which of the following takes place during translation?

- A) the conversion of genetic information from the language of nucleic acids to the language of proteins
- B) the conversion of genetic information from DNA nucleotides into RNA nucleotides
- C) the conversion of genetic information from the language of proteins to the language of enzymes
- D) DNA replication

Answer: <https://biology-forums.com/index.php?topic=1883194>

### Question 1386

What force is responsible for the cohesiveness of water?

- A) osmosis
- B) hydrogen bonding between water molecules
- C) negative pressure created by evaporation
- D) ionic bonding

Answer: <https://biology-forums.com/index.php?topic=1882391>

### Question 1387

Which of the following statements regarding proteomics is true?

- A) Proteomics is the study of protein interaction within a cell.
- B) Proteomics involves the complete analysis of the prokaryotes.
- C) Proteomics is the systematic study of the full set of proteins encoded by a genome.
- D) Proteomics and genomics allow scientists to study life in an ever-increasing reductive approach.

Answer: <https://biology-forums.com/index.php?topic=1883347>

### Question 1388

Based on Acanthostega fossils, scientists now believe that the earliest tetrapods

- A) were fully terrestrial.
- B) were amphibians that used their limbs to drag themselves over the land from one water hole to another.
- C) were fish that used their limbs to raise themselves out of the water to get gulps of air for oxygen.
- D) were reptiles that resembled crocodiles.

Answer: <https://biology-forums.com/index.php?topic=1883800>

### Question 1389

Dr. Smith's parents have normal hearing. However, Dr. Smith has an inherited form of deafness. Deafness is a recessive trait that is associated with the abnormal allele *d*. The normal allele at this locus, associated with normal hearing, is *D*. Dr. Smith's parents could have which of the following genotypes?

- A) DD and *dd*
- B) *dd* and *dd*
- C) *Dd* and *Dd*
- D) *Dd* and DD

Answer: <https://biology-forums.com/index.php?topic=1883121>

### Question 1390

The main function of the AV node is to

- A) initiate the heartbeat.
- B) set the rhythm of the heartbeat.
- C) relay the signal for the heart to contract from the right ventricle to the right atrium.
- D) relay a signal for the ventricles to contract.

Answer: <https://biology-forums.com/index.php?topic=1881852>

### Question 1391

Legumes are frequently grown in rotation with primary field crops. What is the benefit of this practice?

- A) A greater amount of the primary crop can be harvested each year.
- B) Nitrogen is added to the soil because of the legumes' symbiotic nitrogen-fixing bacteria.
- C) Soil erosion is reduced by frequent plowing.
- D) Legumes decrease the amount of organic material in the soil.

Answer: <https://biology-forums.com/index.php?topic=1882421>

### Question 1392

Endocrine disruptors on reproductive behavior affect behavior by

- A) impairing the immune system.
- B) mimicking a hormone or enhancing hormone activity.
- C) increasing social behavior.
- D) reinforcing mating rituals.

Answer: <https://biology-forums.com/index.php?topic=1882588>

### Question 1393

Which of the following options correctly lists the direction of carbon dioxide travel as it leaves the body?

- A) alveoli, bronchioles, bronchi, trachea, pharynx, larynx
- B) alveoli, bronchi, bronchioles, trachea, larynx, pharynx
- C) alveoli, bronchioles, bronchi, trachea, larynx, pharynx
- D) alveoli, bronchi, bronchioles, trachea, pharynx, larynx

Answer: <https://biology-forums.com/index.php?topic=1884015>

### Question 1394

Which of the following animals has an endoskeleton made entirely of cartilage?

- A) bullfrog
- B) mackerel
- C) nurse shark
- D) robin

Answer: <https://biology-forums.com/index.php?topic=1882263>

### Question 1395

How can the success of one group of organisms promote the adaptive radiation of a second group?

- A) by providing new food resources, habitats, etc. for the second group
- B) by competing with the second group, promoting its adaptive radiation
- C) by preying on the second group, which hastens its adaptation
- D) by filling most of the available niches, which forces the second group to evolve greater diversity

Answer: <https://biology-forums.com/index.php?topic=1883520>

### Question 1396

The American brook lamprey is a freshwater lamprey that lives in streams. Lampreys move streambed stones to make a nest in which to lay their eggs. Which defining feature of the lamprey might enable it to move these stones?

- A) slime
- B) head with a skull
- C) notochord
- D) oral disk

Answer: <https://biology-forums.com/index.php?topic=1883841>

### Question 1397

The existence of nest-building in crocodiles and birds led to a prediction that this behavior was also present in \_\_\_\_\_.

- A) fossil lizards
- B) Komodo dragons
- C) fossil dinosaurs
- D) invertebrates

Answer: <https://biology-forums.com/index.php?topic=1883538>

### Question 1398

What is the name given to the starch-digesting enzyme secreted by salivary glands?

- A) bile salts
- B) lipase
- C) pepsin
- D) amylase

Answer: <https://biology-forums.com/index.php?topic=1883919>

### Question 1399

Which of the following options correctly lists the structures in the kidney in the order in which fluid flows through them?

- A) proximal tubule, Bowman's capsule, loop of Henle, distal tubule, glomerulus
- B) Bowman's capsule, proximal tubule, loop of Henle, distal tubule, glomerulus
- C) glomerulus, Bowman's capsule, proximal tubule, loop of Henle, distal tubule
- D) glomerulus, proximal tubule, distal tubule, Bowman's capsule, loop of Henle

Answer: <https://biology-forums.com/index.php?topic=1881995>

### Question 1400

According to "evo-devo" thinking, an organism's body form can be substantially changed

- A) only through multiple mutations that produce a large number of new proteins.
- B) through mutations that change sexually selected traits.
- C) only when changes in the environment directly alter the major protein-coding genes in the organism's genome.
- D) through mutations or changes in the expression of one or a few genes that regulate development.

Answer: <https://biology-forums.com/index.php?topic=1883521>

### Question 1401

In all plants, the zygote and earliest stages of the developing embryo are

- A) enclosed within a seed.
- B) enclosed within a pollen grain.
- C) attached to and nourished by the parent plant.
- D) able to disperse in a tough-walled spore.

Answer: <https://biology-forums.com/index.php?topic=1883656>

### Question 1402

\_\_\_\_\_ genes are responsible for coding for self-proteins.

- A) STR
- B) MHC
- C) RFLP
- D) PCR

Answer: <https://biology-forums.com/index.php?topic=1881945>

### Question 1403

If you expose a photosynthesizing plant to water that contains both radioactive H and radioactive O, in which of the products of photosynthesis will the radioactive H and O show up?

- A) H and O both in glucose
- B) H in glucose; O in water
- C) H in water; O in glucose
- D) H in glucose and water; O in O<sub>2</sub>

Answer: <https://biology-forums.com/index.php?topic=1883007>

### Question 1404

Below are three statements. Classify them as examples of independent orientation, crossing over, or random fertilization.

- I: The formation of a zygote from an egg and a sperm is an unpredictable event.
- II: Random combinations of paternal and maternal chromosomes end up in gametes.
- III: An allele on the paternal chromosome 18 ends up on the maternal chromosome 18.

- A) I: random fertilization; II: random fertilization; III: independent orientation
- B) I: random fertilization; II: crossing over; III: independent orientation
- C) I: independent orientation; II: random fertilization; III: crossing over
- D) I: random fertilization; II: independent orientation; III: crossing over

Answer: <https://biology-forums.com/index.php?topic=1883085>

### Question 1405

A target cell that is affected by a particular steroid hormone would be expected to have

- A) an intracellular receptor protein that binds the hormone.
- B) a cell-surface receptor protein that binds the hormone.
- C) enzymes that are activated or inactivated by the intracellular hormone-receptor complex.
- D) enzymes that are activated or inactivated by the hormone's second messenger.

Answer: <https://biology-forums.com/index.php?topic=1882040>

### Question 1406

Which of the following processes does not occur in ecosystems?

- A) Energy flows through the system.
- B) Carbon is cycled between biotic and abiotic forms.
- C) Producers convert light energy to chemical energy.
- D) The energy source that powers the system is used by consumers to make organic compounds.

Answer: <https://biology-forums.com/index.php?topic=1882681>

### Question 1407

Which of the following correctly lists the sequence of tissues a tunnel would pass through (starting from the outer surface of the tree and passing through the central core)?

- A) cork, cork cambium, secondary phloem, vascular cambium, sapwood, heartwood
- B) epidermis, cortex, primary phloem, primary xylem, heartwood, sapwood
- C) heartwood, wood rays, cork cambium, secondary xylem, secondary phloem, vascular cambium
- D) bark, wood rays, growth rings, lateral meristems, primary phloem, secondary phloem

Answer: <https://biology-forums.com/index.php?topic=1882384>

### Question 1408

Which of the following activities would result in a decrease in your ecological footprint?

- A) flying across the United States once a month
- B) driving your car to and from school every day
- C) leaving the water running while you brush your teeth
- D) taking a city bus instead of driving to work

Answer: <https://biology-forums.com/index.php?topic=1882642>

### Question 1409

How many layers of vascular cambium will there be in the trunk of a 10-year-old tree?

- A) one
- B) two
- C) ten
- D) thousands

Answer: <https://biology-forums.com/index.php?topic=1882338>

### Question 1410

Some white blood cells are able to surround and ingest bacteria. Which of the following would you expect to see as part of the blood cell structure?

- A) secondary cell walls
- B) flagella
- C) pseudopodia
- D) cilia

Answer: <https://biology-forums.com/index.php?topic=1883641>

### Question 1411

Corn, peppers, tomatoes, and cucumbers all contain seeds and are derived from the ovary of a flowering plant. Therefore, in scientific terms, they are \_\_\_\_\_.

- A) fruits.
- B) vegetables.
- C) sporophytes.
- D) seeds.

Answer: <https://biology-forums.com/index.php?topic=1883683>

### Question 1412

A physical or chemical agent that changes the nucleotide sequence of DNA is called a(n)

- A) terminator.
- B) transposon.
- C) mutagen.
- D) anticodon.

Answer: <https://biology-forums.com/index.php?topic=1883201>

### Question 1413

Which character of vertebrates is associated with colonization of land?

- A) opposable thumbs
- B) lungs
- C) internal fertilization
- D) gills

Answer: <https://biology-forums.com/index.php?topic=1883846>

### Question 1414

RNA interference (RNAi) can be used by

- A) researchers to induce the production of more mRNA.
- B) researchers to artificially turn on gene expression.
- C) viruses to stop the production of new proteins.
- D) cells to prevent infections from double-stranded RNA viruses.

Answer: <https://biology-forums.com/index.php?topic=1883257>

### Question 1415

Broccoli, cabbages, and Brussels sprouts all descend from the same wild mustard and can still interbreed. These varieties were produced by

- A) artificial selection.
- B) natural selection.
- C) genetic drift.
- D) inheritance of acquired characteristics.

Answer: <https://biology-forums.com/index.php?topic=1883382>

### Question 1416

When an organism such as a yeast lives by fermentation, it converts the pyruvate from glycolysis into a different compound, such as alcohol. Why doesn't it secrete the pyruvate directly?

- A) The conversion yields 32 ATP per pyruvate molecule.
- B) The conversion yields one NADH per pyruvate molecule.
- C) The conversion is needed to regenerate the molecules needed for glycolysis.
- D) A buildup of pyruvate in the surrounding environment would be too toxic.

Answer: <https://biology-forums.com/index.php?topic=1882971>

### Question 1417

Which of the following statements regarding logistic growth is true?

- A) The parameter  $(K - N)/K$  is always equal to zero.
- B) There has to be more than one limiting factor in place for logistic growth to occur.
- C) Population growth is highest when the population is much larger than the carrying capacity.
- D) Population growth is zero when  $(K - N)/K$  is equal to zero.

Answer: <https://biology-forums.com/index.php?topic=1882645>

### Question 1418

Why does the relationship between metabolic rate and temperature exist?

- A) Cellular respiration requires organisms to take in heat energy.
- B) A by-product of cellular respiration is heat.
- C) Cellular respiration causes the body to cool because all the energy is used to make ATP.
- D) There is no relationship between metabolic rate and body temperature.

Answer: <https://biology-forums.com/index.php?topic=1882994>

### Question 1419

Frequently, a group of related species will each have a unique courtship ritual that must be performed correctly for both partners to be willing to mate.

Such a ritual constitutes a \_\_\_\_\_ reproductive barrier.

- A) mechanical; postzygotic
- B) behavioral; prezygotic
- C) temporal; prezygotic
- D) gametic; postzygotic

Answer: <https://biology-forums.com/index.php?topic=1883445>

### Question 1420

In this marine community, the sea otter is

Consider the following marine community: Sea otters prey on sea urchins and therefore help maintain a healthy sea urchin population. Sea urchins prey on kelp. By helping to maintain viable sea urchin populations, the sea otters are also allowing enough kelp to grow and act as a habitat for other organisms.

- A) a primary consumer.
- B) a producer.
- C) a keystone species.
- D) a scavenger.

Answer: <https://biology-forums.com/index.php?topic=1882704>

### Question 1421

Your friend tells you that as long as you can track the exact day that a woman ovulates, and as long as a woman does not have sexual intercourse on this day, then she will not get pregnant even if no form of contraception is used. Is your friend correct? Why or why not?

- A) Yes. Sperm can only fertilize an egg on the day that ovulation occurs, so as long as sexual intercourse does not occur on this day, the woman will not become pregnant.
- B) Yes. High levels of FSH and LH are needed for fertilization to occur, and the levels of FSH and LH do not rise until the exact day that ovulation occurs.
- C) No. Even after ovulation occurs, a woman's egg remains in the uterus for at least a week and is able to be fertilized by sperm during this time period.
- D) No. Sperm can survive in the female reproductive tract, so having sexual intercourse a few days before ovulation can result in pregnancy.

Answer: <https://biology-forums.com/index.php?topic=1882124>

### Question 1422

The minimal amount of nutrients needed every day by healthy people to prevent nutrient deficiencies is called the

- A) RDA, Recommended Dietary Allowance.
- B) minimum mineral requirements.
- C) minimum vitamin requirements.
- D) varied diet of minerals and vitamins.

Answer: <https://biology-forums.com/index.php?topic=1883958>

### Question 1423

Compared to other hominins, modern Homo sapiens display a particular ability for

- A) symbolic thought.

- B) making stone tools.
- C) upright walking.
- D) manipulating objects with their hands.

Answer: <https://biology-forums.com/index.php?topic=1883836>

### Question 1424

To repair and heal a broken bone, physicians will

- A) graft new bone to the region.
- B) exercise the area of the broken bone.
- C) prescribe a regime of bed rest and calcium supplements.
- D) return the broken bone parts to their natural position and then immobilize them.

Answer: <https://biology-forums.com/index.php?topic=1882271>

### Question 1425

The key derived character of the lobe-finned fish is

- A) the lateral line system.
- B) the series of rod-shaped bones in their pectoral and pelvic fins.
- C) the operculum.
- D) the flattened scales covering their skin.

Answer: <https://biology-forums.com/index.php?topic=1883799>

### Question 1426

Which trophic level in this food chain represents the secondary consumer?

- A) trophic level A
- B) trophic level B
- C) trophic level C
- D) trophic level D

Answer: <https://biology-forums.com/index.php?topic=1882700>

### Question 1427

Which part of the nephron shown is its proximal tubule?

- A) part A
- B) part B
- C) part C
- D) part D

Answer: <https://biology-forums.com/index.php?topic=1882023>

### Question 1428

The restriction enzyme BamHI recognizes the DNA sequence GGATCC and always cuts between the two G nucleotides. How many bases long is the sticky end of a DNA molecule that has been cut with BamHI?

- A) two
- B) three
- C) four
- D) five

Answer: <https://biology-forums.com/index.php?topic=1883359>

### Question 1429

If you ate a 100% plant-based (vegan) diet, what molecule would you never eat?

- A) starch
- B) cellulose
- C) cholesterol
- D) phospholipids

Answer: <https://biology-forums.com/index.php?topic=1882809>

### Question 1430

Which of the following is a function of fruits?

- A) production of food for the developing embryo
- B) pollen dispersal

- C) seed dispersal
- D) attracting pollinators

Answer: <https://biology-forums.com/index.php?topic=1882353>

### Question 1431

The retina of the eye is similar to what part of a camera?

- A) lens
- B) aperture (light opener)
- C) film
- D) flash

Answer: <https://biology-forums.com/index.php?topic=1882241>

### Question 1432

The relationship between DNA and chromosomes is most like

- A) an egg yolk inside of an egg.
- B) a spoon cradling some peas.
- C) thread wrapped around a spool.
- D) the candy shell surrounding the chocolate in a piece of M&M candy.

Answer: <https://biology-forums.com/index.php?topic=1883249>

### Question 1433

Through which of the following structures does urine leave the bladder?

- A) ureter
- B) urethra
- C) renal medulla
- D) distal convoluted tubule

Answer: <https://biology-forums.com/index.php?topic=1881993>

### Question 1434

Both mitosis and meiosis are preceded by

- A) prometaphase.
- B) interphase.
- C) prophase.
- D) telophase.

Answer: <https://biology-forums.com/index.php?topic=1883067>

### Question 1435

Your friend is working in a lab whose members are supposed to be culturing (growing) animal cells in petri dishes. They keep complaining to you, however, that no matter what they do, they can't get their cells to grow. Which of the following is not a possible explanation for why the cells are not growing?

- A) The cells need to be given the correct growth factors in order to grow.
- B) The cells are too dense and thus need to be diluted in order to grow.
- C) The cells are either mature human nerve or muscle cells, which do not divide and grow.
- D) The cells are on petri dishes but should be floating in liquid media in order for them to grow.

Answer: <https://biology-forums.com/index.php?topic=1883083>

### Question 1436

Which of the following is the first distinctively hominin trait to appear in the fossil record?

- A) sophisticated stone tools
- B) increased brain size
- C) upright walking (bipedalism)
- D) a very long period of parental care

Answer: <https://biology-forums.com/index.php?topic=1883828>

### Question 1437

Clots in our blood can lead to a heart attack or stroke by blocking blood flow. If a clot were made up of a mass of proteins, what changed in the proteins to cause them to form the clot?

- A) The proteins became more polar.
- B) The blood became saturated with proteins.
- C) The proteins were no longer soluble in the blood.

D) The proteins became more soluble in the blood.

Answer: <https://biology-forums.com/index.php?topic=1882763>

### Question 1438

Cyanide inhibits mitochondrial function; as a result, the rate of

- A) ATP synthesis increases.
- B) ATP synthesis decreases.
- C) photosynthesis increases.
- D) protein synthesis increases.

Answer: <https://biology-forums.com/index.php?topic=1882869>

### Question 1439

Melanoma (skin cancer) can develop after several mutations occur in skin cells. If a woman is diagnosed with melanoma and becomes pregnant, what are the chances that her offspring will inherit melanoma?

- A) The offspring will certainly be born with melanoma.
- B) There is a chance, but it depends on how serious the mother's melanoma is.
- C) There is a chance, but it depends on whether or not the father has melanoma.
- D) It is unlikely that the offspring will be born with melanoma.

Answer: <https://biology-forums.com/index.php?topic=1883295>

### Question 1440

Factors that help to perpetuate temperate grasslands, such as the American prairies, and prevent them from becoming woodlands include

- A) poor soil.
- B) periodic drought and fires.
- C) large numbers of cacti.
- D) mild winters with very little rain.

Answer: <https://biology-forums.com/index.php?topic=1882536>

### Question 1441

Below are two statements. Which (if any) applies to the law of segregation? Which (if any) applies to the law of independent assortment?

I: Phenotypes for long tails and big eyes are inherited separately in lab mice.

II: A baby mouse inherits a maternal red eye allele and a paternal black eye allele.

- A) A: segregation; B: independent assortment
- B) A: independent assortment; B: segregation
- C) A: segregation; B: segregation
- D) A: independent assortment; B: independent assortment

Answer: <https://biology-forums.com/index.php?topic=1883155>

### Question 1442

The development of colon cancer occurs slowly, and colon cancer is more frequently seen in the elderly than the young. This is most likely because

- A) cancer cells don't have mitochondria, so they grow slowly.
- B) usually six or more somatic mutations must occur to give rise to the cancer, which takes time.
- C) cancer cells have to wait until new blood vessels grow into the area, which takes much time.
- D) most cancer mutations interfere with mitosis, so cell division occurs more slowly.

Answer: <https://biology-forums.com/index.php?topic=1883276>

### Question 1443

Recall that the cuticle seals plant surfaces and helps plants conserve water, and the seed helps derived plant groups to reproduce effectively on dry land. The analogous adaptations in reptiles are \_\_\_\_\_ (analogous to the cuticle) and \_\_\_\_\_ (analogous to the seed).

- A) scales; jellylike egg masses
- B) scales; the amniotic egg
- C) scales; aquatic larvae
- D) claws; lungs

Answer: <https://biology-forums.com/index.php?topic=1883802>

### Question 1444

What is the evolutionary advantage of the very long life span of some plants?

- A) the ability to adapt to changing environments
- B) the ability to develop resistance to many diseases
- C) the ability to produce many offspring over many years

D) the ability to grow back after being damaged

Answer: <https://biology-forums.com/index.php?topic=1882363>

### Question 1445

A steer must eat at least 100 pounds of grain to gain less than 10 pounds of muscle tissue. This illustrates

- A) the first law of thermodynamics.
- B) the second law of thermodynamics.
- C) that some energy is destroyed in every energy conversion.
- D) that energy transformations are typically 100% efficient.

Answer: <https://biology-forums.com/index.php?topic=1882928>

### Question 1446

An ecologist hypothesizes that predation by a particular owl species is the major factor controlling the population of a particular rabbit species. The first step in testing this hypothesis would be to determine

- A) whether populations of the rabbit that live outside the range of the owl have higher population densities.
- B) whether the owls eat the rabbits.
- C) to which diseases the rabbit population is subject.
- D) what food the rabbits eat.

Answer: <https://biology-forums.com/index.php?topic=1882628>

### Question 1447

Which of the following statements concerning biological clocks is false?

- A) Innate circadian rhythms generally differ slightly from a 24-hour period.
- B) Circadian rhythms occur with or without external stimuli.
- C) Biological clocks are strongly influenced by external temperatures.
- D) Movement of plants long distances very quickly induces a kind of plant "jet lag."

Answer: <https://biology-forums.com/index.php?topic=1882476>

### Question 1448

To decrease pollution from sulfur, your local power plant built very tall smokestacks. The ultimate consequence of this would most likely be

- A) biological magnification.
- B) to dilute the sulfur pollutants in the atmosphere and thus reduce their effects on the environment.
- C) to create an environmental problem at a distance from the power plant.
- D) a decrease in the pH of local lakes.

Answer: <https://biology-forums.com/index.php?topic=1882713>

### Question 1449

You are looking at a tissue under a microscope. You see mostly densely packed fibers with some cells scattered throughout. You would predict that the function of this tissue is to

- A) attach bones to muscles or other bones.
- B) connect epithelia to underlying tissues.
- C) conduct electrical impulses.
- D) make voluntary movements of the body.

Answer: <https://biology-forums.com/index.php?topic=1883898>

### Question 1450

When a cell is deprived of oxygen, its lysosomes tend to burst and release their contents into the cell. As a result of this, that cell will

- A) recycle damaged organelles.
- B) undergo cell division.
- C) produce replacement lysosomes.
- D) undergo self-digestion and die.

Answer: <https://biology-forums.com/index.php?topic=1882864>

### Question 1451

The Kissimmee River Restoration Project is an

- A) example of large-scale bioremediation to clean up a mercury spill.
- B) example of a dam that interrupted the breeding of salmon and other species.
- C) attempt to restore the natural wetlands associated with the Kissimmee River.
- D) effort to join two previously unconnected lakes to permit better drainage.

Answer: <https://biology-forums.com/index.php?topic=1882736>

### Question 1452

A colorblind woman marries a man who is not colorblind. All of their sons, but none of their daughters, are colorblind. Which of the following statements correctly explains these results?

- A) The gene for color vision is incompletely dominant to the gene for sex determination.
- B) The gene for color vision is codominant with the gene for sex determination.
- C) The gene for color vision is found on the X chromosome.
- D) The gene for color vision is found on the Y chromosome.

Answer: <https://biology-forums.com/index.php?topic=1883148>

### Question 1453

Which of the following kinds of animals excrete their nitrogenous waste entirely as ammonia?

- A) birds
- B) fish
- C) garden snails
- D) insects

Answer: <https://biology-forums.com/index.php?topic=1881986>

### Question 1454

Which of the following conclusions is supported by this graph?

- A) Prey size does not affect the number of calories gained per second of handling time by wagtails.
- B) Wagtails get more calories per second of handling time with larger flies than with smaller ones.
- C) Wagtails get more calories per second of handling time with smaller flies than with larger ones.
- D) Wagtails get more calories per second of handling time with 7-mm flies than with either larger or smaller ones.

Answer: <https://biology-forums.com/index.php?topic=1882601>

### Question 1455

Which gland exerts primary control over the concentration of sugar in the blood?

- A) liver
- B) pineal
- C) pancreas
- D) parathyroid

Answer: <https://biology-forums.com/index.php?topic=1882056>

### Question 1456

Human skin color likely represents a locally adapted compromise between

- A) the need to block UV radiation that causes cancer and the need to absorb sunlight for heat.
- B) the need to block UV radiation that destroys folate and the need to synthesize vitamin D.
- C) the need to block UV radiation that destroys folate and the need to absorb sunlight for heat.
- D) the need to blend in with the environment and the need to absorb sunlight for heat.

Answer: <https://biology-forums.com/index.php?topic=1883838>

### Question 1457

At what point on the graph are thick and thin filaments most overlapped?

- A) point A
- B) point B
- C) point D
- D) point E

Answer: <https://biology-forums.com/index.php?topic=1882308>

### Question 1458

You are driving at night and decide to pass a slow-moving car. As you look at the car as you pass, it dawns on you that although you can see the car, you can't tell what color it is. This is due to

- A) the poor ability of cones to function in low light.
- B) the poor ability of rods to function in low light.
- C) a reduced ability to focus in low light situations.
- D) the constriction of your pupil in low light situations, which reduces color vision.

Answer: <https://biology-forums.com/index.php?topic=1882231>

### Question 1459

Which of the following hormones might induce seeds treated with it to break dormancy?

- A) an auxin
- B) a cytokinin
- C) a gibberellin
- D) ethylene

Answer: <https://biology-forums.com/index.php?topic=1882455>

### Question 1460

You and your lab partner are observing a cell under a microscope, but you do not know whether it is a eukaryote or a prokaryote. Which of the following observations regarding the chromosomes would you use to immediately conclude that the cell is a eukaryote?

- A) The chromosomes are circular in structure.
- B) The chromosomes are housed in a membrane-enclosed nucleus.
- C) The chromosomes contain very few proteins.
- D) The chromosomes are very simple in structure.

Answer: <https://biology-forums.com/index.php?topic=1883078>

### Question 1461

Which of the following would tend to promote adaptive radiation?

- A) An organism has a very stable set of features and capabilities over long spans of evolutionary time.
- B) An organism colonizes an isolated area that is habitable but relatively devoid of life.
- C) An organism colonizes an area that already has a high level of existing species diversity.
- D) A single species goes extinct, but it has several competitors that quickly expand to assume its ecological roles.

Answer: <https://biology-forums.com/index.php?topic=1883462>

### Question 1462

What is the smallest number of cells needed to perform a successful DNA profile?

- A) 1
- B) 20
- C) 200
- D) 1,000

Answer: <https://biology-forums.com/index.php?topic=1883338>

### Question 1463

What is the role of the fungus in a mycorrhizal association?

- A) contributes to photosynthesis
- B) absorption of water, phosphate, and other minerals
- C) secretion of growth factors
- D) release of water

Answer: <https://biology-forums.com/index.php?topic=1882419>

### Question 1464

Photosynthesis occurs in which type of plant tissue?

- A) parenchyma
- B) vascular cambium
- C) epidermal tissue
- D) collenchyma

Answer: <https://biology-forums.com/index.php?topic=1882327>

### Question 1465

Which of the following lists muscle components in the correct order from smallest to largest?

- A) muscle, sarcomeres, myofibrils, muscle fibers
- B) sarcomeres, myofibrils, muscle fibers, muscle
- C) sarcomeres, myofibrils, muscle, muscle fibers
- D) myofibrils, muscle, sarcomeres, muscle fibers

Answer: <https://biology-forums.com/index.php?topic=1882279>

### Question 1466

Which of the following ecological problems might result from fertilizing a golf course with phosphorus-rich fertilizer?

- A) poisoning of the grass caused by excess phosphorus
- B) heavy growth of algae and cyanobacteria in lakes and rivers caused by phosphorus runoff
- C) accumulation of toxic levels of phosphorus in animals in the vicinity, especially those higher on the food chain
- D) a slowdown in the weathering of rock that releases phosphates into the soil under natural conditions

Answer: <https://biology-forums.com/index.php?topic=1882693>

### Question 1467

Scientists are attempting to make a chicken look like a dinosaur ("dino-chicken") by using drugs or proteins to turn on certain homeotic genes during the development of a chicken embryo. If the scientists are successful in creating both male and female "dino-chickens," and then the "dino-chickens" mate together, what type of offspring would the two "dino-chickens" have?

- A) a male or female "dino-chicken"
- B) a male or female normal chicken
- C) You can't know for sure because of random fertilization.
- D) You can't know for sure because it depends on whether the modified homeotic genes are dominant or recessive.

Answer: <https://biology-forums.com/index.php?topic=1883284>

### Question 1468

The introduction of wolves into Yellowstone National Park in 1991 resulted in

- A) a general decline in overall habitat
- B) ecological changes involving numerous plant and animal species.
- C) the migration of most of these wolves out of the park and back to Canada.
- D) the death of all of the wolves, likely due to an insufficient amount of available prey.

Answer: <https://biology-forums.com/index.php?topic=1882731>

### Question 1469

If you close your eyes, hold your hands over your eyes for a short time, and then uncover your eyes, your pupils will be

- A) a darker color than normal.
- B) smaller than normal.
- C) larger than normal.
- D) a lighter color than normal.

Answer: <https://biology-forums.com/index.php?topic=1882237>

### Question 1470

A manufacturing company dumps its wastes into a nearby pond. One of the wastes is found to paralyze the contractile vacuoles of certain protists. A biologist looking at individual samples of these organisms taken from the pond would find that they

- A) have lost water and shrunk.
- B) have gained water and burst.
- C) have died of malnutrition.
- D) have died because wastes have built up in the cytoplasm.

Answer: <https://biology-forums.com/index.php?topic=1882867>

### Question 1471

Cardiac output is defined as the volume of blood pumped by a(n) \_\_\_\_\_ each time it contracts.

- A) heart
- B) atrium
- C) atrioventricular valve
- D) ventricle

Answer: <https://biology-forums.com/index.php?topic=1881848>

### Question 1472

In plants, the process of photosynthesis produces glucose (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>) and oxygen from carbon dioxide and water. Which of the following statements about photosynthesis is true?

- A) All of the carbon atoms from the carbon dioxide atoms are found in glucose.
- B) More atoms are present at the beginning than at the end.
- C) More carbon dioxide is released from the plant than is absorbed.
- D) Water is synthesized by the plant from H<sub>2</sub> and O<sub>2</sub>.

Answer: <https://biology-forums.com/index.php?topic=1882760>

### Question 1473

A scanning electron microscope is used to study \_\_\_\_\_, whereas a transmission electron microscope is used to study \_\_\_\_\_.

- A) live cells; dead cells
- B) cell surfaces; internal cell structures
- C) dead cells; live cells
- D) internal cell structures; cell surfaces

Answer: <https://biology-forums.com/index.php?topic=1882836>

### Question 1474

The branching "tree of life" analogy

- A) accurately reflects evolution. Once a split occurs, species on different branches evolve absolutely independently.
- B) has been discredited because it does not help us understand evolutionary relationships among organisms.
- C) does not describe ecological interactions between species, so it should be replaced by the web of life.
- D) fails to account for horizontal gene transfer, in which species on different branches exchange genes.

Answer: <https://biology-forums.com/index.php?topic=1883547>

### Question 1475

Oncologists (medical doctors who treat cancer patients) routinely take biopsies (samples) of tissue from patients to determine whether the tissue is cancerous or not. What would be the best experiment to do to determine whether cells from the tissue sample are cancerous?

- A) Count the number of chromosomes in the cells from the tissue sample and compare to the number of chromosomes in noncancerous cells from the patient.
- B) Add cells from the tissue sample to a cell culture dish and compare their growth against a sample of noncancerous cells from the patient.
- C) Measure the amount of DNA in G1 in the cells from the tissue sample and compare it to the amount of DNA in G2 in noncancerous cells from the patient.
- D) Add cells from the tissue sample to a rat to see whether the rat develops cancer or not.

Answer: <https://biology-forums.com/index.php?topic=1883088>

### Question 1476

A woman running a marathon collapses at the finish line and is rushed to the hospital. The physicians determine that she has lost a large amount of water and salts from excessive sweating. Which of the following would be an appropriate course of action?

- A) Determine the woman's intracellular fluid levels so that they can provide a fluid replacement therapy that will regain isotonic conditions of salt and water.
- B) Determine the woman's intracellular fluid levels so that they can provide a fluid replacement therapy that will regain hypertonic conditions of salt and water.
- C) Determine the woman's intracellular fluid levels so that they can provide a fluid replacement therapy that will regain hypotonic conditions of salt and water.
- D) Determine the woman's intracellular fluid levels so that they can provide a fluid replacement therapy that will provide a measure of metabolic heat production.

Answer: <https://biology-forums.com/index.php?topic=1882013>

### Question 1477

Which of the following attaches the forelimbs to the axial skeleton in a human?

- A) pectoral girdle
- B) pelvic girdle
- C) vertebra
- D) appendicular skeleton

Answer: <https://biology-forums.com/index.php?topic=1882266>

### Question 1478

Which of the following statements about cellular metabolism is false?

- A) Cellular metabolism includes different processes that require different conditions.
- B) Cellular metabolism can occur within organelles.
- C) Cellular metabolism occurs in animal but not plant cells.
- D) Cellular metabolism often occurs on the surfaces of internal membranes.

Answer: <https://biology-forums.com/index.php?topic=1882852>

### Question 1479

Silicon is an element that is found directly underneath carbon in the periodic table. How many electrons are in the valence shell of a silicon atom?

- A) 1
- B) 2
- C) 4

D) 6

Answer: <https://biology-forums.com/index.php?topic=1882768>

### Question 1480

The fossil record shows that for many plant and animal groups, the time between speciation events

- A) is usually about 50,000 years.
- B) varies greatly, but averages 6.5 million years.
- C) is usually greater than 40 million years.
- D) is equivalent to the length of one hundred generations of a species.

Answer: <https://biology-forums.com/index.php?topic=1883471>

### Question 1481

Global warming due to the greenhouse effect may be

- A) moderated by photosynthesis, which removes carbon dioxide from the atmosphere.
- B) made worse by photosynthesis, which adds carbon dioxide to the atmosphere.
- C) reduced by the burning of fossil fuels, which removes oxygen from the atmosphere.
- D) of little concern, since it is part of the normal cycle for the planet.

Answer: <https://biology-forums.com/index.php?topic=1883041>

### Question 1482

The most likely method by which the mutated CCR5 gene prevents AIDS is by

Exposure to the HIV virus doesn't necessarily mean that a person will develop AIDS. Some people have genetic resistance to infection by HIV. Dr. Stephen O'Brien from the U.S. National Cancer Institute has recently identified a mutant form of a gene, called CCR5, that can protect against HIV infection. The mutation probably originated in Europe among survivors of the bubonic plague. The mutated gene prevents the plague bacteria from attaching to cell membranes and, therefore, from entering and infecting body cells.

Although the HIV virus is very different from the bacteria that causes the plague, both diseases affect the exact same cells and use the same method of infection. The presence of the mutated gene in descendants of plague survivors helps prevent them from contracting AIDS. Pharmaceutical companies are using this information as the basis for a new approach to AIDS prevention. This could be very important in areas of the world where the mutation is scarce or absent, such as Africa.

- A) covering the cell membrane.
- B) rupturing the nuclear membrane.
- C) attacking and destroying the HIV virus particles.
- D) coding for a protective protein in the cell membrane.

Answer: <https://biology-forums.com/index.php?topic=1883232>

### Question 1483

CO<sub>2</sub> in the atmosphere is absorbed by \_\_\_\_\_ and converted into biomass.

- A) the ozone layer
- B) other atmosphere gases
- C) photosynthetic organisms
- D) large land masses

Answer: <https://biology-forums.com/index.php?topic=1882717>

### Question 1484

The envelope of a mumps virus

- A) helps the virus enter the cell.
- B) is coded by host genes.
- C) helps the virus insert its DNA into the host cell genome.
- D) accounts for viral resistance to antibiotics.

Answer: <https://biology-forums.com/index.php?topic=1883205>

### Question 1485

In a muscle cell, the contractile protein myosin is present in larger quantities than the structural protein actin. Which of the following qPCR results would support this observation?

While DNA microarrays can be used to determine whether or not a gene is expressed in a cell, quantitative polymerase chain reaction (qPCR) can be used to measure the extent of gene expression in cells and tissues. To perform qPCR, mRNA is extracted from cells and reverse transcribed to complementary DNA (cDNA). Using fluorescent DNA molecules that recognize specific gene sequences and DNA polymerase, copies of the gene sequence of interest are made. After the copies are made, a fluorescent detector measures the intensity of the fluorescent signal, which is proportional to the number of mRNA transcripts in the cell and corresponds to the level of gene expression in the cell.

- A) The fluorescent signal for myosin is higher than that of actin.

- B) The fluorescent signal for actin is higher than that of myosin.
- C) The fluorescent signals for myosin and actin are equal.
- D) The fluorescent signal for myosin is large and is zero for actin.

Answer: <https://biology-forums.com/index.php?topic=1883305>

### Question 1486

When DNA from two sources is combined into one single piece of DNA, it is known as

- A) cloned DNA.
- B) recombinant DNA.
- C) a vector.
- D) a plasmid.

Answer: <https://biology-forums.com/index.php?topic=1883308>

### Question 1487

A stomach cell is producing pepsin, an enzyme that hydrolyzes proteins. Which of the following events suggests that gene expression of pepsin has been turned off in the cell?

- A) The pepsin protein is folded properly in the cytoplasm.
- B) The chromosome with the pepsin gene is tightly coiled.
- C) The pepsin mRNA leaves the nucleus and enters the cytoplasm.
- D) Activators and RNA polymerases are abundant in the nucleus.

Answer: <https://biology-forums.com/index.php?topic=1883285>

### Question 1488

Which of the following is a disadvantage of using managed relocation?

- A) Many vehicles will be needed to transport the species, so CO<sub>2</sub> emissions from the vehicles will cause an increase in global greenhouse gas levels.
- B) Governments will face long-term high fuel costs for the many vehicles that will be needed to move the species.
- C) Scientists may move the species to ranges where they will become invasive.
- D) Local economies will see an increase in jobs as many individuals will need to be hired to help move the species.

Answer: <https://biology-forums.com/index.php?topic=1882752>

### Question 1489

An excess of T<sub>3</sub> and T<sub>4</sub> in the blood is hyperthyroidism, which in its most common form is called

- A) goiter.
- B) sterility.
- C) Graves' disease.
- D) botulism.

Answer: <https://biology-forums.com/index.php?topic=1882052>

### Question 1490

The change in curves in the graph represents

- A) a decrease in genetic variation in a population of mice.
- B) the appearance of a new allele for darker color in a population of mice.
- C) a shift in the range of genetic variation in a population of mice.
- D) a lack of genetic variation for light fur color in the original population of mice.

Answer: <https://biology-forums.com/index.php?topic=1883430>

### Question 1491

The flexible, longitudinal rod that is located between the digestive tract and the nerve cord in chordates is called the

- A) spinal cord.
- B) notochord.
- C) dorsal, hollow nerve cord.
- D) spine.

Answer: <https://biology-forums.com/index.php?topic=1883767>

### Question 1492

A sperm whale in the middle of the Atlantic Ocean is in which oceanic zone?

- A) intertidal
- B) benthic
- C) pelagic
- D) estuarine

Answer: <https://biology-forums.com/index.php?topic=1882516>

### Question 1493

The earliest known land plants date to the

- A) Precambrian.
- B) Ordovician (early Paleozoic era).
- C) Carboniferous (late Paleozoic era).
- D) Jurassic (Mesozoic era).

Answer: <https://biology-forums.com/index.php?topic=1883503>

### Question 1494

One of the evolutionary advantages of having two eyes is that

- A) two lenses provide greater magnification.
- B) overlapping fields of view provide uninterrupted images.
- C) there are more sensory neurons for greater action potentials.
- D) the blind spot is eliminated.

Answer: <https://biology-forums.com/index.php?topic=1882221>

### Question 1495

In general, plant dermal tissues are found

- A) at the outer surface of a plant.
- B) near the center of the plant stems and roots.
- C) lining the vascular tissue.
- D) throughout the plant body.

Answer: <https://biology-forums.com/index.php?topic=1882322>

### Question 1496

This study was focused on which level of life's hierarchy?

- A) organism
- B) community
- C) population
- D) ecosystem

Answer: <https://biology-forums.com/index.php?topic=1884114>

### Question 1497

Suppose that the human insulin protein that was produced by the bacteria was much shorter than it should be. Upon further investigation, it was found that the DNA of the human insulin gene had a mutation while in the bacterial cells. What type of mutation could not result in these observations?

Diabetes mellitus is a metabolic disease that is characterized by the buildup of glucose in the blood, or hyperglycemia. Diabetes results either from the pancreas not being able to produce the hormone insulin (type 1 diabetes) or if the body's cells become resistant to insulin (type 2 diabetes). Insulin is a protein that binds to receptors on cell surfaces to allow glucose to enter the cell.

In order to manage the disease, type 1 diabetics require frequent insulin injections. Until the 1970s, insulin was obtained from processing the pancreases of large mammals such as cows and pigs; it was then purified for medicinal use. This all changed in the 1970s with the advent of recombinant DNA technology, which allows scientists to insert genes from other species into bacterial plasmids and have bacteria produce proteins from these other species' genes. In 1978, the gene that codes for human insulin was added to a bacterial plasmid and bacteria were used to produce human insulin. These bacteria acted as mini-factories that produced human insulin for type 1 diabetes patients. Today, the production of human insulin from bacteria is commonplace and is a multibillion dollar market for pharmaceutical companies.

- A) nucleotide insertion
- B) silent mutation
- C) nucleotide deletion
- D) nonsense mutation

Answer: <https://biology-forums.com/index.php?topic=1883237>

### Question 1498

During exercise, your heart rate can increase dramatically in order to meet the metabolic demands of your tissues. If your heart rate increased to 144 beats per minute, approximately how long would diastole last?

- A) 0.2 second
- B) 0.6 second
- C) 0.8 second
- D) 1.6 seconds

Answer: <https://biology-forums.com/index.php?topic=1881881>

### Question 1499

You want to design an experiment to compare the effectiveness of Pepcid AC tablets and Alka-Seltzer tablets. Which of the following facts would be least likely to complicate your experiment and the analysis of your results?

- A) PEPCID AC and Alka-Seltzer tablets contain different concentrations of the antacid drug.
- B) PEPCID AC and Alka-Seltzer tablets contain different ingredients.
- C) The recommended dosage for PEPCID AC and Alka-Seltzer tablets is different.
- D) PEPCID AC and Alka-Seltzer tablets are sold in different countries throughout the world.

Answer: <https://biology-forums.com/index.php?topic=1882784>

### Question 1500

Which would provide the best evidence that Acme's phytoremediation really works?

- A) data on heavy metal content of plants grown in normal soil versus soil contaminated with heavy metals
- B) testimonials from former Acme customers
- C) a list of plant species that tolerate heavy metals
- D) a list of publications of the scientists that work at Acme

Answer: <https://biology-forums.com/index.php?topic=1882438>

### Question 1501

Which of the following factors contributes to the flow of blood in veins?

- A) skeletal muscle contractions
- B) the number of red blood cells in venous blood
- C) the diameter of capillaries
- D) blood pressure generated by the heart

Answer: <https://biology-forums.com/index.php?topic=1881861>

### Question 1502

Which of the following mammals has not yet been cloned and brought through the complete gestation cycle?

- A) cow
- B) human
- C) pig
- D) cat

Answer: <https://biology-forums.com/index.php?topic=1883269>

### Question 1503

Which of the following is communicated by courtship displays?

- A) The individuals are of the same species and of the opposite sex.
- B) The male represents a threat to other males.
- C) The individuals intend to hurt each other.
- D) The individuals are of different species.

Answer: <https://biology-forums.com/index.php?topic=1882585>

### Question 1504

The antibiotic oligomycin works by inhibiting ATP synthase. You would expect that

- A) there will be an increase in ATP production.
- B) H<sup>+</sup> will accumulate in the intermembrane space.
- C) H<sup>+</sup> will accumulate in the mitochondrial matrix.
- D) NAD<sup>+</sup> and FAD will pick up the extra H<sup>+</sup>.

Answer: <https://biology-forums.com/index.php?topic=1882982>

### Question 1505

Suppose you have three water baths in front of you. The temperature of the one on the left is 22C (cold), the one in the middle is 25C (room temperature,) and the one on the right is 44C (warm). At the same time, you place the index finger of your right hand into the warm water bath and the index finger of your left hand into the cold water bath, and you leave them there for 2 minutes. After 2 minutes, why would you no longer feel a difference in temperature between the two water baths?

- A) The sensory receptors in your index fingers speed up the conversion of the stimulus (water) to a chemical signal.
- B) The sensory receptors in your index fingers diminish the conversion of the stimulus (water) to an electrical signal.
- C) The sensory receptors in your index fingers become less sensitive over time as they are stimulated repeatedly.
- D) Receptor potentials in the sensory receptors in your index fingers start off weak and then become stronger.

Answer: <https://biology-forums.com/index.php?topic=1882202>

### Question 1506

As cell size increases, the

- A) volume and surface area decrease.
- B) volume increases proportionally more than the surface area.
- C) surface area increases proportionally more than the volume.
- D) ratio of surface area to volume stays the same.

Answer: <https://biology-forums.com/index.php?topic=1882838>

### Question 1507

Gills are unsuitable for animals living on land because

- A) the large surface area of gills would allow dehydration of the animal.
- B) air cannot diffuse across the gill surface.
- C) there is no way to get air into the gills.
- D) gills require high blood pressure.

Answer: <https://biology-forums.com/index.php?topic=1884006>

### Question 1508

The evolution of the vertebrate skeleton system

- A) originated with a snake-like animal whose descendants gradually developed limbs.
- B) enabled tetrapods to colonize land.
- C) originated in an earlier exoskeleton.
- D) made animals significantly taller.

Answer: <https://biology-forums.com/index.php?topic=1882264>

### Question 1509

Of all of the chordate groups, why are there only two amniote groups (reptilia and mammalia)?

- A) Amniotes are the only chordate group that has successfully survived the transition to land.
- B) The other craniate groups had brains that were not developed enough to allow the organisms to develop tool-building survival skills.
- C) The vertebral columns of the other vertebrates were not strong enough to survive the transition to land.
- D) The other jawed vertebrates were not able to obtain enough food to survive the transition to land.

Answer: <https://biology-forums.com/index.php?topic=1883840>

### Question 1510

Which of the following is an example of a tissue?

- A) heart muscle
- B) heart
- C) red blood cell
- D) circulatory system

Answer: <https://biology-forums.com/index.php?topic=1883863>

### Question 1511

Which of the following is characteristic of the chaparral biome?

- A) dense, broadleaf shrubs
- B) low amounts of rainfall at unpredictable periods throughout the year
- C) many plants with seeds that need fire to germinate
- D) animal species limited to lizards and snakes

Answer: <https://biology-forums.com/index.php?topic=1882534>

### Question 1512

Which of the following statements regarding rods and cones is true?

- A) Rods are more sensitive to light than cones.
- B) Cones are responsible for night vision.
- C) Rods are found at the greatest density at the fovea, the retina's center of focus.
- D) Rods contain the visual pigment called photopsin.

Answer: <https://biology-forums.com/index.php?topic=1882228>

### Question 1513

How is sex determined in most ants and bees?

- A) by the X-Y system
- B) by the Z-W system
- C) by the number of chromosomes
- D) by the size of the sex chromosome

Answer: <https://biology-forums.com/index.php?topic=1883144>

### Question 1514

The fluid mosaic model describes the plasma membrane as consisting of

- A) a phospholipid bilayer with embedded carbohydrates.
- B) two layers of phospholipids with cholesterol sandwiched between them.
- C) carbohydrates and phospholipids that can drift in the membrane.
- D) diverse proteins embedded in a phospholipid bilayer.

Answer: <https://biology-forums.com/index.php?topic=1882898>

### Question 1515

As a genetic counselor, you would explain to the parents that

A man and his wife are having trouble having a baby. Using modern technologies, the woman's eggs are removed, fertilized with her husband's sperm, and implanted into her uterus. The procedure is successful, and the woman gives birth to a healthy baby boy. After a while, though, they discover that their son is colorblind and has blood type O. The woman claims that the child can't be theirs since she has blood type A and her husband has type B. Also, neither parent is colorblind, although one grandparent (the woman's father) is also colorblind.

- A) the eggs must have been accidentally switched, since the baby's blood type has to match one of his parents.
- B) each parent could have contributed one recessive allele, resulting in type O blood.
- C) the eggs must have been accidentally switched, since a type A parent and a type B parent can have any type children except O.
- D) it is possible for the baby to have type O blood, since type O is inherited through a dominant allele.

Answer: <https://biology-forums.com/index.php?topic=1883164>

### Question 1516

The yolk sac of humans

- A) stores nutrients to support the developing embryo.
- B) is evidence of humans' relationships with egg-laying vertebrates.
- C) secretes HCG.
- D) absorbs nutrients from, and releases waste to, the mother's blood.

Answer: <https://biology-forums.com/index.php?topic=1882115>

### Question 1517

Finding #3: Of all of the schools surveyed in 2005:

75% offered lunches that met new weekly standards for amounts of dark, green leafy vegetables

85% offered lunches that met new weekly standards for amounts for red/orange vegetables

21% offered lunches that met new weekly standards for legumes

97% offered lunches that met new weekly standards for amounts for "other" vegetables

This suggests that

- A) a majority of schools are offering adequate servings of grains.
- B) only 15% of schools need to serve more green vegetables.
- C) a majority of schools need to serve more legumes in their lunches.
- D) about 25% of schools need to serve more citrus fruits.

Answer: <https://biology-forums.com/index.php?topic=1883989>

### Question 1518

Which of the following sub-regions has shown the least variation in estimated prevalence (%) of underweight preschool children from the year 1990 to the year 2015?

- A) Eastern Asia
- B) Caribbean
- C) Northern Africa
- D) Southern Africa

Answer: <https://biology-forums.com/index.php?topic=1883983>

### Question 1519

The mechanism that "breaks" the linkage between linked genes is

- A) pleiotropy.
- B) codominance.

- C) independent assortment.
- D) crossing over.

Answer: <https://biology-forums.com/index.php?topic=1883139>

### Question 1520

Your throat is dry, and you want the last cough drop in the box to last a long time in your mouth. What should you do?

- A) Break the cough drop into little pieces and put them all in your mouth. Since each little piece must be dissolved separately, the drop will last longer.
- B) Keep the cough drop whole. This maintains the largest surface-to-volume ratio and slows the dissolution of the cough drop.
- C) Break the cough drop into little pieces and put them all in your mouth. This decreases the surface-to-volume ratio and slows the dissolution of the cough drop.
- D) It doesn't matter if the cough drop is in one piece or many pieces; the total amount of cough drop is all that matters.

Answer: <https://biology-forums.com/index.php?topic=1882841>

### Question 1521

Blue-footed boobies have webbed feet and are comically clumsy when they walk on land. Evolutionary scientists view these feet as

- A) an example of a trait that is poorly adapted.
- B) the outcome of a trade-off: Webbed feet perform poorly on land, but are very helpful in diving for food.
- C) an example of a trait that has not evolved.
- D) a curiosity that has little to teach us regarding evolution.

Answer: <https://biology-forums.com/index.php?topic=1883375>

### Question 1522

Enzymes are to active sites as

- A) antigenic binding sites are to antigenic determinants.
- B) viruses are to antigens.
- C) antigens are to epitopes.
- D) antigenic determinants are to epitopes.

Answer: <https://biology-forums.com/index.php?topic=1881953>

### Question 1523

In addition to abiotic factors, community composition of plants can be severely compromised by

- A) parasites and pathogens.
- B) introduction of chestnut trees.
- C) non-native birds.
- D) rapid coevolution.

Answer: <https://biology-forums.com/index.php?topic=1882667>

### Question 1524

Facelifts are a type of cosmetic surgery that are meant to tighten the skin. In addition to the skin, what else would you predict is also involved in this type of surgery?

- A) loose connective tissue
- B) smooth muscle
- C) bone
- D) simple cuboidal epithelium

Answer: <https://biology-forums.com/index.php?topic=1883884>

### Question 1525

The individual features of all organisms are the result of

- A) genetics.
- B) the environment.
- C) the environment and individual needs.
- D) genetics and the environment.

Answer: <https://biology-forums.com/index.php?topic=1883135>

### Question 1526

A plant will only flower if the night length is longer than 14 hours. This plant is a

- A) long-day plant.
- B) short-night plant.
- C) short-day plant.
- D) day-neutral plant.

Answer: <https://biology-forums.com/index.php?topic=1882479>

### Question 1527

Which of the following statements best describes the molecular basis of muscle shortening?

- A) Individual filamentous proteins contract.
- B) Individual filamentous proteins shorten by coiling.
- C) Rod-shaped protein polymers shorten by losing subunits from their ends.
- D) Protein filaments crawl along other protein filaments.

Answer: <https://biology-forums.com/index.php?topic=1882282>

### Question 1528

What type of muscle fibers would likely be found in the legs of athletes who attempt to complete this race?

- A) fast, fatigue-resistant fibers
- B) fast, fatigue-susceptible fibers
- C) slow, fatigue-resistant fibers
- D) slow, fatigue-susceptible fibers

Answer: <https://biology-forums.com/index.php?topic=1882303>

### Question 1529

A person with AB blood illustrates the principle of

- A) incomplete dominance.
- B) codominance.
- C) pleiotropy.
- D) polygenic inheritance.

Answer: <https://biology-forums.com/index.php?topic=1883131>

### Question 1530

Fertilizer runoff contains \_\_\_\_\_, which are the most important limiting factors for phytoplankton growth.

- A) carbon and hydrogen
- B) oxygen and carbon dioxide
- C) nitrogen and phosphorus
- D) sulfur and magnesium

Answer: <https://biology-forums.com/index.php?topic=1882553>

### Question 1531

A gene that can cause cancer when present in a single copy in a cell is called a(n)

- A) oncogene.
- B) enhancer gene.
- C) carcinogen.
- D) proto-oncogene.

Answer: <https://biology-forums.com/index.php?topic=1883273>

### Question 1532

The monomers of DNA and RNA are

- A) monosaccharides.
- B) nucleotides.
- C) fatty acids.
- D) nucleic acids.

Answer: <https://biology-forums.com/index.php?topic=1883173>

### Question 1533

Micronutrients function in plants mainly as

- A) joining elements in organic molecule carbon skeletons.
- B) regulators of membrane transport.
- C) cofactors in chemical reactions.
- D) food reserves for pollen grains.

Answer: <https://biology-forums.com/index.php?topic=1882404>

### Question 1534

Our biological clock, which regulates the sleep-wake cycle, is housed within the

- A) cerebrum.
- B) hypothalamus.
- C) cerebellum.
- D) brainstem.

Answer: <https://biology-forums.com/index.php?topic=1882180>

### Question 1535

In the reaction  $A + B + C + \text{heat}$ ,

- A) there is a net input of energy.
- B) the potential energy of the products is greater than that of the reactant.
- C) the potential energy of the products is less than that of the reactant.
- D) entropy has decreased.

Answer: <https://biology-forums.com/index.php?topic=1882925>

### Question 1536

Which of the following statements regarding viral diseases is false?

- A) RNA viruses tend to have an unusually high rate of mutation because their RNA genomes cannot be corrected by proofreading.
- B) New viral diseases often emerge when a virus infects a new host species.
- C) Very few new human diseases have originated in other animals because the genetic differences are too great.
- D) AIDS was around for decades before becoming a widespread epidemic.

Answer: <https://biology-forums.com/index.php?topic=1883208>

### Question 1537

While habitat destruction by humans creates fragmented ecosystems, fragmentation can also occur due to natural processes. Which of the following natural processes would most likely create a fragmented ecosystem?

- A) thunderstorm
- B) glacier movement
- C) blizzard
- D) volcanic eruption

Answer: <https://biology-forums.com/index.php?topic=1882742>

### Question 1538

From the left ventricle, oxygen-rich blood flows through the

- A) superior vena cava.
- B) aorta.
- C) pulmonary artery.
- D) pulmonary vein.

Answer: <https://biology-forums.com/index.php?topic=1881845>

### Question 1539

To reduce the risk of cancer, it has been suggested that a diet high in \_\_\_\_\_ is beneficial.

- A) vitamin E
- B) bacon
- C) red meat
- D) antioxidants

Answer: <https://biology-forums.com/index.php?topic=1883965>

### Question 1540

Which of the following choices best describes a plasma cell?

- A) It is a differentiated T cell.
- B) It is a differentiated B cell.
- C) It responds to an antigen and differentiates into a B cell.
- D) It is produced during a primary immune response, persists, and multiplies in response to a reappearance of the antigen.

Answer: <https://biology-forums.com/index.php?topic=1881930>

### Question 1541

The fluorescent tag likely became incorporated into which of the following organelles during the video?

- A) mitochondria
- B) ribosomes

- C) endoplasmic reticulum
- D) peroxisomes

Answer: <https://biology-forums.com/index.php?topic=1882894>

### Question 1542

You prepare a genomic library and use this as a source to produce recombinant proteins in *E. coli*. However, after producing the proteins you find that they are all too long or too short. In fact, you don't find a single protein that is the correct size. What is the best explanation for this result?

- A) Since a genomic library was used as the source of the genes, the introns were included during transcription and translation.
- B) Since bacteria were used to produce the proteins, sugar groups were not properly added on to the proteins that were being made.
- C) Since a genomic library was used as the source, the recombinant bacterial plasmid DNA was likely incorporated into the proteins being made.
- D) Since bacteria were used to produce the proteins, the native bacterial plasmid DNA was likely incorporated into the proteins being made.

Answer: <https://biology-forums.com/index.php?topic=1883362>

### Question 1543

When taken by pregnant women, \_\_\_\_\_ decreases the chance of neural tube defects in infants.

- A) folic acid
- B) vitamin C
- C) vitamin K
- D) calcium

Answer: <https://biology-forums.com/index.php?topic=1883959>

### Question 1544

According to \_\_\_\_\_, energy cannot be created or destroyed.

- A) Aristotle's first principle
- B) the first law of thermodynamics
- C) the second law of thermodynamics
- D) the third law of thermodynamics

Answer: <https://biology-forums.com/index.php?topic=1882927>

### Question 1545

The area around the bay where grasses and snails are found in abundance is a

- A) wetland.
- B) temperate forest.
- C) tropical forest.
- D) temperate grassland.

Answer: <https://biology-forums.com/index.php?topic=1882554>

### Question 1546

One assumption about plant reproduction is that because it requires so many resources (energy and molecules), reproductive output is resource-limited. Which of the following statements provides evidence that this assumption may be incorrect?

- A) There is a correlation between the amount of sunlight a plant receives and how much fruit it produces.
- B) Hand-pollinated plants produce more seeds than naturally pollinated plants.
- C) Plants growing in moist conditions produce more flowers than plants growing in dry conditions.
- D) Domesticated plants produce more seeds than wild plants.

Answer: <https://biology-forums.com/index.php?topic=1882364>

### Question 1547

When the wall of the stomach cannot protect the organ from the effects of digestion, the result is

- A) heartburn.
- B) peristalsis.
- C) nausea.
- D) a gastric ulcer.

Answer: <https://biology-forums.com/index.php?topic=1883928>

### Question 1548

Both prokaryotic and eukaryotic cells use \_\_\_\_\_ to turn certain genes on or off.

- A) RNA transcriptase
- B) intron segments
- C) proteins
- D) nucleosome packing

Answer: <https://biology-forums.com/index.php?topic=1883252>

### Question 1549

In plant research labs, plants are often grown in light-proof chambers where the hours of light and dark are carefully controlled. A new researcher goes into a chamber and accidentally turns on the light during the "dark" period. What is likely to happen?

- A) If the plants are short day plants, there will be no impact.
- B) If the researcher can quickly produce a flash of far-red light and close the door, there will be no impact.
- C) If the plants are not yet flowering, there will be no impact.
- D) If the light is only red light and not far-red light, there will be no impact.

Answer: <https://biology-forums.com/index.php?topic=1882489>

### Question 1550

Which of these sequences is not a correct pathway of energy through an ecosystem?

- A) insects birds bacteria
- B) plants insects birds
- C) plants birds bacteria
- D) bacteria plants birds

Answer: <https://biology-forums.com/index.php?topic=1884104>

### Question 1551

A protein containing more than one polypeptide chain exhibits the \_\_\_\_\_ level of protein structure.

- A) primary
- B) secondary
- C) tertiary
- D) quaternary

Answer: <https://biology-forums.com/index.php?topic=1882800>

### Question 1552

There is a mutation in a promoter next to a gene such that RNA polymerase can never bind. What steps must occur for the gene to be transcribed?

- A) An activator protein must bind an enhancer.
- B) The DNA must physically bend so that the activator is close to the promoter.
- C) Transcription factors must bind to the activator and promoter.
- D) Transcription will never take place in this specific example.

Answer: <https://biology-forums.com/index.php?topic=1883282>

### Question 1553

Pecking order in chickens is an example of

- A) dominance hierarchy.
- B) alpha order.
- C) agonistic behavior.
- D) mating behavior.

Answer: <https://biology-forums.com/index.php?topic=1882593>

### Question 1554

When observing a chicken skin cell in G2 under a microscope, you count 156 total chromatids. How many chromosomes does a male chicken have in its sperm cells?

- A) 312
- B) 156
- C) 78
- D) 39

Answer: <https://biology-forums.com/index.php?topic=1883084>

### Question 1555

The basic function of activated T cells is to battle

- A) pathogens in blood or lymph.
- B) pathogens in interstitial fluid.
- C) pathogens that have already entered body cells.
- D) chemical mediators of immunity.

Answer: <https://biology-forums.com/index.php?topic=1881937>

### Question 1556

If you shut off the system and pressure was no longer applied to tank A, you would expect

- A) the water to flow from tank A to tank B.
- B) the water to reverse flow from tank B to tank A.
- C) the water to flow in equal amounts in both directions.
- D) the water to flow against the concentration gradient.

Answer: <https://biology-forums.com/index.php?topic=1882954>

### Question 1557

Based on the characteristics of the snakehead described, which of the following is most likely to be a productive strategy to reduce the spread of this species?

- A) extending the fishing season for prey fishes
- B) introducing a natural predator to feed on juvenile snakeheads
- C) capturing breeding snakeheads and sterilizing them so that they cannot breed any longer
- D) introducing algae and photosynthetic bacteria to reduce nutrient levels in the water

Answer: <https://biology-forums.com/index.php?topic=1882749>

### Question 1558

Which of the following statements about the phosphorus cycle is false?

- A) The main abiotic reservoir for phosphorus is in the soil.
- B) Plants release dissolved phosphate ions into the soil.
- C) Phosphates that drain from soils into the sea becomes part of new rock and will cycle back into living organisms.
- D) Guano can be used by farmers to add phosphorus to the soil.

Answer: <https://biology-forums.com/index.php?topic=1882690>

### Question 1559

Feeling tired after a long day of work, you walk across a parking lot at night to get to your car. As you approach the car you see a shadow extending behind the back of the car. You immediately feel a rush of energy, your heart starts pounding, and you feel wide awake and alert. You are experiencing

- A) an allergic reaction.
- B) a surge in blood glucose.
- C) the fight-or-flight response.
- D) effects of endocrine disruptors.

Answer: <https://biology-forums.com/index.php?topic=1882069>

### Question 1560

During the spring, male sage grouse gather in an open area and strut about, erecting their feathers in a fanlike display. They also make booming sounds using their inflated air sacs. The function of this dance is to

- A) frighten off smaller birds from the territory.
- B) select the showiest females and mate.
- C) attract the attention of females.
- D) imprint the younger male birds.

Answer: <https://biology-forums.com/index.php?topic=1882584>

### Question 1561

Acetylcholine (ACh) is released by motor neurons and binds to receptors on muscle cells to initiate action potentials. Some snake venom contains specific toxins that bind irreversibly to these receptors and block acetylcholine's ability to bind. If an animal is bitten by a snake with these toxins in its venom, what do you predict would happen?

- A) The animal's muscles would not use stored ATP for energy.
- B) The animal's muscles would contract uncontrollably.
- C) The animal's muscles would not be able to contract.
- D) The animal's muscles would use lactic acid fermentation for energy.

Answer: <https://biology-forums.com/index.php?topic=1882294>

### Question 1562

How do viroids harm the plants that are infected with them?

- A) by increasing the plants' metabolic rate
- B) by altering the plants' growth
- C) by reducing the plants' seed production

D) by destroying the root system

Answer: <https://biology-forums.com/index.php?topic=1883211>

### Question 1563

Which of the following statements regarding vitamins is true?

- A) They are simple inorganic compounds.
- B) They must be ingested in large quantities.
- C) They can serve as coenzymes or parts of coenzymes.
- D) They are major sources of dietary calories.

Answer: <https://biology-forums.com/index.php?topic=1883955>

### Question 1564

Enzymes are required to help digest the four large macromolecules found in the foods we eat. Which of the following is not a true representation of the enzymes that digest these macromolecules?

- A) Polysaccharides are hydrolyzed by pancreatic amylase to maltose, which is then hydrolyzed by maltase to form monosaccharides.
- B) Polysaccharides are hydrolyzed by nucleases to maltose, which is then hydrolyzed by lipase to form monosaccharides.
- C) Polypeptides are hydrolyzed by trypsin to small polypeptides, which are then hydrolyzed by peptidases to form amino acids.
- D) Fat globules are hydrolyzed by bile salt fat droplets, which are then hydrolyzed by lipase to form fatty acids and glycerol.

Answer: <https://biology-forums.com/index.php?topic=1883967>

### Question 1565

You have been running a high fever, have stomach cramps, and have felt weak and disoriented for five days, so you set up an appointment with your physician. After asking you a few questions, she starts a physical examination by probing for swollen areas in your abdomen. You immediately sense that she is looking for

- A) lymph nodes.
- B) histamines.
- C) antibodies.
- D) antigens.

Answer: <https://biology-forums.com/index.php?topic=1881964>

### Question 1566

The brain and spinal cord are formed from

- A) the notochord, which is formed from mesoderm.
- B) the notochord, which is formed from endoderm.
- C) the neural tube, which is formed from mesoderm.
- D) the neural tube, which is formed from ectoderm.

Answer: <https://biology-forums.com/index.php?topic=1882105>

### Question 1567

A eukaryotic cell has a nuclear envelope that allows tRNA molecules, but not mRNA molecules, to leave the nucleus. Which of the following processes will not be able to take place in this cell?

- A) DNA replication
- B) tRNAs binding to codons
- C) RNA being made from DNA
- D) tRNAs binding to amino acids

Answer: <https://biology-forums.com/index.php?topic=1883221>

### Question 1568

In accordance with the principle of parsimony, scientists prefer

- A) phylogenetic trees that minimize the number of evolutionary changes.
- B) phylogenetic trees in which adaptations repeatedly arise, disappear, and reappear.
- C) phylogenetic trees with many small clades to those with a few major clades.
- D) the Linnaean system of nomenclature to the use of common names.

Answer: <https://biology-forums.com/index.php?topic=1883536>

### Question 1569

A friend tells you that he is going on a low-carb diet to lose weight because he thinks that carbs contain more energy than fats or protein. What would you tell your friend about his plan?

- A) This is a good idea because sugars enter the fuel breakdown pathway earlier than other food molecules.
- B) This is a good idea because sugars have more electrons than fats and protein.

- C) This is an incorrect idea because fats contain more hydrogen atoms than carbohydrates and protein.  
D) This is an incorrect idea because all food molecules store the same amount of energy.

Answer: <https://biology-forums.com/index.php?topic=1882985>

### Question 1570

Which of the following statements regarding birth control is true?

- A) The most widely used birth control pills contain a combination of FSH and LH.  
B) Natural family planning is generally reliable.  
C) Morning-after pills taken within three days of unprotected intercourse prevent fertilization or implantation about 75% of the time.  
D) Birth control pills work primarily by preventing fertilization and implantation.

Answer: <https://biology-forums.com/index.php?topic=1882096>

### Question 1571

Which of the following statements comparing photosynthesis and cellular respiration is false?

- A) ATP is not produced during photosynthesis; it is produced only during cellular respiration.  
B) Photosynthesis is ultimately powered by light energy and respiration by the chemical energy of fuel molecules.  
C) Photosynthesis consumes CO<sub>2</sub>; respiration consumes O<sub>2</sub>.  
D) Photosynthesis produces O<sub>2</sub>; respiration produces CO<sub>2</sub>.

Answer: <https://biology-forums.com/index.php?topic=1883011>

### Question 1572

According to the graph, at what maternal age is the incidence of Down syndrome equal to five times the incidence at age 40?

- A) about 29 or 30  
B) about 35 or 36  
C) about 44 or 45  
D) about 46 or 47

Answer: <https://biology-forums.com/index.php?topic=1883090>

### Question 1573

Africa and the Latin America and Caribbean regions show a similar overall drop in estimated prevalence (%) of underweight preschool children from 1990 to 2015: 5.9% and 4.8%, respectively. In the year 2011, the population of Africa was close to 1 billion, while the population of the Latin America and Caribbean regions was closer to 500 million. Based on this population data, which of these two regions' drop in percentage is more dramatic, and why?

- A) Africa, because it has more a higher number of sub-regions  
B) Since the two drop averages are so similar over the same time period, they are equally significant.  
C) Africa, because it started at a much higher % rate than the Latin America and Caribbean regions  
D) Africa, because approximately two times as many individuals were removed from the malnourished designation

Answer: <https://biology-forums.com/index.php?topic=1883985>

### Question 1574

When did the level of oxygen in Earth's atmosphere become high enough to sustain aerobic respiration?

- A) 1.0 billion years ago  
B) 1.5 billion years ago  
C) 2.7 billion years ago  
D) 3.5 billion years ago

Answer: <https://biology-forums.com/index.php?topic=1882974>

### Question 1575

Arteries are distinguished from veins based on all of the following features except

- A) the direction of blood flow relative to the heart.  
B) the structure of their walls.  
C) the amount of oxygen present in the blood.  
D) the blood pressure.

Answer: <https://biology-forums.com/index.php?topic=1881855>

### Question 1576

Which organelle is involved in the catabolism of fatty acids and the detoxification of alcohol?

- A) peroxisome  
B) Golgi apparatus

- C) smooth ER
- D) ribosomes

Answer: <https://biology-forums.com/index.php?topic=1882868>

### Question 1577

This study is considering the salamander clutches' ability to maintain the process of

- A) osmoregulation.
- B) thermoregulation.
- C) concurrent heat exchange.
- D) diffusion.

Answer: <https://biology-forums.com/index.php?topic=1882029>

### Question 1578

The fossil "hobbits" discovered in Indonesia may be \_\_\_\_\_ that lived \_\_\_\_\_.

- A) a newly discovered species of Homo; as recently as 18,000 years ago
- B) a population of Homo sapiens with a genetic disorder; at the same time as the Neanderthals
- C) a lineage of early hominins; about 5 million years ago
- D) a dwarf lineage of Australopithecus; around the same time as "Lucy"

Answer: <https://biology-forums.com/index.php?topic=1883837>

### Question 1579

A cell is exposed to a substance that prevents it from dividing. The cell becomes larger and larger. This situation

- A) should present no problem to the cell, since it can continue to perform all other necessary functions.
- B) should present no problem to the cell, because the surface area of the cell will increase as the volume of the cell increases.
- C) will eventually be problematic, since the cell's ability to absorb nutrients through its outer membrane will not keep increasing as quickly as its cytoplasmic needs.
- D) should be beneficial, since the cell will be able to divert the ATP normally used for cell division to other processes.

Answer: <https://biology-forums.com/index.php?topic=1882840>

### Question 1580

Which of the following processes involves heat exchange between an animal and its environment?

- A) irradiation
- B) convection
- C) induction
- D) evaporation

Answer: <https://biology-forums.com/index.php?topic=1881977>

### Question 1581

About how many gibberellins have been identified in plants?

- A) one
- B) five
- C) over one hundred
- D) thousands

Answer: <https://biology-forums.com/index.php?topic=1882459>

### Question 1582

Different kinds of mycorrhizae occur in different ecosystems. For example, as you walk up a mountain, you might find one type of mycorrhizae in lower regions and a second, different type of mycorrhizae in higher regions. Why are there mycorrhizae specific to certain ecosystems?

- A) Mycorrhizae are adapted to the altitude.
- B) Mycorrhizae are adapted to the type of slope of the land.
- C) Mycorrhizae tend to colonize all levels of the mountain.
- D) Mycorrhizae are adapted to the type of soil and the type of vegetation present.

Answer: <https://biology-forums.com/index.php?topic=1883712>

### Question 1583

Which of the following options correctly lists the three stages of labor in the order in which they occur?

- A) dilation, expulsion, delivery of the placenta
- B) dilation, crowning, expulsion
- C) contractions, dilation, expulsion
- D) dilation, crowning, delivery of the placenta

Answer: <https://biology-forums.com/index.php?topic=1882122>

### Question 1584

Reptiles are not able to eat as frequently as mammals and birds can eat. This is due to a trait that mammals and birds share but that reptiles do not have. What is this trait?

- A) airfoils
- B) endothermy
- C) amniotic egg
- D) teeth

Answer: <https://biology-forums.com/index.php?topic=1883821>

### Question 1585

TPOX is one of the STRs that is used to compare DNA between different people. Why is TPOX useful for comparing DNA between different people?

- A) TPOX varies in the number of repeats between different people.
- B) TPOX varies in sequence between different people.
- C) TPOX is only present in some people's genomes.
- D) TPOX is present in different places in different people's genomes.

Answer: <https://biology-forums.com/index.php?topic=1883355>

### Question 1586

Which of the following statements regarding infertility and fertilization procedures is true?

- A) Embryos fertilized through assisted reproductive technologies cannot be frozen for later use, as they degrade rapidly.
- B) In GIFT, sperm are injected into an embryo in vitro, and the embryo is placed into the oviducts.
- C) In IVF, fertilization occurs in a dish. The embryo is allowed to develop for several days, and then the embryo is placed into the uterus.
- D) Children conceived using reproductive technologies such as IVF and ICSI display a high rate of abnormalities resulting from these procedures.

Answer: <https://biology-forums.com/index.php?topic=1882123>

### Question 1587

Since pesticides affect humans in a manner similar to that of roaches, it would be valid to conclude that

- A) acetylcholinesterase affects the DNA of all animals.
- B) the mechanism of stimulating skeletal muscle contraction must be similar in humans and roaches.
- C) pesticides are more harmful to roaches than humans.
- D) the terminal end of the axon releases acetylcholine in roaches, but not in humans.

Answer: <https://biology-forums.com/index.php?topic=1882200>

### Question 1588

While on a walk through a forest, you notice birds in trees, earthworms in the soil, and fungi on plant litter on the forest floor. Based on your observations, you conclude that each of these organisms occupies a different

- A) habitat.
- B) ecosystem.
- C) biosphere.
- D) biome.

Answer: <https://biology-forums.com/index.php?topic=1882501>

### Question 1589

Which of the following forms of homeostasis would not be affected by a severe burn involving both the epidermis and dermis?

- A) control of water loss by the integumentary system
- B) protection from microbes by the integumentary system
- C) defense against microbes by the immune system
- D) sensation of external temperature

Answer: <https://biology-forums.com/index.php?topic=1883883>

### Question 1590

The type of life cycle seen in plants is called

- A) haploid generations.
- B) gametophyte production.
- C) alternation of generations.
- D) diploid generations.

Answer: <https://biology-forums.com/index.php?topic=1883662>

### Question 1591

\_\_\_\_\_ are a major source of restriction enzymes.

- A) Plant cells
- B) Human cells
- C) Archaea cells
- D) Bacterial cells

Answer: <https://biology-forums.com/index.php?topic=1883311>

### Question 1592

Application of herbicides may have unintended consequences because

- A) different types of plants respond differently to the same herbicide.
- B) plants may increase or decrease the production of hormones in order to avoid the effect of herbicides.
- C) plants may concentrate the herbicides in their fruits so that they can be released from the plant.
- D) plants create new mutations to avoid herbicides, and those new mutations may have unintended consequences.

Answer: <https://biology-forums.com/index.php?topic=1882492>

### Question 1593

Which of the following statements about the absorption of photons by pigment molecules is true?

- A) It takes several minutes for the pigment electrons to become excited.
- B) Photons raise electrons in pigments to the ground state.
- C) Excitation of the electrons is a very stable state.
- D) Energy can be released by the excited electron as heat, light, or fluorescence.

Answer: <https://biology-forums.com/index.php?topic=1883021>

### Question 1594

Which of the following essential nutrients is most likely to leach from the soil?

- A) Ca<sup>2+</sup>
- B) Mg<sup>2+</sup>
- C) K<sup>+</sup>
- D) NO<sub>3</sub><sup>-</sup>

Answer: <https://biology-forums.com/index.php?topic=1882410>

### Question 1595

You culture the dried soup from a 4,000-year-old cooking pot found in an Egyptian tomb and obtain a distinctive species of prokaryote. You immerse a test tube of these bacteria in boiling water for several hours, but the colony grows back. This species is probably

- A) halophilic.
- B) endospore-forming.
- C) a spirochete.
- D) a cyanobacteria.

Answer: <https://biology-forums.com/index.php?topic=1883566>

### Question 1596

Which of the following is a typical characteristic of molluscs?

- A) a gastrovascular cavity with only one opening
- B) a sessile lifestyle
- C) an internal skeleton and segmented body plan
- D) a rasping organ called the radula

Answer: <https://biology-forums.com/index.php?topic=1883748>

### Question 1597

A survivorship curve that involves producing very few offspring, each of which has a high probability of surviving to adulthood, is typical of

- A) sea stars.
- B) elephants.
- C) oysters.
- D) rodents.

Answer: <https://biology-forums.com/index.php?topic=1882614>

### Question 1598

High-fructose corn syrup is made from corn. The main carbohydrate in corn is a polysaccharide called

- A) fructose.
- B) starch.
- C) hydrocarbon.
- D) cellulose.

Answer: <https://biology-forums.com/index.php?topic=1882788>

### Question 1599

During ecological succession, the species composition of a plant community generally

- A) changes from a diverse community in which many plants are common to one in which a few species are numerically dominant.
- B) remains stable as long as major environmental factors (climate, human interference) remain constant.
- C) changes gradually because each species responds differently to the changing environment.
- D) changes until forest is established and a single species remains.

Answer: <https://biology-forums.com/index.php?topic=1882677>

### Question 1600

You are looking at an unknown cell under a microscope that has 22 chromosomes plus two X chromosomes. Which of the following is the most likely identity of this cell?

- A) a skin cell from a human female
- B) an egg from a human female
- C) an epithelial cell from a male chicken
- D) an eye cell from a female grasshopper

Answer: <https://biology-forums.com/index.php?topic=1883161>

### Question 1601

The feature of "sticky ends" that makes them especially useful in DNA recombination is their ability to

- A) bind to DNA and thereby activate transcription.
- B) bind to ribosomes and thereby activate translation.
- C) form hydrogen-bonded base pairs with complementary single-stranded stretches of DNA.
- D) allow plasmids to attach to the main bacterial chromosome.

Answer: <https://biology-forums.com/index.php?topic=1883313>

### Question 1602

Usually, a river \_\_\_\_\_ at its source compared to farther downstream.

- A) has less phytoplankton
- B) is warmer
- C) is wider
- D) flows more slowly

Answer: <https://biology-forums.com/index.php?topic=1882521>

### Question 1603

You inflate a balloon and let it go. It shoots away as air exits forcefully through the balloon's narrow opening. This most closely resembles the mode of movement seen in

- A) sea anemones.
- B) snails.
- C) squid.
- D) nematodes.

Answer: <https://biology-forums.com/index.php?topic=1883750>

### Question 1604

Vertigo is a medical term used to describe feeling dizzy, as if everything is spinning. As it can severely compromise an individual's ability to walk or stand still properly, vertigo most likely indicates a problem with the person's

- A) eardrum.
- B) auditory canal.
- C) pinna.
- D) inner ear.

Answer: <https://biology-forums.com/index.php?topic=1882243>

### Question 1605

If you cut off the top of a carrot and place it in water to see if you can get it to grow new roots, you should add

- A) more than 10<sup>-2</sup> g/L of auxin.
- B) approximately 10<sup>-8</sup> g/L of auxin.
- C) at least 10<sup>-6</sup> g/L of auxin.
- D) equal amounts of auxin and cytokinin.

Answer: <https://biology-forums.com/index.php?topic=1882497>

### Question 1606

Carnivorous plants are more likely to grow in acid bogs because

- A) organic matter decays so slowly there.
- B) acid soil inhibits growth of plant roots.
- C) acid rain damages leaves and stems.
- D) mycorrhizal growth is inhibited.

Answer: <https://biology-forums.com/index.php?topic=1882423>

### Question 1607

When a nursery worker pinches off the terminal buds on a young chrysanthemum plant to make it grow bushy, which of the following plant hormones is mainly responsible for growth of side branches?

- A) an auxin
- B) a gibberellin
- C) a cytokinin
- D) abscisic acid

Answer: <https://biology-forums.com/index.php?topic=1882450>

### Question 1608

To stabilize the environment in the habitat and enable it to become self-sufficient again, it would be helpful to

Biosphere II is a huge dome-covered self-contained structure located outside Tucson, Arizona. It was built to try to duplicate Earth's biosphere and ecosystems in miniature and to use the information gained from the experiment to help design similar habitats on the Moon and Mars. The habitat contained small versions of many of Earth's ecosystems, including an ocean with a coral reef, mangrove wetlands, a grassland, a desert, an agricultural system, and a human habitat. Eight men and women were sealed inside the habitat for a proposed two-year stay. The air, water, and food for the "biospherians" all came from inside the sealed habitat, and their only contact with the outside was through computers and telephones. Before the two years were up, however, the experiment failed. Supplemental oxygen was pumped into the facility, and food supplies were provided through the airlocks. What caused the failure of the experiment? It was traced to nutrient pollution. The soil in some of the biosphere ecosystems was unusually rich in nutrients. These excess nutrients caused a huge population explosion in decomposer bacteria, which led to oxygen depletion.

- A) add nitrates and phosphates to the terrestrial and aquatic ecosystems.
- B) add producers to absorb excess carbon dioxide and produce oxygen.
- C) add consumers to absorb carbon dioxide and produce oxygen.
- D) add decomposers to recycle nutrients in the soil and water.

Answer: <https://biology-forums.com/index.php?topic=1882703>

### Question 1609

A gene operon consists of

- A) a transcribed gene only.
- B) a promoter only.
- C) a regulatory gene only.
- D) transcribed genes, an operator, and a promoter.

Answer: <https://biology-forums.com/index.php?topic=1883239>

### Question 1610

Hematocrit is the percentage of red blood cells in the blood. In adult humans, hematocrit is roughly 40-45%, but it can be much higher or lower in other animals. Consider the Weddell seal, a mammal that can dive and hold its breath underwater for upwards of 80 minutes. What is the hematocrit level of a Weddell seal, and why?

- A) It is likely lower than that of an adult human because the seal needs access to less oxygen when diving.
- B) It is likely lower than that of an adult human because the seal needs access to more oxygen when diving.
- C) It is likely higher than that of an adult human because the seal needs access to less oxygen when diving.
- D) It is likely higher than that of an adult human because the seal needs access to more oxygen when diving.

Answer: <https://biology-forums.com/index.php?topic=1881886>

### Question 1611

If current trends in global warming continue for the next 50 years, where will the greatest effects of global warming likely be felt?

- A) the continental United States

- B) the Pacific Ocean
- C) the Mississippi River
- D) Russia

Answer: <https://biology-forums.com/index.php?topic=1882741>

### Question 1612

When a cell uses chemical energy to perform work, it uses the energy released from a(n) \_\_\_\_\_ reaction to drive a(n) \_\_\_\_\_ reaction.

- A) exergonic; endergonic
- B) endergonic; exergonic
- C) exergonic; spontaneous
- D) spontaneous; exergonic

Answer: <https://biology-forums.com/index.php?topic=1882933>

### Question 1613

Small, nonpolar, hydrophobic molecules such as fatty acids

- A) easily pass through a membrane's lipid bilayer.
- B) very slowly diffuse through a membrane's lipid bilayer.
- C) require transport proteins to pass through a membrane's lipid bilayer.
- D) are actively transported across cell membranes.

Answer: <https://biology-forums.com/index.php?topic=1882908>

### Question 1614

The diameter of most animal and plant cells ranges from

- A) 0.1 to 1.0 micrometers.
- B) 1.0 to 10 micrometers.
- C) 10 to 100 micrometers.
- D) 100 to 1000 micrometers.

Answer: <https://biology-forums.com/index.php?topic=1882837>

### Question 1615

In many grocery stores, fresh fruits are sold in plastic bags dotted with holes so that they will not overripen. The main function of the holes is to

- A) permit the fruit to drain after being washed.
- B) facilitate diffusion of ethylene away from the fruit.
- C) prevent buildup of CO<sub>2</sub>.
- D) facilitate diffusion of O<sub>2</sub> to the fruit.

Answer: <https://biology-forums.com/index.php?topic=1882467>

### Question 1616

You are dissecting a "mystery animal" in biology lab and discover that it has a series of closed blood vessels, a pair of lungs, two atria, and a single ventricle. What animal are you dissecting?

- A) fish
- B) frog
- C) crocodile
- D) bird

Answer: <https://biology-forums.com/index.php?topic=1881835>

### Question 1617

Which of the following factors is fundamentally responsible for the character of arctic tundra soils?

- A) secretion of acid by lichens and plant roots
- B) permafrost
- C) summer aridity
- D) abundant winter snow

Answer: <https://biology-forums.com/index.php?topic=1882542>

### Question 1618

Prolactin is a hormone whose molecular structure has remained stable over evolutionary time but whose hormonal role has changed dramatically in different animal species. This is an excellent example of how evolution

- A) is responsible for mutation in vertebrates.
- B) occurs rapidly at the molecular level to keep up with changing environmental influences.
- C) has stayed within narrow boundaries in regard to regulation of homeostasis.

D) can both preserve unity and promote diversity.

Answer: <https://biology-forums.com/index.php?topic=1882064>

### Question 1619

The enteric division of the autonomic nervous system consists of neurons in the digestive tract, the gallbladder, and the

- A) heart.
- B) lymphatic system.
- C) pancreas.
- D) thyroid gland.

Answer: <https://biology-forums.com/index.php?topic=1882171>

### Question 1620

New growth that increases stem length on a plant arises mainly from

- A) the base of the stem.
- B) apical meristems.
- C) the tips of leaves.
- D) the vascular cambium.

Answer: <https://biology-forums.com/index.php?topic=1882330>

### Question 1621

Suppose that an adult black bear adds 50 pounds of fat in order to survive while hibernating through the winter. How much glycogen would a bear have to add to achieve a similar feat?

- A) 25 pounds
- B) 50 pounds
- C) 75 pounds
- D) 100 pounds

Answer: <https://biology-forums.com/index.php?topic=1882813>

### Question 1622

Suppose that scientists who study predator-prey relationships notice that over a 50-year span, new color patterns evolve in the stonefly nymphs such that they are better able to blend into the colors of a streambed. What would be a logical and reasonable question that the scientists could investigate in relation to their observations and their knowledge of predator-prey relationships?

A stonefly is an aquatic insect that has an incomplete life cycle. It spends its growing period (nymph life stage) on the bottom of streams, camouflaged by the rocky bottom. When it has finished growing, it crawls to the edges of streambeds to molt and emerges as a winged adult. Fish often eat the juvenile nymphs as they make their way to the edge of the streambeds.

- A) As the color pattern changes in nymphs developed, was there also a change in the color of the sand of the streambeds on which the nymphs molted?
- B) As the color pattern changes in nymphs developed, was there an increase in the fish population size?
- C) As the color pattern changes in nymphs developed, was there a decrease in the phosphorus concentration in the stream water?
- D) As the color pattern changes in nymphs developed, did the fish eat a greater number of nymphs?

Answer: <https://biology-forums.com/index.php?topic=1882706>

### Question 1623

Citrus fruit has always been distributed from areas where the fruit is grown to other parts of the country, often by train. In the early 1900s train cars were heated with coal, and it was believed that this heat helped ripen the fruit. Imagine the surprise of growers and suppliers when fruit that arrived in new boxcars heated by steam arrived unripe. Why did the fruit no longer ripen?

- A) The length of time needed to ripen the fruit was met by slow-moving older trains; newer steam-powered locomotives arrived before the fruit ripened.
- B) Ethylene, a by-product of coal burning, ripened the fruit in the cars with the coal stove but was absent from the steam-powered trains.
- C) The light from the coal-burning stoves caused the fruits to experience short nights, so they ripened.
- D) The steam prevented the buildup of abscisic acid, which is needed to ripen fruit.

Answer: <https://biology-forums.com/index.php?topic=1882488>

### Question 1624

What evidence is used to determine the branching sequence of an evolutionary tree?

- A) experiments in artificial selection
- B) anatomical or molecular homologous structures
- C) the genetic code
- D) an overall assessment of general similarities between organisms

Answer: <https://biology-forums.com/index.php?topic=1883393>

### Question 1625

Photophosphorylation during photosynthesis differs from oxidative phosphorylation during cellular respiration in that

- A) it involves an electron transport chain.
- B) energy is stored in the form of a proton (H<sup>+</sup>) concentration difference.
- C) generation of ATP is driven by a flow of protons (H<sup>+</sup>) through ATP synthase.
- D) the final electron acceptor is NADP<sup>+</sup> and not oxygen.

Answer: <https://biology-forums.com/index.php?topic=1883030>

### Question 1626

If you commit a crime, you need to make sure that you do not leave even the smallest speck of blood, hair, or other organic matter from your body. If you do, the DNA in this material can be amplified by \_\_\_\_\_, subjected to genetic analysis, and used to identify you as the perpetrator of the crime.

- A) PCR
- B) STR analysis
- C) RFLP
- D) restriction digests

Answer: <https://biology-forums.com/index.php?topic=1883332>

### Question 1627

Which of the following can increase red blood cell concentration in a unit of blood?

- A) training at low altitudes
- B) reducing blood levels of EPO
- C) blood doping
- D) hydration

Answer: <https://biology-forums.com/index.php?topic=1881876>

### Question 1628

Fresh water and seawater mix in a(n)

- A) estuary.
- B) benthic zone.
- C) deep water zone.
- D) continental shelf zone.

Answer: <https://biology-forums.com/index.php?topic=1882519>

### Question 1629

What percentage of the daily value of fat-soluble vitamins is provided by this package of cookies?

- A) 0%
- B) 2%
- C) 3%
- D) 4%

Answer: <https://biology-forums.com/index.php?topic=1883992>

### Question 1630

Some current research efforts are investigating whether or not \_\_\_\_\_, a group of prokaryotes with the ability to produce oxygen as a by-product of photosynthesis, can be used as a source of renewable energy by converting sunlight into electricity.

- A) chlamydias
- B) spirochetes
- C) proteobacteria
- D) cyanobacteria

Answer: <https://biology-forums.com/index.php?topic=1883642>

### Question 1631

Using the genetic code below, what protein sequence does the RNA sequence CUAGCUCGAUAUCUC code for?

- A) Asp - Ala - Arg - Ile- Leu
- B) Val - Arg - Ala - Phe - Stop
- C) Leu - Gly - Tyr - Ala Leu
- D) Leu - Ala - Arg - Tyr - Leu

Answer: <https://biology-forums.com/index.php?topic=1883230>

### Question 1632

The organization of blood and water flow in a fish's gills increases the fish's ability to

- A) extract oxygen from the water.
- B) extract carbon dioxide from the water.
- C) detect toxic materials in the water.
- D) transport blood throughout the fish's body.

Answer: <https://biology-forums.com/index.php?topic=1884003>

### Question 1633

The box numbered 2 represents which of the following?

- A) the cycling of energy
- B) decomposers acting on all parts of the system
- C) the cycling of matter
- D) gases in the atmosphere that can block sunlight

Answer: <https://biology-forums.com/index.php?topic=1884108>

### Question 1634

The age structure of the United States in 2010 shows

- A) a broad base, suggesting a high birth rate.
- B) a broad base, suggesting a low birth rate.
- C) that a greater proportion of the population is elderly now than in earlier decades.
- D) that the United States has not yet gone through a demographic transition.

Answer: <https://biology-forums.com/index.php?topic=1882637>

### Question 1635

The transfer of antibodies in breast milk to an infant is an example of \_\_\_\_\_ immunity.

- A) nonspecific
- B) passive
- C) humoral
- D) active

Answer: <https://biology-forums.com/index.php?topic=1881924>

### Question 1636

Clusters of light-gathering pigments in a photosystem

- A) pass energy to the reaction center.
- B) are found in the roots of plants.
- C) absorb electrons.
- D) break down H<sub>2</sub>O.

Answer: <https://biology-forums.com/index.php?topic=1883024>

### Question 1637

Which of the following is a function of epinephrine?

- A) release of glucose from the liver
- B) decreased heart rate
- C) decreased metabolic rate
- D) increased digestive activities

Answer: <https://biology-forums.com/index.php?topic=1882060>

### Question 1638

Which of the following statements regarding Down syndrome is false?

- A) Trisomy 21 is the cause of Down syndrome.
- B) Down syndrome is the most common serious birth defect in the United States.
- C) People with Down syndrome usually have a shorter life span than normal.
- D) Down syndrome is least likely to be seen in the infants of mothers over 40.

Answer: <https://biology-forums.com/index.php?topic=1883072>

### Question 1639

Another difference between the two groups is in how they hunt. Whales that hunt fish tend to travel in large pods (groups of whales) and vocalize often. Whales that hunt seals, however, tend to travel in very small groups and vocalize very little, likely because of the excellent hearing ability of seals. If these differences brought about speciation, the separation would be considered

- A) habitat isolation.
- B) temporal isolation.
- C) behavioral isolation.
- D) mechanical isolation.

Answer: <https://biology-forums.com/index.php?topic=1883484>

### Question 1640

Which of the following options correctly pairs a polymer and its monomer?

- A) cellulose, amino acids
- B) DNA, nucleotides
- C) collagen, nucleic acids
- D) RNA, ribose

Answer: <https://biology-forums.com/index.php?topic=1882804>

### Question 1641

Conjugation between a bacterium that lacks an F factor (F-) and a bacterium that has an F factor on its chromosome (F+) could produce which of the following results?

- A) The F- bacterium ends up carrying one or more plasmids from the F+ bacterium; the F+ bacterium is unchanged.
- B) The F+ bacterium ends up with a recombinant chromosome that carries some genes from the F- bacterium, and the F- bacterium ends up with an unaltered chromosome.
- C) The F+ bacterium ends up with a recombinant chromosome that carries some genes from the F- bacterium, and the F- bacterium ends up with a chromosome that lacks those genes.
- D) The F- bacterium ends up with a recombinant chromosome that carries some genes from the F+ bacterium, and the F+ bacterium ends up with an unaltered chromosome.

Answer: <https://biology-forums.com/index.php?topic=1883218>

### Question 1642

The first vaccination provides immunity because

- A) a localized inflammatory response is initiated.
- B) the vaccine contains manufactured antibodies against smallpox.
- C) antigenic determinants in the vaccine activate B cells, which form plasma cells as well as memory cells.
- D) the vaccine contains antibiotics and other drugs that kill the smallpox virus.

Answer: <https://biology-forums.com/index.php?topic=1881970>

### Question 1643

You are looking at a sample of epithelial tissue under a microscope. What would you look for to determine the type of epithelium you are viewing?

- A) the number of cell layers
- B) the shape of the cells
- C) the color of the cells
- D) the number of cell layers and the shape of the cells

Answer: <https://biology-forums.com/index.php?topic=1883897>

### Question 1644

Which of the following statements regarding the endomembrane system is false?

- A) The endomembrane system is involved in the synthesis, storage, and export of important molecules.
- B) The endomembrane system includes the rough and smooth endoplasmic reticulum.
- C) The endomembrane system includes the nuclear envelope.
- D) The endomembrane system is a system of interrelated membranes that are all physically connected.

Answer: <https://biology-forums.com/index.php?topic=1882857>

### Question 1645

A survivorship curve is a

- A) graph that plots an individual's likelihood of reproducing as a function of age.
- B) graph that plots an individual's likelihood of being alive as a function of age.
- C) graph that shows the effect of predation on a prey population.
- D) model for population growth that incorporates the concept of carrying capacity.

Answer: <https://biology-forums.com/index.php?topic=1882612>

### Question 1646

Which of the following act(s) mainly to regulate salt and water balance?

- A) mineralocorticoids
- B) glucocorticoids
- C) androgens
- D) oxytocin

Answer: <https://biology-forums.com/index.php?topic=1882061>

### Question 1647

Based on analysis of the STR sites shown, which family is the missing pilot least likely to belong to?

- A) family 1
- B) family 2
- C) family 3
- D) Family 1 and family 2 are equally unlikely.

Answer: <https://biology-forums.com/index.php?topic=1883371>

### Question 1648

Based on your understanding of enzyme structure, which of the following would you recommend that they also investigate?

- A) the temperature of the liquid in the washing vat
- B) the manufacturer of the fabric
- C) how long the fabric has been in storage
- D) the primary structure of the enzyme

Answer: <https://biology-forums.com/index.php?topic=1882824>

### Question 1649

In what way does the green alga *Ulva* resemble land plants?

- A) It produces diploid gametes.
- B) It has a complex life cycle with diploid body cells and haploid gametes.
- C) It has a complex life cycle with alternation between multicellular diploid and haploid generations.
- D) It has a multicellular haploid stage that alternates with a unicellular diploid stage.

Answer: <https://biology-forums.com/index.php?topic=1883621>

### Question 1650

Which of the following statements about plant speciation and hybridization is false?

- A) Plant biologists estimate that 80% of all living plant species are descended from ancestors that formed by polyploid speciation.
- B) Bread wheat is the ancestral diploid wheat plant.
- C) Modern plant geneticists use chemicals to induce meiotic and mitotic errors to try to create new hybrid plants with special qualities.
- D) Bread wheat grown widely today is the result of several hybridization events.

Answer: <https://biology-forums.com/index.php?topic=1883459>

### Question 1651

At the end of the \_\_\_\_\_, over 96% of marine species and many terrestrial species became extinct, possibly because intense volcanic activity warmed Earth's climate.

- A) Precambrian
- B) Permian
- C) Cretaceous
- D) Mesozoic

Answer: <https://biology-forums.com/index.php?topic=1883515>

### Question 1652

Most plants can absorb and use which of the following forms of nitrogen directly?

- A) nitrite and nitrate
- B) nitrate only
- C) ammonium and nitrogen gas
- D) nitrate and ammonium

Answer: <https://biology-forums.com/index.php?topic=1882416>

### Question 1653

In the countercurrent exchange system of fish gills,  
A) blood and water flow in the same direction.  
B) blood and water flow in opposite directions.  
C) blood and water are separated by a thick polysaccharide barrier.  
D) blood flow in the gills reverses direction with every heartbeat.  
Answer: <https://biology-forums.com/index.php?topic=1884008>

### Question 1654

A person who cannot focus on distant objects has  
A) hyperopia.  
B) myopia.  
C) astigmatism.  
D) presbyopia.  
Answer: <https://biology-forums.com/index.php?topic=1882226>

### Question 1655

If you are in an airplane encountering turbulence and you start feeling sick to your stomach, would closing your eyes help? Why?  
A) Yes. It will calm you by allowing the sensory information from your chemoreceptors to properly readjust.  
B) Yes. It will eliminate the conflict between information from your inner ears and information from your eyes.  
C) No. It will intensify the feeling of falling by eliminating the sight of the cabin.  
D) No. It will focus your attention on the nausea.  
Answer: <https://biology-forums.com/index.php?topic=1882217>

### Question 1656

Which of the following statements about mammalian circulatory systems is false?  
A) The pulmonary circuit carries blood between the heart and the lungs.  
B) The systemic circuit carries blood between the heart and the rest of the body.  
C) Mammals have two atria and two ventricles in their hearts.  
D) The left side of a mammal's heart sends blood to the lungs.  
Answer: <https://biology-forums.com/index.php?topic=1881840>

### Question 1657

In addition to demonstrating that auxin stimulates elongation, this diagram also shows that  
A) application of additional auxin causes greater bending.  
B) the application of auxin causes growth.  
C) removing shoot tips also removes auxin receptors.  
D) the lower parts of the shoot are able to detect light.  
Answer: <https://biology-forums.com/index.php?topic=1882494>

### Question 1658

Why would a person not get vitamin A from a salad filled with leafy green vegetables unless the salad also has nuts, cheese, or meat?  
A) because vitamin A is fat-soluble  
B) because vitamin A is only found in meat  
C) because vitamin A is water-soluble  
D) because vitamin A is needed to maintain osmotic balance of human cells  
Answer: <https://biology-forums.com/index.php?topic=1883972>

### Question 1659

In plants, the vascular tissue made of dead cells that transport water and minerals from the roots is called  
A) xylem.  
B) phloem.  
C) conducting tissue.  
D) meristem.  
Answer: <https://biology-forums.com/index.php?topic=1883654>

### Question 1660

One centimeter = \_\_\_\_\_ millimeters.  
A) 0.01  
B) 0.10  
C) 10

D) 100

Answer: <https://biology-forums.com/index.php?topic=1882831>

### Question 1661

NADH is also used by cells when making certain molecules. Based on your knowledge of NADH's role in cellular respiration, what do you think NADH's role is in biosynthesis of molecules?

- A) oxidizing molecules
- B) reducing molecules
- C) phosphorylating molecules
- D) dehydrating molecules

Answer: <https://biology-forums.com/index.php?topic=1882990>

### Question 1662

Which of the following is a function of the circulatory system?

- A) transporting nerve impulses throughout the body
- B) governing nutrient concentration in the blood
- C) transporting nutrients to body cells
- D) mounting a response to invading microorganisms

Answer: <https://biology-forums.com/index.php?topic=1881832>

### Question 1663

An antibiotic kills 99.9% of a bacterial population. You would expect the next generation of bacteria

- A) to be just as susceptible to that antibiotic as was the previous generation.
- B) to be more resistant to that antibiotic.
- C) to die out due to the drastic decrease in population size.
- D) to be more contagious than the prior generation.

Answer: <https://biology-forums.com/index.php?topic=1884097>

### Question 1664

During the Cambrian explosion approximately 535 to 525 million years ago,

- A) all modern species of animals suddenly appeared.
- B) animals rapidly diversified in the oceans.
- C) a massive volcanic eruption nearly wiped out life on Earth.
- D) great forests produced peat layers that were later transformed into coal.

Answer: <https://biology-forums.com/index.php?topic=1883728>

### Question 1665

Which of the following statements regarding active transport is false?

- A) Active transport uses ATP as an energy source.
- B) Active transport can move a solute against its concentration gradient.
- C) Active transport requires the cell to expend energy.
- D) Active transport is driven by the concentration gradient.

Answer: <https://biology-forums.com/index.php?topic=1882920>

### Question 1666

You are a climate scientist who wants to investigate climate change. Which of the following measurements would be the least useful?

- A) rainfall in the southeastern United States from 20 years ago to the present day
- B) a long-term (30-year) study of coral biodiversity in the Australian reef ecosystem
- C) changes in carbon dioxide (CO<sub>2</sub>) emission levels in China from 25 years ago to the present day
- D) methane (CH<sub>4</sub>) levels from dairy farms in Iowa during the years 2011 and 2012

Answer: <https://biology-forums.com/index.php?topic=1882744>

### Question 1667

What is meant by the statement that "male bees are fatherless"?

- A) Male bees don't play a role in the rearing of bee young.
- B) Male bees are produced by budding.
- C) Male bees develop from unfertilized eggs.
- D) The queen bee's mate dies before the male eggs hatch.

Answer: <https://biology-forums.com/index.php?topic=1883146>

### Question 1668

Cross-fostering experiments with Norway rat pups showed that in their response to stress,

- A) environment was the critical factor, not genetics.
- B) genetics was the only important factor.
- C) both genetics and the environment played a clear role.
- D) cross-fostered pups resembled their biological mothers more than their foster mothers.

Answer: <https://biology-forums.com/index.php?topic=1882566>

### Question 1669

Where along the nephron is glucose reabsorbed from the filtrate back into the blood?

- A) distal tubule
- B) loop of Henle
- C) proximal tubule
- D) Bowman's capsule

Answer: <https://biology-forums.com/index.php?topic=1882003>

### Question 1670

Which division of the human nervous system carries signals to skeletal muscles?

- A) autonomic nervous system
- B) parasympathetic nervous system
- C) sympathetic nervous system
- D) motor system

Answer: <https://biology-forums.com/index.php?topic=1882168>

### Question 1671

You have a cup of vegetable oil and a vial full of normal phospholipids. What would you predict would happen if you dropped the phospholipids into the cup of vegetable oil?

- A) The phospholipids would form a sphere with the heads on the inside.
- B) The phospholipids would form a sphere with the tails on the inside.
- C) The phospholipids would float on the surface of the oil with the tails in the air.
- D) The phospholipids would float on the surface of the oil with the heads in the air.

Answer: <https://biology-forums.com/index.php?topic=1882815>

### Question 1672

Based on their function, you would expect melanocytes in the skin to have a higher than usual number of

- A) lysosomes.
- B) chloroplasts.
- C) ribosomes.
- D) microtubules.

Answer: <https://biology-forums.com/index.php?topic=1882891>

### Question 1673

A patient visits her doctor complaining of stomach cramps, vomiting, and nausea. When he takes a bacterial sample, he determines that *Escherichia coli* bacteria have used their \_\_\_\_\_ to attach to the cells lining her gastrointestinal tract.

- A) cilia
- B) flagella
- C) fimbriae
- D) peptidoglycan

Answer: <https://biology-forums.com/index.php?topic=1883624>

### Question 1674

What name is given to the sheet of muscle that helps move air in and out of the lungs?

- A) trachea
- B) alveolus
- C) diaphragm
- D) bronchus

Answer: <https://biology-forums.com/index.php?topic=1884017>

### Question 1675

Which structure is the result of double fertilization?

- A) structure A
- B) structure B
- C) structure C
- D) structure D

Answer: <https://biology-forums.com/index.php?topic=1882376>

### Question 1676

You are sitting with a friend in the park next to some children who are playing Frisbee. You turn to talk to your friend and out of the corner of your eye you see a Frisbee quickly approaching your face. As an innate, protective behavior, you blink your eyes. The protective action of blinking is an example of a(n)

- A) reflex.
- B) integration.
- C) chemical synapse.
- D) neurotransmitter.

Answer: <https://biology-forums.com/index.php?topic=1882194>

### Question 1677

Which of the following is a part of the immune system?

- A) bone marrow
- B) liver
- C) pancreas
- D) lungs

Answer: <https://biology-forums.com/index.php?topic=1883881>

### Question 1678

Which of the following statements about genomics is false?

- A) The first complete genome to be sequenced was a prokaryote.
- B) Whole sets of genes and their interactions are studied in the field of genomics.
- C) Genes from different species that have analogous sequences suggest similar function.
- D) DNA technology limits genomic studies to prokaryotes.

Answer: <https://biology-forums.com/index.php?topic=1883342>

### Question 1679

Guppies from Trinidad form two distinct populations that differ in several life history traits. These traits appear to relate to the local predator populations, pike-cichlids or killifish. Which of the following experiments would best test the heritability of these traits?

- A) Raise both populations with cichlids to see if the population of smaller, faster-maturing guppies reproduces more quickly.
- B) Raise both populations without predators to see if they maintain their life history traits.
- C) Introduce cichlids into a habitat with killifish.
- D) Provide additional food to the guppies from cichlid habitats to see if they will grow to the same size as guppies from the killifish habitat.

Answer: <https://biology-forums.com/index.php?topic=1882630>

### Question 1680

Virus-infected cells produce \_\_\_\_\_, proteins that help neighboring cells fight further viral infections.

- A) lysozymes
- B) interferons
- C) histamines
- D) interleukin-2

Answer: <https://biology-forums.com/index.php?topic=1881913>

### Question 1681

To conserve precious salts, freshwater fish

- A) produce small amounts of urine and exert as little energy as possible.
- B) drink almost no water and produce large amounts of dilute urine.
- C) excrete salt ions and small amounts urine
- D) eliminate water by osmosis and swim in short, small bursts of energy.

Answer: <https://biology-forums.com/index.php?topic=1881983>

### Question 1682

Cells make up about what percentage of total blood volume?

- A) 10%
- B) 25%
- C) 45%
- D) 80%

Answer: <https://biology-forums.com/index.php?topic=1881869>

### Question 1683

How could a population explosion of bacteria lead to oxygen depletion?

Biosphere II is a huge dome-covered self-contained structure located outside Tucson, Arizona. It was built to try to duplicate Earth's biosphere and ecosystems in miniature and to use the information gained from the experiment to help design similar habitats on the Moon and Mars. The habitat contained small versions of many of Earth's ecosystems, including an ocean with a coral reef, mangrove wetlands, a grassland, a desert, an agricultural system, and a human habitat. Eight men and women were sealed inside the habitat for a proposed two-year stay. The air, water, and food for the "biospherians" all came from inside the sealed habitat, and their only contact with the outside was through computers and telephones.

Before the two years were up, however, the experiment failed. Supplemental oxygen was pumped into the facility, and food supplies were provided through the airlocks. What caused the failure of the experiment? It was traced to nutrient pollution. The soil in some of the biosphere ecosystems was unusually rich in nutrients. These excess nutrients caused a huge population explosion in decomposer bacteria, which led to oxygen depletion.

- A) The excess consumers used the oxygen for cellular respiration.
- B) The excess producers used the oxygen to complete photosynthesis.
- C) The excess decomposers removed all the nutrients from the habitat.
- D) The excess decomposers prevented plants from performing photosynthesis.

Answer: <https://biology-forums.com/index.php?topic=1882702>

### Question 1684

A group of individuals of a single species that occupy the same general area defines a

- A) population.
- B) community.
- C) subspecies.
- D) clone.

Answer: <https://biology-forums.com/index.php?topic=1882606>

### Question 1685

You find a wormlike, soft-bodied adult animal in a mudflat. It is bilaterally symmetrical, is segmented, has a true coelom, and has a complete digestive tract. Based on these characteristics, what phylum does the animal represent?

- A) Cnidaria
- B) Platyhelminthes
- C) Nematoda
- D) Annelida

Answer: <https://biology-forums.com/index.php?topic=1883753>

### Question 1686

Except near hydrothermal vents, the communities of the oceanic aphotic zone get their energy mainly from

- A) photosynthesis by local phytoplankton.
- B) photosynthesis by local zooplankton.
- C) oxidation of sulfur by sulfur bacteria.
- D) organic matter sinking from the photic zone.

Answer: <https://biology-forums.com/index.php?topic=1882517>

### Question 1687

A single base mutation occurs in a gene that codes for a protein due to an error in DNA replication. Which of the following outcomes would possibly not occur?

- A) The mutation results in improved, the same, or diminished protein function.
- B) The mutation results in a longer or shorter protein or a protein of the same length.
- C) The mutation results in a human disease such as sickle-cell disease.
- D) The mutation results in mRNA being made from the protein.

Answer: <https://biology-forums.com/index.php?topic=1883222>

### Question 1688

A main force that moves water through a plant is

- A) transpiration.
- B) photosynthesis.
- C) pressure flow.
- D) adhesion.

Answer: <https://biology-forums.com/index.php?topic=1882392>

### Question 1689

The feathers of Archaeopteryx may have been used for flight. However, it is likely that they were originally used for

- A) insulation.
- B) protection from predators.
- C) nest building.
- D) protection from parasites.

Answer: <https://biology-forums.com/index.php?topic=1883561>

### Question 1690

Based on analysis of the STR sites shown, does the missing pilot belong to any of these three families?

- A) No, none of the families match.
- B) Yes, family 1 matches.
- C) Yes, family 2 matches.
- D) Yes, family 3 matches.

Answer: <https://biology-forums.com/index.php?topic=1883370>

### Question 1691

Which of the following types of reproductive barriers separates two flowering plant species that could interbreed but for the fact that one has a deep flower tube and is pollinated by bumblebees whereas the other has a short, narrow flower tube and is pollinated by honeybees?

- A) habitat isolation
- B) behavioral isolation
- C) mechanical isolation
- D) gametic isolation

Answer: <https://biology-forums.com/index.php?topic=1883441>

### Question 1692

Suppose that the bottom of an ocean floor is disrupted, and bits of algae along with other bottom-dwelling microorganisms are scattered about into the ocean water. Which organism would be able to take the best advantage of this temporary food source?

- A) sponges
- B) cnidarians
- C) parasitic flatworms
- D) soil-dwelling nematodes

Answer: <https://biology-forums.com/index.php?topic=1883782>

### Question 1693

Two populations that have been separated by a river are most likely to become separate species if

- A) fur color is different in the two populations.
- B) genes controlling ear development become different so that members of one population have much longer ears than the other.
- C) genes controlling molecules on the surface of the sperm that bind with egg receptors are different in the two populations.
- D) feeding habits are different in the two populations.

Answer: <https://biology-forums.com/index.php?topic=1883473>

### Question 1694

Which of the following statements regarding animals is false?

- A) Animals that eat plants are called herbivores.
- B) Animals that eat meat are called carnivores.
- C) Animals that live in or on their food source and eat their way through it are called filter feeders.
- D) Animals that extract food particles suspended in the surrounding water are called fluid feeders.

Answer: <https://biology-forums.com/index.php?topic=1883906>

### Question 1695

Consider the following sentence: "The dog did not eat." Which of the following variations of this sentence is most like a frameshift mutation?

- A) The did dog not eat.

- B) The dog did not eat.
- C) The did not eat.
- D) The dog did dog did not eat.

Answer: <https://biology-forums.com/index.php?topic=1883200>

### Question 1696

A maple tree's seeds occur in pairs that are enclosed and attached to flat "wings" that are made of a papery tissue. The wings' shape allows them to spin in the air as they fall from the tree; this unusual motion has earned them the nickname "helicopter seeds." Maple tree seeds are most successful when they are dispersed by \_\_\_\_\_.

- A) wind
- B) water
- C) animal feces
- D) bird feces

Answer: <https://biology-forums.com/index.php?topic=1883714>

### Question 1697

One of Jake and Lucy's kittens mates with another cat that has 18 total toes. What is the probability that one of their offspring would have 18 total toes?

Cats normally have a total of 18 toes, 5 on each front paw and 4 on each back paw. But some cats express the dominant phenotype for polydactyly, which results in the development of extra toes on one or more paws. Jake, a Canadian tabby cat, has 28 toes and is recognized by the Guinness Book of World Records as the cat with the most toes.

Suppose that Jake mates with a female cat, Lucy, who has 18 total toes. Over several years, they have multiple litters and a total of 16 kittens (10 males and 6 females). The total number of toes on each kitten ranges from 21 to 25.

- A) 100%
- B) 75%
- C) 50%
- D) 0%

Answer: <https://biology-forums.com/index.php?topic=1883168>

### Question 1698

Treatments for depression often include drugs that help correct imbalances in the levels of

- A) serotonin.
- B) acetylcholine.
- C) nitric oxide.
- D) epinephrine.

Answer: <https://biology-forums.com/index.php?topic=1882188>

### Question 1699

The mitochondrial cristae are an adaptation that

- A) permits the expansion of mitochondria as oxygen accumulates in the mitochondrial matrix.
- B) helps mitochondria divide during times of greatest cellular respiration.
- C) increases the space for more copies of the electron transport chain and ATP synthase complexes.
- D) carefully encloses the DNA housed within the mitochondrial matrix.

Answer: <https://biology-forums.com/index.php?topic=1882962>

### Question 1700

The most numerous, diverse, and widespread animals are the

- A) Arthropoda.
- B) Mollusca.
- C) Annelida.
- D) Chordata.

Answer: <https://biology-forums.com/index.php?topic=1883755>

### Question 1701

The dominant stage of the moss life cycle is the

- A) sporophyte.
- B) gametangium.
- C) pollen.
- D) gametophyte.

Answer: <https://biology-forums.com/index.php?topic=1883664>

### Question 1702

In a prokaryote, a group of genes with related functions, along with their associated control sequences, defines

- A) an allele.
- B) an operon.
- C) a locus.
- D) a transposon.

Answer: <https://biology-forums.com/index.php?topic=1883240>

### Question 1703

During exercise, your cardiac output can increase dramatically in order to meet the metabolic demands of your tissues. If your heart rate increased to 150 beats per minute and the volume of blood pumped per beat is 75 mL, what is your cardiac output?

- A) 5 L/min
- B) 11.25 L/min
- C) 11,250 L/min
- D) 50,000 L/min

Answer: <https://biology-forums.com/index.php?topic=1881882>

### Question 1704

Carnivorosity in plants is primarily an adaptation for

- A) growing in soil poor in organic material.
- B) growing in soil poor in usable nitrogen.
- C) obtaining supplemental carbon for photosynthesis.
- D) discouraging herbivorous insects.

Answer: <https://biology-forums.com/index.php?topic=1882424>

### Question 1705

The fluorescent tag likely did not become incorporated into which of the following organelles?

- A) lysosome
- B) Golgi
- C) microtubules
- D) rough ER

Answer: <https://biology-forums.com/index.php?topic=1882895>

### Question 1706

What is one main effect of auxins on plant growth?

- A) They reduce growth by inhibiting cell division.
- B) They increase growth by promoting cell elongation.
- C) They increase growth by increasing the rate of photosynthesis.
- D) Auxins have no effect on plant growth.

Answer: <https://biology-forums.com/index.php?topic=1882448>

### Question 1707

Caddisflies are insects that lay their eggs on the bottom of streams. The eggs mature into larvae, and eventually the larvae pupate, move to the surface of the stream, shed their pupal membranes, and emerge as winged adults. Caddisflies demonstrate

- A) incomplete metamorphosis.
- B) complete metamorphosis.
- C) alteration of generations.
- D) animal diversification.

Answer: <https://biology-forums.com/index.php?topic=1883784>

### Question 1708

During an experiment assessing the development of a fly embryo, a scientist artificially turns on a homeotic gene that controls eye development in somatic cells that develop into the wings. Which of the following is the most likely outcome of this experiment?

- A) A normal adult fly will develop.
- B) A mutant adult fly will develop that has eyes on its wings.
- C) A mutant adult fly will develop that has legs on its head.
- D) A mutant adult fly will develop that has no eyes on its head but has eyes on its wings.

Answer: <https://biology-forums.com/index.php?topic=1883293>

### Question 1709

What type of immune response is always disadvantageous to a person?

- A) inflammatory
- B) humoral
- C) autoimmune
- D) complement-mediated

Answer: <https://biology-forums.com/index.php?topic=1881947>

### Question 1710

Which of the following statements about human population growth is true?

- A) Human population size on Earth today is at equilibrium.
- B) Demographic transition is a transition from high birth rates and high death rates to low birth rates and low death rates.
- C) During a demographic transition, birth rates typically drop first due to the availability of reliable contraception.
- D) Human population size has increased faster and faster throughout human history.

Answer: <https://biology-forums.com/index.php?topic=1882633>

### Question 1711

The sickle-cell allele produces a serious blood disease in homozygotes. Why doesn't natural selection eliminate this allele from all human populations?

- A) Natural selection is a positive force, so it does not eliminate alleles.
- B) In populations where endemic malaria is present, heterozygotes have an important advantage: They are resistant to malaria and therefore are more likely to survive and produce offspring that carry the allele.
- C) Mutations keep bringing the allele back into circulation.
- D) Natural selection occurs very slowly, but elimination of the sickle-cell allele is expected to occur soon.

Answer: <https://biology-forums.com/index.php?topic=1883414>

### Question 1712

Which of the following is a normal process of photosynthesis that could not occur if all reaction centers were inactivated by a toxin?

- A) donation of excited electrons by chlorophyll a to a primary electron acceptor
- B) donation of excited electrons by chlorophyll b to a primary electron acceptor
- C) absorption of photons by chlorophyll b
- D) absorption of photons by carotenoids

Answer: <https://biology-forums.com/index.php?topic=1883022>

### Question 1713

The bacteria used in this bioremediation procedure are \_\_\_\_\_.

- A) chemoautotrophs
- B) photoautotrophs
- C) chemoheterotrophs
- D) photoheterotrophs

Answer: <https://biology-forums.com/index.php?topic=1883647>

### Question 1714

Which of the following would be additional evidence that one of the functions of skin is the synthesis of vitamin D?

- A) Vitamin D levels are higher in people who take supplements, such as multivitamins.
- B) Vitamin D levels are lower in people who wear sunscreen.
- C) Cancer rates are higher in people with more sun exposure.
- D) People living in the tropics are vitamin D deficient.

Answer: <https://biology-forums.com/index.php?topic=1883895>

### Question 1715

In 2013, an estimated 160,000 people in the United States will die of lung cancer. If the cancer death rate is expected to increase by 1% per decade, approximately how many people will die of lung cancer in the United States in 2033?

- A) 160,000
- B) 163,000
- C) 176,000
- D) 194,000

Answer: <https://biology-forums.com/index.php?topic=1883296>

### Question 1716

Which animals are ectothermic?

- A) frogs and mammals
- B) lizards and birds
- C) turtles and lizards
- D) birds and mammals

Answer: <https://biology-forums.com/index.php?topic=1883804>

### Question 1717

Which of the following objects is most like a hydrostatic skeleton?

- A) a water balloon
- B) a hot air balloon
- C) a piece of M&M candy
- D) a bowling ball

Answer: <https://biology-forums.com/index.php?topic=1882259>

### Question 1718

Which of the following is widely regarded as a healthy approach to losing weight?

- A) gastric bypass surgery
- B) regularly engaging in exercise in addition to monitoring food intake
- C) substituting fatty acids for carbohydrates
- D) trimming daily carbohydrates back to less than 80 grams per day

Answer: <https://biology-forums.com/index.php?topic=1883963>

### Question 1719

Under the conditions known as El Nio, the inorganic nutrient content of the seawater off the coast of Peru declines to very low levels. What effect will this likely have on marine life in the area?

- A) The lower the levels of minerals, the less polluted the water; hence, most populations will increase.
- B) It will result in toxic red tides, which will reduce the populations of many species.
- C) It will reduce the abundance of phytoplankton and, consequently, the abundance of other organisms.
- D) It will increase the productivity of phytoplankton and, therefore, the productivity of other organisms by allowing sunlight to penetrate deeper into the ocean.

Answer: <https://biology-forums.com/index.php?topic=1882520>

### Question 1720

The prokaryotes that cause tooth decay have a \_\_\_\_\_ relationship with humans.

- A) parasitic
- B) predatory
- C) mutualistic
- D) competitive

Answer: <https://biology-forums.com/index.php?topic=1882666>

### Question 1721

Skin cells are fastened into strong sheets by

- A) basal bodies.
- B) anchoring junctions.
- C) tight junctions.
- D) communicating junctions.

Answer: <https://biology-forums.com/index.php?topic=1882880>

### Question 1722

A news article discussing the evolution of domestic dogs from wolves included this statement: "On its way from pack-hunting carnivore to fireside companion, dogs learned to love or at least live on wheat, rice, barley, corn, and potatoes." What is a more scientifically accurate way to state what happened with dogs?

- A) Dogs mutated to be able to eat wheat, rice, barley, corn, and potatoes.
- B) Some wolves may have had variants in their digestion that allowed them to eat wheat, rice, barley, corn, and potatoes and so were able to survive with humans.
- C) Being around humans represented an advantage, so wolves were able to take advantage of that by changing their digestion to be able to eat wheat, rice, barley, corn, and potatoes.

D) Dogs were created at the same time as wolves.

Answer: <https://biology-forums.com/index.php?topic=1883427>

### Question 1723

Oxygen moves from blood into the interstitial fluid and then to body cells because

- A) it diffuses from a region of higher partial pressure to a region of lower partial pressure.
- B) it diffuses from a region of lower partial pressure to a region of higher partial pressure.
- C) it descends down an osmotic gradient, following the movement of water.
- D) it diffuses from a higher to a lower pH.

Answer: <https://biology-forums.com/index.php?topic=1884035>

### Question 1724

Based on your understanding of homeostasis, for negative feedback control of blood glucose levels to function properly,

- A) the control center for glucose must be somewhere in the digestive system.
- B) there must be sensors that monitor blood glucose levels.
- C) there must be several other hormones involved (in addition to insulin and glucagon).
- D) the body must prevent glucose levels from changing even slightly.

Answer: <https://biology-forums.com/index.php?topic=1883904>

### Question 1725

Which of the following organisms has a gastrovascular cavity?

- A) hydra
- B) earthworm
- C) clam
- D) bird

Answer: <https://biology-forums.com/index.php?topic=1883911>

### Question 1726

As blood moves away from the heart toward the tissues, the relative size of blood vessels \_\_\_\_\_, the blood pressure \_\_\_\_\_, and the velocity of blood flow \_\_\_\_\_.

- A) decreases; drops; slows
- B) decreases; increases; increases
- C) decreases; drops; increases
- D) increases; drops; slows

Answer: <https://biology-forums.com/index.php?topic=1881858>

### Question 1727

Steroid hormones are lipids made from

- A) amino acids.
- B) cholesterol.
- C) nucleic acids.
- D) carbohydrates and amino acids.

Answer: <https://biology-forums.com/index.php?topic=1882041>

### Question 1728

Which of the following would prevent an organism from becoming part of the fossil record when it dies?

- A) It is fully decomposed by bacteria and fungi.
- B) It is buried in fine sediments at the bottom of a lake.
- C) It gets trapped in sap.
- D) It is frozen in ice.

Answer: <https://biology-forums.com/index.php?topic=1883388>

### Question 1729

Which of the following statements about nondisjunction is false?

- A) Nondisjunction in meiosis can affect autosomes and sex chromosomes.
- B) In mammals, extra copies of the Y chromosome are typically inactivated.
- C) In general, a single Y chromosome is enough to produce "maleness."
- D) Women with a single X chromosome have Turner syndrome and are sterile.

Answer: <https://biology-forums.com/index.php?topic=1883073>

### Question 1730

Asexual reproduction requires \_\_\_\_\_ individual(s), whereas sexual reproduction requires \_\_\_\_\_ individual(s).

- A) 1; 1
- B) 1; 2
- C) 2; 1
- D) 2; 2

Answer: <https://biology-forums.com/index.php?topic=1883060>

### Question 1731

Which of the following studies is a meta-analysis?

- A) a study that examined a link between nitrogen in the soil and yellowing of leaves
- B) a study that summarized research reports from many laboratories around the world indicating a relationship between a diet high in plants and colon cancer
- C) a study that reported on seed germination rates at many different temperatures
- D) a study that related transpiration rates in a number of different plants to weather conditions over many areas in North America.

Answer: <https://biology-forums.com/index.php?topic=1882431>

### Question 1732

Which of the following statements about insecticides is true?

- A) To control agricultural pests, pest management uses biological controls, chemicals, or cultural methods, but never a combination of these.
- B) Simply killing many individuals is often the best way to reduce the size of a pest population.
- C) Most insecticides kill the pest but not the pest's natural predators.
- D) Prey species often have a higher reproductive rate than do predators.

Answer: <https://biology-forums.com/index.php?topic=1882632>

### Question 1733

In giraffes, long necks (N), long legs (L), dark spots (D), and the ability to digest meat (M) are all dominant traits. What possible genotype could a long-necked, short-legged, light-spotted, meat-digesting giraffe have?

- A) NnllddMM
- B) NNLLDdMm
- C) NNllddmm
- D) nnLLddMM

Answer: <https://biology-forums.com/index.php?topic=1883154>

### Question 1734

Research indicates that \_\_\_\_\_ respond(s) to \_\_\_\_\_ signals that inform a cell about its position relative to other cells in the embryo.

- A) nervous tissue; hormonal
- B) master control genes; chemical
- C) organs; radio
- D) organelles; chemical

Answer: <https://biology-forums.com/index.php?topic=1882110>

### Question 1735

Given the sex determination system in bees, we can expect that

- A) female bees will produce eggs by meiosis, whereas male bees will produce sperm by mitosis.
- B) female bees will produce eggs by mitosis, whereas male bees will produce sperm by meiosis.
- C) male and female bees will produce sperm and eggs by meiosis.
- D) male and female bees will produce sperm and eggs by mitosis.

Answer: <https://biology-forums.com/index.php?topic=1883145>

### Question 1736

The phase of mitosis during which the mitotic spindle begins to form is

- A) interphase.
- B) prophase.
- C) metaphase.
- D) anaphase.

Answer: <https://biology-forums.com/index.php?topic=1883061>

### Question 1737

- A seed develops from a(n)
- A) pollen grain.
  - B) fruit.
  - C) ovary.
  - D) ovule.

Answer: <https://biology-forums.com/index.php?topic=1882349>

### Question 1738

A physician friend of yours is telling you about a patient with a head injury who suddenly stopped breathing. Your friend explains that the bony rim was pressing against the breathing center. You guess that the "bony rim" (whatever that is) must have been exerting pressure in the region of the

- A) basal ganglia and hippocampus.
- B) cerebellum and cerebrum.
- C) thalamus and hypothalamus.
- D) medulla oblongata and pons.

Answer: <https://biology-forums.com/index.php?topic=1882176>

### Question 1739

Which of the following substances is made of lipids?

- A) DNA
- B) cellulose
- C) steroids
- D) enzymes

Answer: <https://biology-forums.com/index.php?topic=1882790>

### Question 1740

The cholesterol associated with animal cell membranes

- A) is attached to membrane proteins and extends into the watery environment surrounding the cell.
- B) helps to keep phospholipids from being too close to one another.
- C) is an abnormality resulting from a diet high in cholesterol.
- D) helps solidify the membranes when the room temperature is below freezing.

Answer: <https://biology-forums.com/index.php?topic=1882899>

### Question 1741

By-products of cellular respiration include

- A) oxygen and heat.
- B) carbon dioxide and water.
- C) FADH<sub>2</sub> and NADH.
- D) NADH and ATP.

Answer: <https://biology-forums.com/index.php?topic=1882965>

### Question 1742

Two populations of organisms belong to the same biological species when they

- A) cannot mate with each other because mating occurs at different times.
- B) use different types of behaviors or physical features to attract mates.
- C) have anatomical features that make it difficult for organisms from the two populations to mate with one another.
- D) encounter each other, mate, and produce viable, fertile offspring under natural conditions.

Answer: <https://biology-forums.com/index.php?topic=1883439>

### Question 1743

If the auxin that is produced by an apical meristem is transported in equal amounts down all sides of a twig, the twig will probably

- A) elongate evenly.
- B) branch near its tip.
- C) flower.
- D) bend away from the apical meristem.

Answer: <https://biology-forums.com/index.php?topic=1882449>

### Question 1744

Commercial inorganic fertilizers have greatly increased agricultural productivity. Which of the following is an advantage of using inorganic rather than organic fertilizers?

- A) It is easier for plants to absorb nutrients in an inorganic form.
- B) Nutrients are released faster from inorganic fertilizers.
- C) Inorganic nutrients bind more tightly to soil particles.
- D) Inorganic fertilizers increase the water-holding capacity of the soil.

Answer: <https://biology-forums.com/index.php?topic=1882412>

### Question 1745

Which of the following substances would have the most trouble crossing a biological membrane by diffusing through the lipid bilayer?

- A) O<sub>2</sub>
- B) CO<sub>2</sub>
- C) Na<sup>+</sup>
- D) a small, nonpolar molecule such as butane (C<sub>4</sub>H<sub>10</sub>)

Answer: <https://biology-forums.com/index.php?topic=1882909>

### Question 1746

A cell is expressing the mutant form of ras, but one of the downstream relay proteins is not present because of another mutation. How will cell division be affected in this scenario?

- A) Cell division will decrease because the mutant form of ras decreases cell division.
- B) Cell division will increase because the mutant form of ras increases cell division.
- C) The cell will divide normally.
- D) The cell will not divide at all unless other proteins that stimulate cell division are present.

Answer: <https://biology-forums.com/index.php?topic=1883298>

### Question 1747

What event that occurred around 10,000 years ago led to genetic changes in many of the plants we are most familiar with?

- A) the beginning of agriculture
- B) the domestication of animals
- C) the invention of genetic engineering
- D) the mass extinction of herbivores

Answer: <https://biology-forums.com/index.php?topic=1882312>

### Question 1748

Which part of the mitochondrion shown enhances its ability to produce ATP by increasing the surface area of a mitochondrial membrane?

- A) structure A
- B) structure B
- C) structure C
- D) structure D

Answer: <https://biology-forums.com/index.php?topic=1882887>

### Question 1749

Which of the following statements regarding DNA is false?

- A) DNA uses the sugar deoxyribose.
- B) DNA uses the nitrogenous base uracil.
- C) One DNA molecule can include four different nucleotides in its structure.
- D) DNA molecules have a sugar-phosphate backbone.

Answer: <https://biology-forums.com/index.php?topic=1883174>

### Question 1750

\_\_\_\_\_ are stramenopiles that commonly are found decomposing dead animals in freshwater habitats.

- A) Brown algae
- B) Water molds
- C) Cellular slime molds
- D) Plasmodial slime molds

Answer: <https://biology-forums.com/index.php?topic=1883611>

### Question 1751

A tidal wave wipes out the entire population of mice living on an island. This is an example of

- A) Type III survivorship.
- B) a density-dependent effect.
- C) the effects of abiotic factors.
- D) the interaction between density-dependent and abiotic factors.

Answer: <https://biology-forums.com/index.php?topic=1882624>

### Question 1752

Nervous system effector cells

- A) are white cells found in the circulatory system.
- B) consist of sensory cells.
- C) include muscle cells and gland cells.
- D) provide automatic responses to stimuli.

Answer: <https://biology-forums.com/index.php?topic=1882144>

### Question 1753

Which of the following statements regarding metabolism is false?

- A) The basal metabolic rate is the amount of energy an animal needs just to stay alive; it does not include the energy needed for activities.
- B) Cells usually use carbohydrates and fats as fuel sources.
- C) Humans store some extra energy in the form of glycogen reserves in the pancreas and spleen.
- D) The average basal metabolic rate is 1300-1500 kcal per day for females and 1600-1800 kcal per day for males.

Answer: <https://biology-forums.com/index.php?topic=1883947>

### Question 1754

The Calvin cycle constructs \_\_\_\_\_, an energy-rich molecule that a plant cell can then use to make glucose or other organic molecules.

- A) G3P
- B) ATP
- C) NADH
- D) carbon dioxide

Answer: <https://biology-forums.com/index.php?topic=1883037>

### Question 1755

A culture of bacteria is fed glucose containing radioactive carbon and is then examined. As the bacteria metabolize the glucose, the radioactive carbon will appear first in

- A) carbon dioxide.
- B) glucose-6-phosphate.
- C) pyruvate.
- D) ATP.

Answer: <https://biology-forums.com/index.php?topic=1882959>

### Question 1756

The "halves" of an individual peanut, which represent its cotyledons, develop from the fertilized zygote and are composed of

- A) triploid endosperm cells.
- B) haploid endosperm cells.
- C) diploid embryo sporophyte cells.
- D) diploid maternal sporophyte cells.

Answer: <https://biology-forums.com/index.php?topic=1882350>

### Question 1757

A cocklebur is dispersed by \_\_\_\_\_, whereas most fleshy, edible fruits are eaten by animals that \_\_\_\_\_.

- A) wind; fully digest the fruits, including the seeds, which are killed
- B) water currents; defecate the intact seeds
- C) hitching rides on animals; fully digest the fruits, including the seeds, which are killed
- D) hitching rides on animals; defecate the intact seeds

Answer: <https://biology-forums.com/index.php?topic=1883681>

### Question 1758

The conversion of CO<sub>2</sub> and H<sub>2</sub>O into organic compounds using energy from light is called

- A) glycolysis.
- B) photosynthesis.
- C) fermentation.

D) cellular respiration.

Answer: <https://biology-forums.com/index.php?topic=1882980>

### Question 1759

Which of the following hormones stimulates the growth of an ovarian follicle?

- A) LH
- B) FSH
- C) estrogen
- D) progesterone

Answer: <https://biology-forums.com/index.php?topic=1882092>

### Question 1760

Which of the following represents a step in the nitrogen cycle?

- A) Nitrogen-fixing bacteria convert atmospheric nitrogen to nitrates.
- B) Nitrites bind to soil particles.
- C) Nitrogen-fixing bacteria convert atmospheric nitrogen to ammonia.
- D) Denitrifiers convert ammonium to atmospheric nitrogen.

Answer: <https://biology-forums.com/index.php?topic=1882692>

### Question 1761

Craniates are chordates that all possess

- A) a head.
- B) jaws.
- C) a vertebral column.
- D) amniotic eggs.

Answer: <https://biology-forums.com/index.php?topic=1883794>

### Question 1762

During which phase of the heartbeat does the heart fill with blood?

- A) resting phase
- B) diastole
- C) active phase
- D) systole

Answer: <https://biology-forums.com/index.php?topic=1881847>

### Question 1763

Which of the following items has a shape most like a squamous epithelial cell?

- A) a watermelon
- B) a cupcake
- C) a fried egg
- D) the letter "S"

Answer: <https://biology-forums.com/index.php?topic=1883865>

### Question 1764

The simplest animals to display cephalization and centralization of the nervous system are

- A) sponges.
- B) flatworms.
- C) cnidarians.
- D) echinoderms.

Answer: <https://biology-forums.com/index.php?topic=1882163>

### Question 1765

Which is the most abundant kind of tissue in an animal, such as a gorilla?

- A) connective
- B) epithelial
- C) muscle
- D) nerve

Answer: <https://biology-forums.com/index.php?topic=1883871>

### Question 1766

Which group of animals is the most diverse?

- A) Sponges
- B) Deuterostomes
- C) Bilaterians
- D) Eumetazoans

Answer: <https://biology-forums.com/index.php?topic=1883788>

### Question 1767

Which of the following does not indicate a well-designed study?

- A) a control group
- B) variables were controlled
- C) bias
- D) follow-up studies

Answer: <https://biology-forums.com/index.php?topic=1883896>

### Question 1768

Which of the following is formed from a matrix of collagen fibers embedded in a hard mineral substance?

- A) cartilage
- B) bone
- C) adipose tissue
- D) fibrous connective tissue

Answer: <https://biology-forums.com/index.php?topic=1883868>

### Question 1769

Which of the following statements regarding fungi is false?

- A) Fungi are important decomposers in ecosystems.
- B) Fungi can only break down plant material.
- C) The distinctive flavor of certain cheeses is due to fungi.
- D) The first antibiotic discovered came from a fungus.

Answer: <https://biology-forums.com/index.php?topic=1883707>

### Question 1770

Genetic differences between populations tend to be reduced by

- A) gene flow.
- B) mutation.
- C) the founder effect.
- D) natural selection.

Answer: <https://biology-forums.com/index.php?topic=1883403>

### Question 1771

What is the normal complement of sex chromosomes in a human male?

- A) two Y chromosomes
- B) two X chromosomes and one Y chromosome
- C) one X chromosome and one Y chromosome
- D) one Y chromosome

Answer: <https://biology-forums.com/index.php?topic=1883141>

### Question 1772

Which of the following statements about the reproductive system of human females is true?

- A) In human females, eggs develop within the uterus.
- B) The corpus luteum secretes progesterone, which helps maintain the uterine lining during pregnancy.
- C) After nine months of development, an embryo is called a fetus.
- D) The cervix is an important structure of sexual arousal.

Answer: <https://biology-forums.com/index.php?topic=1882083>

### Question 1773

You compare homologous nucleotide sequences among several pairs of species with known divergence times. A pair of species that diverged 1

million years ago has two nucleotide differences, a pair that diverged 2 million years ago has four nucleotide differences, and a pair that diverged 3 million years ago has six nucleotide differences. You have sequence data for another pair of species for which the divergence time is unknown. There are five nucleotide differences between them. Based on your clock, when did their line of ancestry diverge?

- A) 3.5 million years ago
- B) 3 million years ago
- C) 2.5 million years ago
- D) 2 million years ago

Answer: <https://biology-forums.com/index.php?topic=1883545>

### Question 1774

Neurotransmitters that open Na<sup>+</sup> channels and trigger action potentials in receiving cells are called

- A) inhibitory.
- B) cross-linked.
- C) excitatory.
- D) obligatory.

Answer: <https://biology-forums.com/index.php?topic=1882154>

### Question 1775

The idea that all living things are composed of cells and that all cells come from other cells defines

- A) the laws of inheritance.
- B) organelle theory.
- C) cell theory.
- D) inheritance of acquired characteristics.

Answer: <https://biology-forums.com/index.php?topic=1882834>

### Question 1776

A plant's first line of defense against infection is

- A) Avr genes.
- B) its epidermis.
- C) R genes.
- D) salicylic acid.

Answer: <https://biology-forums.com/index.php?topic=1882485>

### Question 1777

Which step in the creation of cDNA involves the use of reverse transcriptase?

- A) step 1
- B) step 2
- C) step 3
- D) step 4

Answer: <https://biology-forums.com/index.php?topic=1883366>

### Question 1778

When you hyperventilate (breathe too fast), respiratory alkalosis (elevated blood pH) can occur, which can cause you to faint. A common but potentially dangerous method to reverse respiratory alkalosis is to hold a paper bag over your mouth and take normal breaths, thereby rebreathing the exhaled air. How might this method reverse respiratory alkalosis?

- A) Inhaling oxygen exhaled into the bag will cause oxygen to diffuse back into the blood and react with water to form carbonic acid, and blood pH will decrease.
- B) Inhaling oxygen exhaled into the bag will cause oxygen to diffuse back into the blood and react with water to form carbonic acid, and blood pH will increase.
- C) Inhaling carbon dioxide exhaled into the bag will cause carbon dioxide to diffuse back into the blood and react with water to form carbonic acid, and blood pH will increase.
- D) Inhaling carbon dioxide exhaled into the bag will cause carbon dioxide to diffuse back into the blood and react with water to form carbonic acid, and blood pH will decrease.

Answer: <https://biology-forums.com/index.php?topic=1884045>

### Question 1779

A mutant protist is found in which some mitochondria lack an inner mitochondrial membrane. Which of the following pathways would be completely disrupted in these mitochondria?

- A) oxidative phosphorylation

- B) alcoholic fermentation
- C) glycolysis
- D) biosynthesis

Answer: <https://biology-forums.com/index.php?topic=1882963>

### Question 1780

Antibody molecules may function by causing the

- A) destruction of complement proteins.
- B) agglutination of viruses or bacteria.
- C) solubilization of viruses or bacteria.
- D) crystallization of antigenic particles.

Answer: <https://biology-forums.com/index.php?topic=1881934>

### Question 1781

Using living organisms to clean up polluted ecosystems is known as

- A) migration.
- B) restoration ecology.
- C) bioremediation.
- D) landscaping.

Answer: <https://biology-forums.com/index.php?topic=1882735>

### Question 1782

Which kind of vessel has the lowest blood velocity?

- A) artery
- B) capillary
- C) venule
- D) vein

Answer: <https://biology-forums.com/index.php?topic=1881860>

### Question 1783

Genetically modifying \_\_\_\_\_ cells may directly affect future generations.

- A) bone marrow
- B) somatic
- C) gamete-forming
- D) photoreceptor

Answer: <https://biology-forums.com/index.php?topic=1883330>

### Question 1784

The event that triggers fruit formation is the growth of a pollen tube through the carpel of a flower. Which of the following is a reasonable hypothesis about the basis of this effect?

- A) Pollen tubes grow in response to a cytokinin produced by the carpel.
- B) Pollen tubes grow in response to abscisic acid.
- C) The growing pollen tube produces ethylene.
- D) The growing pollen tube produces auxins and/or gibberellins.

Answer: <https://biology-forums.com/index.php?topic=1882454>

### Question 1785

Which of the following options correctly pairs an endocrine gland or hormone with an aspect of metabolism that it regulates?

- A) parathyroid stimulates the adrenal cortex to secrete glucocorticoids
- B) pancreas stimulates growth of the uterine lining
- C) insulin regulates blood glucose levels
- D) prolactin manages blood potassium levels

Answer: <https://biology-forums.com/index.php?topic=1882047>

### Question 1786

A salamander is a vertebrate that spends part of its life cycle in water (juvenile stage) and part on land (adult stage). In both life stages, the salamander's body temperature depends on its surrounding environment, so the salamander demonstrates \_\_\_\_\_ behavior.

- A) endothermic
- B) ectothermic
- C) huddling

D) regulatory

Answer: <https://biology-forums.com/index.php?topic=1882009>

### Question 1787

Consider a stable frog population living at carrying capacity in a pond. If an average female produces 6,000 eggs during her lifetime and an average of 300 tadpoles hatch from these eggs, how many of these tadpoles will, on average, survive to reproduce?

- A) 0
- B) 2
- C) 10 to 20
- D) more than 100

Answer: <https://biology-forums.com/index.php?topic=1882616>

### Question 1788

You enjoy learning about history by studying gravestones throughout North America. You notice that gravestones from 1900 and earlier usually host many types of lichens. But in one cemetery, lichens are entirely absent, even from old gravestones. Given what is known about lichens, the cemetery without lichens probably

- A) has an unusually dry climate.
- B) is subject to extremely cold winter temperatures.
- C) gets a great deal of rain, which favors the growth of competing bacteria.
- D) is close to a source of air pollution.

Answer: <https://biology-forums.com/index.php?topic=1883709>

### Question 1789

Mutations in the gene for troponin can result in the production of the troponin protein, which has varying affinities for  $\text{Ca}^{2+}$  ions. Suppose that in a muscle cell a mutant troponin is expressed that has such a high affinity for  $\text{Ca}^{2+}$  ions that once they bind to troponin they cannot unbind. What will likely happen in this muscle cell?

- A) Myosin heads will not bind to actin after action potentials stop being received.
- B) Myosin heads will bind to actin after action potentials stop being received.
- C) Tropomyosin will not move to expose myosin binding sites.
- D) Cross-bridges will form between myosin and tropomyosin.

Answer: <https://biology-forums.com/index.php?topic=1882293>

### Question 1790

Which of the following kinds of data could be used to map the relative position of three genes on a chromosome?

- A) the frequencies with which the genes exhibit incomplete dominance over each other
- B) the frequencies of mutations in the genes
- C) the frequencies with which the genes are inherited from the mother and from the father
- D) the frequencies with which the corresponding traits occur together in offspring

Answer: <https://biology-forums.com/index.php?topic=1883140>

### Question 1791

Which of the following is most clearly a case of density-dependent population regulation?

- A) the summer drying of savanna grass for an insect that feeds on grass sap
- B) a dangerous new flu strain that is transmitted among humans by sneezing
- C) the first hard frost of fall for a population of annual morning glory vines
- D) the occurrence of rainstorms for an opportunistic desert annual

Answer: <https://biology-forums.com/index.php?topic=1882626>

### Question 1792

Animals that effectively use their body surface for gas exchange must

- A) be terrestrial.
- B) have a high ratio of body surface area to volume.
- C) have a low ratio of body surface area to volume.
- D) have a special kind of hemoglobin.

Answer: <https://biology-forums.com/index.php?topic=1884000>

### Question 1793

Structures that evolved from the same structure in a common ancestor are

- A) homologous.
- B) heterologous.

- C) analogous.
- D) convergent adaptations.

Answer: <https://biology-forums.com/index.php?topic=1883528>

### Question 1794

Which of the following statements regarding DNA packing is false?

- A) A nucleosome consists of DNA wound around a protein core of eight histone molecules.
- B) DNA packing tends to promote gene expression.
- C) Highly compacted chromatin is generally not expressed at all.
- D) Prokaryotes have proteins analogous to histones.

Answer: <https://biology-forums.com/index.php?topic=1883248>

### Question 1795

Gas exchange in most land plants occurs through structures called

- A) stomata.
- B) apical meristems.
- C) vascular tissue.
- D) cuticles.

Answer: <https://biology-forums.com/index.php?topic=1883652>

### Question 1796

Which of the following diseases is associated with obesity?

- A) chicken pox
- B) multiple sclerosis
- C) cardiovascular disease
- D) rheumatoid arthritis

Answer: <https://biology-forums.com/index.php?topic=1883961>

### Question 1797

Compost piles create an intense heat source and would therefore be suitable environments for \_\_\_\_\_.

- A) extreme thermophiles
- B) extreme halophiles
- C) methanogens
- D) proteobacteria

Answer: <https://biology-forums.com/index.php?topic=1883644>

### Question 1798

In many bacteria, genes that confer resistance to antibiotics are carried on

- A) factors.
- B) R plasmids.
- C) transposons.
- D) exons.

Answer: <https://biology-forums.com/index.php?topic=1883217>

### Question 1799

\_\_\_\_\_ appears to have been the first hominin to use stone tools.

- A) Homo erectus
- B) Homo habilis
- C) Ardipithecus
- D) Australopithecus

Answer: <https://biology-forums.com/index.php?topic=1883829>

### Question 1800

If you were designing a home pregnancy test kit, which of the following statements would you include in the instructions in an attempt to minimize false negative results?

- A) Use the test immediately after having sexual intercourse.
- B) Drink several large glasses of water. Wait one hour and then take the test.
- C) Take the test, and 30 seconds later check the results of the test.
- D) Wait at least a week after missing the start of your menstrual flow to take the test.

Answer: <https://biology-forums.com/index.php?topic=1882141>

### Question 1801

In terms of global air circulation, the tropics are a region where air

- A) descends and warms, dropping rain.
- B) rises and warms, creating an arid belt.
- C) rises and cools, creating an arid belt.
- D) rises and cools, dropping rain.

Answer: <https://biology-forums.com/index.php?topic=1882511>

### Question 1802

Plants dependent on nocturnal (night-flying) pollinators typically have flowers that

- A) absorb UV light.
- B) are small.
- C) are large, light-colored, and highly scented.
- D) are located close to the ground and smell of rotting flesh.

Answer: <https://biology-forums.com/index.php?topic=1883686>

### Question 1803

All of Earth that is inhabited by life is called the

- A) atmosphere.
- B) ecosystem.
- C) biosphere.
- D) biome.

Answer: <https://biology-forums.com/index.php?topic=1882500>

### Question 1804

In a population of plants with a diploid number of 12, a new individual appeared with a chromosome number of 24. If this organism could self-fertilize, forming offspring with the same number of chromosomes (24), scientists would consider this an example of

- A) sympatric speciation.
- B) behavioral isolation.
- C) formation of a hybrid zone.
- D) reduced hybrid fertility.

Answer: <https://biology-forums.com/index.php?topic=1883477>

### Question 1805

Which of the following statements regarding repetitive DNA is false?

- A) Repetitive DNA is usually found between genes.
- B) Repetitive DNA is identical in all humans.
- C) Repetitive DNA is usually repeated multiple times in the genome.
- D) Repetitive DNA can show great variation among individuals.

Answer: <https://biology-forums.com/index.php?topic=1883336>

### Question 1806

The \_\_\_\_\_ approach to gene cloning employs a mixture of fragments from the entire genome of an organism and results in the production of thousands of different recombinant plasmids.

- A) shotgun
- B) genetic engineering
- C) restriction
- D) cloning

Answer: <https://biology-forums.com/index.php?topic=1883315>

### Question 1807

\_\_\_\_\_ are soil-dwellers; \_\_\_\_\_ are mostly marine; and \_\_\_\_\_ mostly inhabit fresh water.

- A) Earthworms; leeches; annelids
- B) Earthworms; leeches; polychaetes
- C) Earthworms; polychaetes; leeches
- D) Polychaetes; earthworms; leeches

Answer: <https://biology-forums.com/index.php?topic=1883752>

### Question 1808

Which of the following characteristics of protein will remain intact if the protein is denatured?

- A) the shape of the protein
- B) the function of the protein
- C) the number of amino acids in the protein
- D) the binding properties of the protein

Answer: <https://biology-forums.com/index.php?topic=1882797>

### Question 1809

Which of the following statements about the domain Bacteria is true?

- A) Archaea belong to this domain.
- B) All bacteria have a membrane-bound nucleus.
- C) All bacteria are multicellular organisms.
- D) All bacteria lack a nucleus.

Answer: <https://biology-forums.com/index.php?topic=1884092>

### Question 1810

Which of the following options correctly lists the sequence in which most animals develop?

- A) zygote, cleavage, blastula, gastrula, organ formation
- B) cleavage, zygote, gastrula, blastula, organ formation
- C) zygote, cleavage, gastrula, blastula, organ formation
- D) zygote, cleavage, organ formation, blastula, gastrula

Answer: <https://biology-forums.com/index.php?topic=1882106>

### Question 1811

Which of the following statements best describes the current scientific view of birds?

- A) a group of feathered, endothermic dinosaurs
- B) a group of feathered, ectothermic lizards that lack teeth
- C) a group of flying, endothermic reptiles that have lost teeth, the amniotic egg, and other heavy body features as an adaptation for flight
- D) a group of flying mammals that are derived from monotremes, which also lay amniotic eggs

Answer: <https://biology-forums.com/index.php?topic=1883806>

### Question 1812

Which of the following choices correctly pairs a mineral with one of its major functions in the body?

- A) calcium, used in amino acid metabolism
- B) phosphorus, maintaining water balance
- C) iron, component of the nucleic acid backbone
- D) sodium, maintaining water balance in cells

Answer: <https://biology-forums.com/index.php?topic=1883956>

### Question 1813

Natural selection is nature's mechanism for selecting characteristics that best adapt the animal to its environment. Mammals have evolved a sophisticated mechanism for eliminating nitrogenous wastes that involves

- A) secretion through cell membranes.
- B) forming urea and storing it in concentrated solution.
- C) producing uric acid and excreting it with feces.
- D) recycling urea and using it as an energy source.

Answer: <https://biology-forums.com/index.php?topic=1881989>

### Question 1814

The coding regions of a gene are called

- A) introns.
- B) exons.
- C) promoters.
- D) enhancers.

Answer: <https://biology-forums.com/index.php?topic=1883254>

### Question 1815

The energy required to initiate an exergonic reaction is called

- A) exergonic energy.
- B) endergonic energy.
- C) input energy.
- D) activation energy.

Answer: <https://biology-forums.com/index.php?topic=1882937>

### Question 1816

Frequency-dependent selection, as seen in the case of the scale-eating fish in Lake Tanganyika, tends to

- A) eliminate rare alleles and favor whichever allele is initially most frequent.
- B) maintain two phenotypes in a dynamic equilibrium in a population.
- C) produce random changes in allele frequencies.
- D) stimulate new mutations.

Answer: <https://biology-forums.com/index.php?topic=1883415>

### Question 1817

Hominin fossil footprints that are obviously bipedal date to about \_\_\_\_\_ years ago.

- A) 50,000
- B) 100,000
- C) 3.6 million
- D) 12 million

Answer: <https://biology-forums.com/index.php?topic=1883827>

### Question 1818

The findings of Pasteur and others have established that

- A) living organisms regularly self-assemble (arise spontaneously) from nonliving matter.
- B) living organisms do not arise from nonliving matter today, nor did they arise from nonlife in the past.
- C) advanced organisms cannot arise from nonliving matter, but simple microbial life often does arise from nonlife today.
- D) life does not arise from nonliving matter today, but in the conditions of early Earth, such an event could have occurred.

Answer: <https://biology-forums.com/index.php?topic=1883487>

### Question 1819

Which of the following statements about germination is false?

- A) The germination of a seed represents the beginning of life.
- B) Germination usually begins when a seed takes up water.
- C) A hydrated seed expands, rupturing its seed coat.
- D) Germination usually takes place after a period of dormancy.

Answer: <https://biology-forums.com/index.php?topic=1882356>

### Question 1820

Which of the following is a hormone produced by adipose cells that helps to control appetite?

- A) insulin
- B) bile
- C) gastrin
- D) leptin

Answer: <https://biology-forums.com/index.php?topic=1883962>

### Question 1821

Which of the following distinguishes the secondary immune response from the primary immune response?

- A) The primary response is specific; the secondary one is not.
- B) The secondary response is faster and stronger.
- C) The primary response involves B cells; the secondary one involves T cells.
- D) The secondary response allows additional antigens to be recognized faster.

Answer: <https://biology-forums.com/index.php?topic=1881932>

### Question 1822

The dialyzing solution used during kidney dialysis functions much like a fluid associated with a nephron. What is the fluid?

- A) interstitial fluid
- B) the filtrate in the proximal tubule
- C) the filtrate in the loop of Henle

D) the filtrate in the distal tubule

Answer: <https://biology-forums.com/index.php?topic=1882006>

### Question 1823

The angiosperm plant we see represents the \_\_\_\_\_ generation, and the flower produces \_\_\_\_\_.

- A) sporophyte; gametophytes
- B) sporophyte; bryophytes
- C) gametophyte; sporophytes
- D) gametophyte; bryophytes

Answer: <https://biology-forums.com/index.php?topic=1883678>

### Question 1824

Like humans, cats can experience kidney failure. Unlike humans, however, cat kidney dialysis as a treatment option is not widely available and used. Rather, efforts are made to treat any complications that arise from failing kidneys such as low potassium or high phosphate levels. When low potassium levels are identified, potassium supplements are given to return cells to a balanced potassium-water level. This is an example of an effort to maintain

- A) osmoregulation.
- B) thermoregulation.
- C) convection.
- D) evaporation.

Answer: <https://biology-forums.com/index.php?topic=1882019>

### Question 1825

There is a mutation in the operator of the trp operon in a cell such that the trp repressor is unable to bind to the operator. If tryptophan is added to the cell, what will happen?

- A) Tryptophan will bind to the repressor, and trp enzymes will be produced.
- B) Tryptophan will bind to the repressor, and trp enzymes will not be produced.
- C) Tryptophan will not bind to the repressor, and trp enzymes will be produced.
- D) Tryptophan will bind to the operator, and trp enzymes will be produced.

Answer: <https://biology-forums.com/index.php?topic=1883253>

### Question 1826

The secondary immune response occurs when memory cells are activated by a second exposure to

- A) hormones.
- B) antibodies.
- C) antigens.
- D) plasma cells.

Answer: <https://biology-forums.com/index.php?topic=1881931>

### Question 1827

Materials such as food, minerals, and oxygen are passed to cells through

- A) water.
- B) interstitial fluid.
- C) matrix fibers.
- D) neurons.

Answer: <https://biology-forums.com/index.php?topic=1883888>

### Question 1828

At a chiasma, two \_\_\_\_\_ are attached to each other.

- A) homologous or nonsister chromatids
- B) homologous or sister chromatids
- C) nonhomologous chromosomes
- D) daughter cells

Answer: <https://biology-forums.com/index.php?topic=1883070>

### Question 1829

Meconium is the clinical term used for the earliest stool (fecal matter) of a newborn human infant, which is usually very sticky (like tar), almost completely odorless, and dark olive green in color. Meconium takes this form due to materials that the fetus orally ingests while in the uterus. Which of the following materials would the fetus likely ingest during development?

- A) amniotic fluid

- B) placental blood
- C) digestive products from the mother
- D) blood from the mother

Answer: <https://biology-forums.com/index.php?topic=1882132>

### Question 1830

An advantage of using reverse transcriptase to prepare a gene for cloning is that

- A) reverse transcriptase is more efficient than RNA polymerase.
- B) the resulting DNA strand will lack exons.
- C) reverse transcriptase is more efficient than DNA polymerase.
- D) the resulting DNA strand will lack introns.

Answer: <https://biology-forums.com/index.php?topic=1883319>

### Question 1831

About 80% of plants have mycorrhizae linking them to

- A) chytrids.
- B) glomeromycetes.
- C) ascomycetes.
- D) basidiomycetes.

Answer: <https://biology-forums.com/index.php?topic=1883700>

### Question 1832

In humans, which blood vessels have valves?

- A) arteries in the neck
- B) arterioles
- C) capillaries
- D) veins

Answer: <https://biology-forums.com/index.php?topic=1881857>

### Question 1833

The similarities in function of hummingbird wings and the wings of a butterfly reflect

- A) homology but not analogy.
- B) homology through convergent evolution.
- C) analogy and homology.
- D) analogy but not homology.

Answer: <https://biology-forums.com/index.php?topic=1883531>

### Question 1834

According to the sliding filament model of muscle contraction, a sarcomere contracts when its

- A) thick filaments slide across its Z lines.
- B) thin filaments slide across its Z lines.
- C) thin filaments slide toward each other across its thick filaments.
- D) thick filaments shorten, pulling the opposed sets of thin filaments past each other.

Answer: <https://biology-forums.com/index.php?topic=1882280>

### Question 1835

A skin cell of a red fox has 34 chromosomes. You look at the cell under a microscope and see that it has 34 chromosomes and one nucleus. Several hours later, you look at the same cell again and see that it has double the amount of DNA and one nucleus. A little while later, you see that it has 68 chromosomes and two nuclei. What stage of the cell cycle was this cell in when you viewed it at each time point?

- A) First view: G1; second view: G2; third view: telophase
- B) First view: G1; second view: metaphase; third view: cytokinesis
- C) First view: S; second view: prophase; third view: cytokinesis
- D) First view: G0; second view: G2; third view: telophase

Answer: <https://biology-forums.com/index.php?topic=1883080>

### Question 1836

Which adaptation is a key characteristic of annelids that greatly increases their flexibility and mobility?

- A) complete digestive tract
- B) exoskeleton
- C) segmentation

D) three true tissue layers

Answer: <https://biology-forums.com/index.php?topic=1883751>

### Question 1837

Which of the following causes food poisoning and typhoid fever?

- A) Escherichia coli
- B) Bacillus anthracis
- C) Clostridium botulinum
- D) Salmonella

Answer: <https://biology-forums.com/index.php?topic=1883582>

### Question 1838

Which of the following structures is found in both plant and animal cells?

- A) chloroplasts
- B) mitochondria
- C) a large central vacuole containing fluid
- D) cell wall surrounding the plasma membrane

Answer: <https://biology-forums.com/index.php?topic=1882323>

### Question 1839

Which of the following statements about tropical forests is true?

- A) Tropical forests occur in equatorial regions with very long (16- to 20-hour) days.
- B) The forest structure consists of distinct layers that provide many different habitats.
- C) Once stripped, tropical rain forests regrow quickly, although with slightly less diversity.
- D) The soils of tropical rain forests are typically rich in nutrients.

Answer: <https://biology-forums.com/index.php?topic=1882525>

### Question 1840

Transcription factors attach to

- A) DNA.
- B) signal molecules.
- C) plasma membrane receptors.
- D) mRNA.

Answer: <https://biology-forums.com/index.php?topic=1883263>

### Question 1841

Which of the following would a shark not be able to detect with its lateral line system?

- A) schools of fish
- B) mobile predators
- C) stationary objects
- D) sand on the bottom of the ocean floor

Answer: <https://biology-forums.com/index.php?topic=1883842>

### Question 1842

One way in which populations and species have been responding to climate change is by

- A) changing their coat color.
- B) shifting their distribution.
- C) changing their metabolism.
- D) evolving a flexible mode of reproduction.

Answer: <https://biology-forums.com/index.php?topic=1882719>

### Question 1843

Gel electrophoresis sorts DNA molecules on the basis of their

- A) nucleotide sequence.
- B) ability to bind to mRNA.
- C) solubility in the gel.
- D) size.

Answer: <https://biology-forums.com/index.php?topic=1883334>

### Question 1844

Multiple origins of replication on the DNA molecules of eukaryotic cells serve to

- A) remove errors in DNA replication.
- B) create multiple copies of the DNA molecule at the same time.
- C) shorten the time necessary for DNA replication.
- D) assure the correct orientation of the two strands in the newly growing double helix.

Answer: <https://biology-forums.com/index.php?topic=1883181>

### Question 1845

Kinetic energy differs from chemical energy in that

- A) kinetic energy is stored energy that has the potential to do work, and chemical energy is the energy of movement.
- B) kinetic energy can be converted into various forms of energy, whereas chemical energy can only be converted into heat.
- C) kinetic energy is the energy of a moving object, whereas chemical energy is the potential energy of molecules.
- D) chemical energy is a particular form of kinetic energy.

Answer: <https://biology-forums.com/index.php?topic=1882924>

### Question 1846

Currently, atmospheric CO<sub>2</sub> levels are approximately 400 ppm. The annual mean growth rate in CO<sub>2</sub> is about 2 ppm/year. Assuming this trend continues, what would you predict the CO<sub>2</sub> level to be in 100 years?

- A) 100 ppm
- B) 200 ppm
- C) 600 ppm
- D) 1,000 ppm

Answer: <https://biology-forums.com/index.php?topic=1883056>

### Question 1847

Which blood vessels have the thinnest walls?

- A) arterioles
- B) veins
- C) venules
- D) capillaries

Answer: <https://biology-forums.com/index.php?topic=1881856>

### Question 1848

Our emotions, learning, and memory depend upon the

- A) limbic system.
- B) parietal lobes.
- C) frontal lobes.
- D) occipital lobes.

Answer: <https://biology-forums.com/index.php?topic=1882186>

### Question 1849

In which structure will meiosis occur?

- A) structure A
- B) the petals of the flower
- C) structure C
- D) structure D

Answer: <https://biology-forums.com/index.php?topic=1882375>

### Question 1850

You are interested in designing an experiment to test the hypothesis that frogs use the same genetic code as humans. Which of the following experiments would not give you useful data to test this hypothesis?

- A) Purify tRNAs from frog cells and human cells and compare their structures.
- B) Insert a human gene into a frog cell and see if the correct protein is produced.
- C) Insert a frog gene into a human cell and see if the correct protein is produced.
- D) Compare nucleotide sequences of promoters from similar frog and human genes.

Answer: <https://biology-forums.com/index.php?topic=1883226>

### Question 1851

Which of the following statements regarding ferns is true?

- A) Ferns do not have lignified cell walls or well-developed roots.
- B) Ferns have well-developed vascular tissue, roots, and stems.
- C) Ferns produce seeds that are dispersed by water.
- D) Ferns produce pollen that is dispersed by air.

Answer: <https://biology-forums.com/index.php?topic=1883658>

### Question 1852

Which of the following would match his doctor's recommendations?

- A) Eat fewer foods that contain partially hydrogenated vegetable oils.
- B) Eat fewer foods that contain antioxidants.
- C) Avoid cooking with olive oil.
- D) Switch to a low-carb diet.

Answer: <https://biology-forums.com/index.php?topic=1883980>

### Question 1853

Which of the following compounds is produced and secreted by mast cells during an allergic reaction?

- A) interferon
- B) allergens
- C) histamine
- D) perforin

Answer: <https://biology-forums.com/index.php?topic=1881948>

### Question 1854

Which of the following is an example of an evolutionary adaptation that decreases herbivory?

- A) Plants of the milkweed family produce a toxin that Monarch butterflies can store in their bodies.
- B) Corn plants attacked by herbivores release an airborne chemical that turns on defensive genes in nearby corn plants.
- C) Caterpillars that feed on plants tend to be green.
- D) Damaged, partially eaten leaves can seal off the damaged area by hardening cell walls.

Answer: <https://biology-forums.com/index.php?topic=1882443>

### Question 1855

Fruit that forms on an unpollinated plant in response to a hormone will lack

- A) flavor.
- B) seeds.
- C) rind.
- D) naturally occurring hormones.

Answer: <https://biology-forums.com/index.php?topic=1882456>

### Question 1856

Chemoautotrophic bacteria obtain their carbon from \_\_\_\_\_ and their energy from \_\_\_\_\_.

- A) CO<sub>2</sub>; sunlight
- B) CO<sub>2</sub>; reactions involving inorganic chemicals
- C) methane; sunlight
- D) organic molecules; sunlight

Answer: <https://biology-forums.com/index.php?topic=1883567>

### Question 1857

Which species of wheat shown is polyploid?

- A) *T. monococcum*
- B) the AB sterile hybrid
- C) *T. turgidum*
- D) *T. tauschii*

Answer: <https://biology-forums.com/index.php?topic=1883478>

### Question 1858

In secondary endosymbiosis, a/an \_\_\_\_\_ became endosymbiotic in a/an \_\_\_\_\_.

- A) autotrophic prokaryote; heterotrophic eukaryotic protist
- B) heterotrophic prokaryote; autotrophic eukaryotic protist
- C) heterotrophic eukaryotic protist; autotrophic heterotrophic protist
- D) autotrophic eukaryotic protist; heterotrophic eukaryotic protist

Answer: <https://biology-forums.com/index.php?topic=1883608>

### Question 1859

Which of the following molecules is a reactant of photosynthesis?

- A) CO<sub>2</sub>
- B) glucose
- C) O<sub>2</sub>
- D) chlorophyll

Answer: <https://biology-forums.com/index.php?topic=1883006>

### Question 1860

It is a cool winter evening, and you are feeling a little chilled. To warm yourself up, you sip some hot tea. As you swallow, you can feel the tea warm your mouth and throat. The drink is warming you up by the process of

- A) convection.
- B) induction.
- C) conduction.
- D) radiation.

Answer: <https://biology-forums.com/index.php?topic=1881976>

### Question 1861

Sterilization, in which sperm are surgically prevented from reaching the egg, is accomplished by

- A) the rhythm method.
- B) tubal ligation or vasectomy.
- C) spermicide.
- D) mifepristone.

Answer: <https://biology-forums.com/index.php?topic=1882095>

### Question 1862

Most polyploid species arise from

- A) a single diploid parent plant.
- B) a single triploid parent plant.
- C) a single tetraploid parent plant.
- D) the hybridization of two parent species.

Answer: <https://biology-forums.com/index.php?topic=1883455>

### Question 1863

If you could check the pH of the recommended tablets, you would expect it to be

- A) higher than 7.
- B) lower than 7.
- C) exactly 7.
- D) pH neutral.

Answer: <https://biology-forums.com/index.php?topic=1882780>

### Question 1864

Unlike sharks and rays, ray-finned fishes have

- A) an operculum.
- B) a lateral line system.
- C) a flexible skeleton made of cartilage.
- D) hinged jaws.

Answer: <https://biology-forums.com/index.php?topic=1883797>

### Question 1865

Which of the following environments is thought to have promoted the dehydration synthesis of polypeptides and other macromolecules from smaller organic monomers on a prebiotic Earth?

- A) freshwater swamps and marshes

- B) deep-sea hydrothermal vents
- C) hot sand, clay, or rock along the seashore
- D) sediments at the bottom of the world's oceans

Answer: <https://biology-forums.com/index.php?topic=1883491>

### Question 1866

- The two major anatomical divisions of the nervous system are the
- A) sympathetic nervous system and parasympathetic nervous system.
  - B) central nervous system and peripheral nervous system.
  - C) sensory nervous system and motor nervous system.
  - D) voluntary nervous system and involuntary nervous system.

Answer: <https://biology-forums.com/index.php?topic=1882143>

### Question 1867

- The polymerase chain reaction relies upon unusual, heat-resistant \_\_\_\_\_ that were isolated from bacteria living in hot springs.
- A) DNA polymerases
  - B) phages
  - C) restriction enzymes
  - D) plasmids

Answer: <https://biology-forums.com/index.php?topic=1883333>

### Question 1868

- The uniformity in the way nerve cells function within the animal kingdom
- A) indicates that the PNS evolved before the CNS.
  - B) is evidence that the neuron was an early evolutionary adaptation.
  - C) is proof of neurotransmitter efficiency.
  - D) must have prevented the development of diversity.

Answer: <https://biology-forums.com/index.php?topic=1882161>

### Question 1869

- Varieties of plants in which self-fertilization produces offspring that are identical to the parents are referred to as
- A) hybrids.
  - B) the F2 generation.
  - C) monohybrid crosses.
  - D) true-breeding.

Answer: <https://biology-forums.com/index.php?topic=1883101>

### Question 1870

- How is the merging of continents to form Pangaea believed to have altered Earth's environments at the end of the Paleozoic era?
- A) It eliminated all multicellular eukaryotes, allowing evolution to start anew.
  - B) Shallow coastal areas were drained, leading to the extinction of many marine species.
  - C) It made the climate warmer and moister for terrestrial organisms in the center of the new landmass.
  - D) It prompted an immediate increase in Earth's biodiversity.

Answer: <https://biology-forums.com/index.php?topic=1883508>

### Question 1871

- Which of the following conditions would be most likely to cause stomata to open?
- A) water molecules entering the stomatal pore
  - B) hot, dry weather and strong winds
  - C) sunrise on a clear morning
  - D) a cool night setting in

Answer: <https://biology-forums.com/index.php?topic=1882397>

### Question 1872

- The evolution of *H. floresiensis* is an example of
- A) sympatric speciation.
  - B) allopatric speciation.
  - C) adaptive radiation.
  - D) hybridization.

Answer: <https://biology-forums.com/index.php?topic=1883481>

### Question 1873

Which of the following organisms is a marsupial?

- A) echidna
- B) kangaroo
- C) whale
- D) zebra

Answer: <https://biology-forums.com/index.php?topic=1883810>

### Question 1874

Which of the following cells provide flexible support to the growing parts of plants?

- A) collenchyma cells
- B) sieve-tube elements
- C) sclerenchyma cells
- D) parenchyma cells

Answer: <https://biology-forums.com/index.php?topic=1882329>

### Question 1875

When environmental estrogens trigger premature puberty in girls, the main organs affected are the

- A) ovaries and uterus.
- B) thyroid gland and pituitary gland.
- C) adrenal cortex.
- D) pituitary gland and parathyroid glands.

Answer: <https://biology-forums.com/index.php?topic=1882072>

### Question 1876

The heterokaryotic phase of a fungal life cycle is

- A) a stage in which the hyphae contain only one type of haploid nucleus.
- B) a stage in which hyphae contain two genetically different haploid nuclei.
- C) a stage in which hyphae contain two genetically different diploid nuclei.
- D) a triploid stage formed by the fusion of a diploid nucleus with the haploid nucleus of a compatible hypha.

Answer: <https://biology-forums.com/index.php?topic=1883697>

### Question 1877

The main function of an earthworm's gizzard is to

- A) moisten food.
- B) store food.
- C) absorb food.
- D) grind food.

Answer: <https://biology-forums.com/index.php?topic=1883914>

### Question 1878

Which of the following statements about fish gills is true?

- A) They have a large surface area.
- B) Because of their efficiency, they only need a small surface area.
- C) They have a poor blood supply.
- D) Like lungs, they have an exhale/inhale function.

Answer: <https://biology-forums.com/index.php?topic=1884004>

### Question 1879

A thick filament consists of

- A) actin.
- B) actin and regulatory proteins.
- C) myosin.
- D) actin and myosin.

Answer: <https://biology-forums.com/index.php?topic=1882278>

### Question 1880

Some crocodiles and turtles have an exceptional ability to divert blood flow through the heart when they are diving and no longer breathing and

exchanging gases. Which of the following most likely occurs when these animals dive?

- A) Instead of flowing to the lungs, blood travels to the rest of the body to support bodily functions.
- B) Instead of flowing to the body, blood travels to the lungs to exchange gases.
- C) Instead of flowing to the capillaries, blood travels alveoli to exchange gases.
- D) Blood flow ceases altogether since gases cannot be exchanged while diving.

Answer: <https://biology-forums.com/index.php?topic=1884044>

### Question 1881

If process D is decreased, what impact will that likely have on the surrounding area?

- A) Increased precipitation will increase erosion.
- B) Lack of vegetation will increase the probability of drought.
- C) Areas covered by ocean will increase.
- D) More moisture will move over land from the ocean.

Answer: <https://biology-forums.com/index.php?topic=1882551>

### Question 1882

Corals supplement the energy they receive from the zooxanthellae by capturing prey with their

- A) amoebocytes.
- B) cnidocytes.
- C) choanocytes.
- D) osteocytes.

Answer: <https://biology-forums.com/index.php?topic=1883790>

### Question 1883

Essential fatty acids, which are required in the human diet, are

- A) those fatty acids that humans are unable to synthesize.
- B) the fatty acids that humans can synthesize from simpler molecules.
- C) the fatty acids used in the construction of the phospholipids of cell membranes.
- D) stored in the gallbladder.

Answer: <https://biology-forums.com/index.php?topic=1883951>

### Question 1884

Eutrophication of a lake could occur if

- A) phosphate-rich detergents were dumped into the lake.
- B) fertilizers were applied in an insoluble form.
- C) runoff from overfertilized lawns was prevented from reaching the lake.
- D) fish were removed.

Answer: <https://biology-forums.com/index.php?topic=1882694>

### Question 1885

What is the difference between a tissue and an organ system?

- A) The tissue level of organization is more inclusive than the organ system level.
- B) Tissues are not composed of cells; organ systems are composed of cells.
- C) A tissue cannot exist unless it is a component of an organ system, whereas an organ system can exist independently of tissues.
- D) An organ system includes tissues.

Answer: <https://biology-forums.com/index.php?topic=1884085>

### Question 1886

Biotechnology companies sell kits that allow you to do PCR to amplify STR regions from human blood samples that you have collected. What components would you expect to find in the kit in order to be able to do successful PCR reactions?

- A) human DNA polymerase, primers that flank STR regions
- B) heat-stable DNA polymerase, primers that flank STR regions
- C) human DNA polymerase, primers that flank STR regions, free nucleotides
- D) heat-stable DNA polymerase, primers that flank STR regions, free nucleotides

Answer: <https://biology-forums.com/index.php?topic=1883354>

### Question 1887

The main function of antidiuretic hormone (ADH) is to help achieve homeostasis of water balance. All of the following are reasons to test for abnormal ADH levels except

- A) swelling due to fluid buildup.

- B) excessive urination.
- C) feeling thirsty after exercising.
- D) overhydration.

Answer: <https://biology-forums.com/index.php?topic=1882020>

### Question 1888

Which of the following disciplines has found evidence for evolution based on the native distributions (locations) of living species?

- A) molecular biology
- B) comparative anatomy
- C) geographic distribution
- D) paleontology

Answer: <https://biology-forums.com/index.php?topic=1883390>

### Question 1889

Which of the following helps activate our nonspecific (innate) defense system?

- A) active immunity
- B) inflammation
- C) passive immunity
- D) mobilization of erythrocytes

Answer: <https://biology-forums.com/index.php?topic=1881915>

### Question 1890

Cassiopeia is a marine organism with a medusa body that has an unusual orientation: It floats upside-down. It also has a distinct coloration that is due to algae that live between the epidermis (outer) layer and gastrodermis (inner layer that lines the digestive cavity) of the Cassiopeia. The algae provide food for the Cassiopeia, and the Cassiopeia's orientation provides sunlight to the algae for photosynthesis. Cassiopeia is a/an \_\_\_\_\_, and the Cassiopeia and the algae have a \_\_\_\_\_ relationship.

- A) mollusc; mycorrhizal
- B) arthropod; symbiotic
- C) cnidarian; symbiotic
- D) echinoderm; symbiotic

Answer: <https://biology-forums.com/index.php?topic=1883780>

### Question 1891

The two main functions of the lymphatic system are

- A) coagulating blood and fighting infections.
- B) producing hormones that regulate the immune system and coagulating blood.
- C) producing hormones that regulate the immune system and fighting infections.
- D) returning tissue fluid to the circulatory system and fighting infections.

Answer: <https://biology-forums.com/index.php?topic=1881921>

### Question 1892

Why is a newly molted crab unusually slow and clumsy?

- A) Its new exoskeleton cannot support the forces that its muscles generate.
- B) It temporarily lacks an exoskeleton.
- C) Its muscles are still forming their connections with the new exoskeleton.
- D) Its neurons are still forming their connections with the new muscles.

Answer: <https://biology-forums.com/index.php?topic=1882261>

### Question 1893

A cell that has a cell wall is undergoing cell division, and the following events are observed: the formation of a cell plate and the division of the cell into two daughter cells. What type of cell is being observed and what process(es) is it going through?

- A) prokaryote; telophase of mitosis
- B) animal cell; telophase and cytokinesis of mitosis
- C) plant cell; telophase and cytokinesis of mitosis
- D) plant cell; telophase II of meiosis

Answer: <https://biology-forums.com/index.php?topic=1883081>

### Question 1894

Which of the following is an immediate effect of histamine release?

- A) dilation of local blood vessels

- B) blocking of a response to ragweed pollen
- C) conversion of histamine to histidine
- D) increase in blood pressure

Answer: <https://biology-forums.com/index.php?topic=1881917>

### Question 1895

In the axolotl, development is altered. Adult axolotls retain features (external gills and aquatic life) that were juvenile in its ancestors, a phenomenon known as

- A) "evo-devo."
- B) paedomorphosis.
- C) punctuated evolution.
- D) homology.

Answer: <https://biology-forums.com/index.php?topic=1883522>

### Question 1896

The reason animals need a continuous supply of oxygen is to

- A) make carbon dioxide.
- B) dispose of carbon dioxide.
- C) carry out glycolysis.
- D) obtain energy from their food.

Answer: <https://biology-forums.com/index.php?topic=1883996>

### Question 1897

The oil from the sebaceous glands is produced by which of the following cell organelles?

- A) ribosomes
- B) rough endoplasmic reticulum
- C) cell membrane
- D) smooth endoplasmic reticulum

Answer: <https://biology-forums.com/index.php?topic=1882892>

### Question 1898

Complete the analogy: \_\_\_\_\_ are to plant evolution as \_\_\_\_\_ is/are to vertebrate evolution.

- A) Ferns; insects
- B) Mosses; Tiktaalik
- C) Angiosperms; fungi
- D) Fungi; birds

Answer: <https://biology-forums.com/index.php?topic=1883843>

### Question 1899

A biologist interested in determining which plant organs (stems, buds, leaves, etc.) are responsible for sensing photoperiod might perform which of the following experiments?

- A) Remove the apical meristems from different parts of the plant.
- B) Measure auxin levels in different parts of the plant before and after exposure to light.
- C) Cover different plant organs with a foil covering to prevent light exposure.
- D) Expose the plants to different wavelengths of light.

Answer: <https://biology-forums.com/index.php?topic=1882480>

### Question 1900

The result of binding a signal molecule to its receptor is

- A) production of a protein by the target cell, followed by death.
- B) cell division.
- C) signal transduction.
- D) partitioning of the nucleus within the target cell.

Answer: <https://biology-forums.com/index.php?topic=1882039>

### Question 1901

Two bird species overlap in a hybrid zone. They are isolated by a slight difference in the male songs and by the females' tendency to select males with the "correct" song. Hybrid offspring tend to have reduced fertility compared to either of the parent species. What effect might natural selection have in this situation?

- A) Natural selection might favor males with less distinctive calls and/or females that are less "choosy."

- B) Natural selection might favor males with more distinctive calls and/or females that are more "choosy." As a result, the reproductive barrier between the two species could be reinforced.
- C) Natural selection could lead to the hybrid species taking over and eliminating the weaker parent species.
- D) Natural selection could lead to the stronger of the two species taking over and eliminating the other species.

Answer: <https://biology-forums.com/index.php?topic=1883464>

### Question 1902

Chlorophyll is located in \_\_\_\_\_, which are found in \_\_\_\_\_, which are concentrated in \_\_\_\_\_.

- A) thylakoids; chloroplasts; mesophyll
- B) chloroplasts; thylakoids; mesophyll
- C) mesophyll; chloroplasts; thylakoids
- D) mesophyll; thylakoids; chloroplasts

Answer: <https://biology-forums.com/index.php?topic=1883044>

### Question 1903

In weighing the benefits of eating one serving of this item, you conclude that

- A) it contributes to the recommended amount of dietary fiber.
- B) it contributes to the recommended amount of iron.
- C) it contributes to the recommended amount of calcium.
- D) it contributes to the recommended amount of vitamin C.

Answer: <https://biology-forums.com/index.php?topic=1883990>

### Question 1904

A researcher who detects a higher-than-normal amount of interferon in a laboratory rat would correctly conclude that

- A) the rat has, or recently had, a viral infection.
- B) cancerous cells are present in the rat.
- C) the rat's diet is deficient in calcium.
- D) monocytes are differentiating into macrophages in the rat's bloodstream.

Answer: <https://biology-forums.com/index.php?topic=1881914>

### Question 1905

Once an action potential is triggered, there is a

- A) reversal of the membrane polarity, with the interior of the cell becoming positively charged.
- B) reversal of the membrane polarity, with the interior of the cell becoming negatively charged.
- C) sudden rush of potassium into the neuron.
- D) sudden impermeability of the membrane to the transport of ions.

Answer: <https://biology-forums.com/index.php?topic=1882148>

### Question 1906

How do scientists calibrate a molecular clock for a group of organisms with known nucleotide sequences?

- A) They measure protein differences. Evolutionary rates in proteins are well-known and can be used to check results obtained using nucleotide sequences.
- B) They use radioactive isotopes to measure the age of DNA material directly.
- C) They graph the number of nucleotide differences against the dates of evolutionary branch points known from the fossil record.
- D) They analyze fossilized DNA of known age and compare its nucleotide sequences to modern DNA sequences.

Answer: <https://biology-forums.com/index.php?topic=1883542>

### Question 1907

The laryngeal nerve is 15 feet long in giraffes because

- A) the giraffe's throat is located far away from its brain.
- B) this nerve connects to the spinal cord.
- C) the nerve is modified from an ancestor that did not have a neck.
- D) the laryngeal nerve is a vestigial organ.

Answer: <https://biology-forums.com/index.php?topic=1883858>

### Question 1908

Functionally, the muscle fiber's fundamental unit of contraction is the

- A) thick filament.
- B) myofibril.
- C) sarcomere.

D) Z line.

Answer: <https://biology-forums.com/index.php?topic=1882276>

### Question 1909

Which of the following may be a consequence of low secretion of parathyroid hormone?

- A) convulsive contractions of skeletal muscles
- B) gigantism
- C) exhaustion of the immune system
- D) loss of calcium from the bone

Answer: <https://biology-forums.com/index.php?topic=1882054>

### Question 1910

Which of the following animals has an exoskeleton?

- A) human
- B) trout
- C) shark
- D) clam

Answer: <https://biology-forums.com/index.php?topic=1882260>

### Question 1911

Which of the following statements about uric acid is true?

- A) Animals that excrete uric acid avoid the problem of water loss associated with excretion of urea.
- B) Uric acid is more soluble in water than urea.
- C) The darker material in bird droppings is mostly uric acid.
- D) Uric acid cannot be excreted because of its toxicity.

Answer: <https://biology-forums.com/index.php?topic=1881991>

### Question 1912

The central communication conduit between the brain and the rest of the body is the

- A) brainstem.
- B) nerve bundle.
- C) spinal cord.
- D) nervous system.

Answer: <https://biology-forums.com/index.php?topic=1882142>

### Question 1913

Which of the following statements regarding brain activity is true?

- A) Recent research has revealed that the 1848 accident involving Phineas Gage caused damage to his hindbrain.
- B) People usually die following a hemispherectomy.
- C) People cannot function when the communication channels between the hemispheres are cut.
- D) New techniques, such as PET scans and fMRIs, allow researchers to associate specific parts of the brain with certain activities.

Answer: <https://biology-forums.com/index.php?topic=1882182>

### Question 1914

Cigarette smoke can affect the white blood cells that reside in our lungs, whose function is to

- A) prevent emphysema.
- B) engulf foreign particles.
- C) enhance oxygen and carbon dioxide exchange.
- D) maintain appropriate pH and moisture levels within the lungs.

Answer: <https://biology-forums.com/index.php?topic=1884022>

### Question 1915

What type of cell helps to stimulate B cells to produce antibodies?

- A) plasma cell
- B) cytotoxic T cell
- C) helper T cell
- D) macrophage

Answer: <https://biology-forums.com/index.php?topic=1881939>

### Question 1916

Most plants have a variety of chemicals, spines, and thorns because the plants

- A) cannot run away from herbivores.
- B) feed on the organisms that try to eat them.
- C) are camouflaged into their surroundings.
- D) must rely on photosynthesis for food.

Answer: <https://biology-forums.com/index.php?topic=1882665>

### Question 1917

The bacteria *Pseudomonas aeruginosa* produces a protein that is secreted into its environment. The protein inhibits synthesis of elongation factor 2 (another protein) in humans. This effect may sound dangerous, but it has been considered as a possible treatment for hepatitis B. The protein produced by *P. aeruginosa* is a/an \_\_\_\_\_.

- A) endotoxin
- B) exotoxin
- C) biological weapon
- D) biofilm

Answer: <https://biology-forums.com/index.php?topic=1883633>

### Question 1918

The nervous system determines the pitch of a tone by

- A) the region of the basilar membrane that vibrates most vigorously at any one instant.
- B) peak amplitude of basilar membrane displacement.
- C) sites along the basilar membrane where vibrations are longest.
- D) the frequency of oval window vibration.

Answer: <https://biology-forums.com/index.php?topic=1882213>

### Question 1919

Which of the following items demonstrates radial symmetry?

- A) a glove
- B) a tennis racket
- C) a pair of sunglasses
- D) an apple pie

Answer: <https://biology-forums.com/index.php?topic=1883732>

### Question 1920

Which of the following direct energy transfers is impossible in living systems?

- A) light energy to chemical energy
- B) chemical energy to kinetic energy
- C) light energy to potential energy
- D) heat to light energy

Answer: <https://biology-forums.com/index.php?topic=1882929>

### Question 1921

Many species of which protist group have modified mitochondria that lack functional electron transport chains?

- A) excavates
- B) rhizarians
- C) ciliates
- D) unikonts

Answer: <https://biology-forums.com/index.php?topic=1883618>

### Question 1922

During cell reproduction, chromatin fibers coil up into structures called

- A) ribosomes.
- B) lysosomes.
- C) chromosomes.
- D) nucleoli.

Answer: <https://biology-forums.com/index.php?topic=1882854>

### Question 1923

Which of the following hypotheses would be supported if liquid water were found on Mars and contained evidence of bacteria-like organisms?

- A) Life must evolve in the presence of oxygen.
- B) The chemical evolution of life is possible.
- C) Life on Earth must have originated on Mars.
- D) Life is guided by intelligent design.

Answer: <https://biology-forums.com/index.php?topic=1882767>

### Question 1924

Which of the following statements regarding sickle-cell disease is false?

- A) Persons who are heterozygous for sickle-cell disease are also resistant to malaria.
- B) Sickle-cell disease causes white blood cells to be sickle-shaped.
- C) All of the symptoms of sickle-cell disease result from the actions of just one allele.
- D) About one in 10 African Americans is a carrier of sickle-cell disease.

Answer: <https://biology-forums.com/index.php?topic=1883132>

### Question 1925

An adult human's red blood cells are formed in the

- A) spleen.
- B) liver.
- C) bone marrow.
- D) thoracic cavity.

Answer: <https://biology-forums.com/index.php?topic=1881875>

### Question 1926

Which of the following events occurs first during embryonic development?

- A) gastrulation
- B) neurulation
- C) cleavage
- D) organ formation

Answer: <https://biology-forums.com/index.php?topic=1882100>

### Question 1927

Iris is a long-day plant that normally flowers in the spring. Which of the following regimens would be the most effective in making an iris bloom in late fall?

- A) interrupting the plant's nights at 2:00 AM with a flash of far-red light
- B) interrupting the plant's nights at 2:00 AM with a flash of red light followed by a flash of far-red light
- C) interrupting the plant's nights at 2:00 AM with a red flash, then a far-red flash, then a red flash
- D) interrupting the plant's days at 2:00 PM by putting it in the dark

Answer: <https://biology-forums.com/index.php?topic=1882483>

### Question 1928

When a bacterial cell with a chromosome-borne F factor conjugates with another bacterium, how is the transmitted donor DNA incorporated into the recipient's genome?

- A) It is substituted for the equivalent portion of the recipient's chromosome by the process of crossing over.
- B) It circularizes and becomes one of the recipient cell's plasmids.
- C) The genes on the donor DNA of which the recipient does not have a copy are added to the recipient chromosome; the remainder of the donor DNA is degraded.
- D) The donor and recipient DNA are both chopped into segments by restriction enzymes, and a new, composite chromosome is assembled from the fragments.

Answer: <https://biology-forums.com/index.php?topic=1883216>

### Question 1929

The expression of both alleles for a trait in a heterozygous individual illustrates

- A) incomplete dominance.
- B) codominance.
- C) pleiotropy.
- D) polygenic inheritance.

Answer: <https://biology-forums.com/index.php?topic=1883130>

### Question 1930

The death by bubonic plague of about one-third of Europe's population during the 14th century is a good example of

- A) abiotic factors limiting population size.
- B) a density-dependent effect.
- C) a density-independent effect.
- D) carrying capacity.

Answer: <https://biology-forums.com/index.php?topic=1882623>

### Question 1931

\_\_\_\_\_ rely completely on innate immunity.

- A) Giraffes
- B) Dogs
- C) Humans
- D) Beetles

Answer: <https://biology-forums.com/index.php?topic=1881935>

### Question 1932

What prompts a newborn baby to start to breathe?

- A) an increase in the concentration of carbon dioxide in the baby's blood
- B) a decrease in the concentration of oxygen in the baby's blood
- C) a change in the temperature on the surface of the skin
- D) exposure to air

Answer: <https://biology-forums.com/index.php?topic=1884042>

### Question 1933

A cDNA library differs from a genomic library in that

- A) the cDNA was constructed from introns only.
- B) genomic libraries are only stored in bacterial cells.
- C) cDNA libraries are more stable.
- D) cDNA libraries only contain information from genes that have been transcribed.

Answer: <https://biology-forums.com/index.php?topic=1883318>

### Question 1934

When a New England farm is abandoned, its formerly plowed fields first become weedy meadows, then shrubby areas, and finally forest. This sequence of plant communities is an example of

- A) evolution.
- B) a trophic chain.
- C) secondary succession.
- D) primary succession.

Answer: <https://biology-forums.com/index.php?topic=1882678>

### Question 1935

Two chromosomes in a nucleus that carry genes controlling the same inherited characteristics are

- A) homologous chromosomes.
- B) heterologous chromosomes.
- C) complementary chromosomes.
- D) parallel chromosomes.

Answer: <https://biology-forums.com/index.php?topic=1883064>

### Question 1936

Finding #2: An unexpected finding was that if students came from economically poor homes or homes that did not have adequate food, they did not have greater fruit and vegetable consumption in school. What hypothesis were the researchers likely testing that produced this finding?

- A) Students who come from families with high incomes are more likely to eat greater amounts of fruits and vegetables than students from families with low incomes.
- B) Students who come from families with adequate access to fruits and vegetables are more likely to eat greater amounts of these foods than students from families with low access to fruits and vegetables.
- C) Students who have families with their own gardens will be less likely to eat greater amounts of fruits and vegetables.
- D) Students who lack a high family income or who have low access to fruits and vegetables are more likely to eat greater amounts of these foods than students from families with a moderate income or who have adequate access to fruits and vegetables.

Answer: <https://biology-forums.com/index.php?topic=1883988>

### Question 1937

In the water relations of vascular plants, the cohesive property of water is most important in the

- A) epidermis.
- B) xylem.
- C) internal air spaces.
- D) stomata.

Answer: <https://biology-forums.com/index.php?topic=1882390>

### Question 1938

Complete the analogy: \_\_\_\_\_ are to vertebrate evolution as \_\_\_\_\_ are to plant evolution

- A) Lungs; stomata
- B) Amniotic eggs; seeds
- C) Limbs; flowers
- D) Opposable thumbs; hyphae

Answer: <https://biology-forums.com/index.php?topic=1883845>

### Question 1939

Cancer of the colon is caused by

- A) a single somatic cell gene mutation.
- B) several somatic cell gene mutations.
- C) a physical rupture of the colon.
- D) a diet high in fiber and low in fat.

Answer: <https://biology-forums.com/index.php?topic=1883275>

### Question 1940

\_\_\_\_\_ cells lack a membrane-enclosed nucleus.

- A) Plant
- B) Prokaryotic
- C) Eukaryotic
- D) Fungal

Answer: <https://biology-forums.com/index.php?topic=1882846>

### Question 1941

Which of the following statements about temperate broadleaf forests is true?

- A) Temperate broadleaf forests have a narrow range of temperatures over the course of a year.
- B) Oak, hickory, birch, beech, and maple are common trees in temperate broadleaf forests.
- C) Temperate broadleaf forests have very poor soil.
- D) Temperate broadleaf forests are less open than tropical rain forests.

Answer: <https://biology-forums.com/index.php?topic=1882538>

### Question 1942

In a food chain consisting of phytoplankton zooplankton fish fishermen, the fishermen are

- A) secondary consumers.
- B) tertiary consumers.
- C) quaternary consumers.
- D) secondary producers.

Answer: <https://biology-forums.com/index.php?topic=1882672>

### Question 1943

In the chloroplast, sugars are made in a compartment that is filled with a thick fluid called the

- A) stomata.
- B) thylakoid.
- C) matrix.
- D) stroma.

Answer: <https://biology-forums.com/index.php?topic=1883003>

### Question 1944

Plant cells treated with auxin would not be able to enlarge under which of the following conditions?

- A) lack of light for growing
- B) presence of other hormones in the plant
- C) absence of lysosomes in the plant cells
- D) inability of the cell to take up water

Answer: <https://biology-forums.com/index.php?topic=1882491>

### Question 1945

The trickling filter at a sewage treatment plant works by

- A) passing wastewater through fine sand, mechanically removing fine pollution particles.
- B) passing wastewater through a thick bed of rocks that contain chemicals that sterilize the water and neutralize chemical pollutants or bind with them to produce a harmless precipitate.
- C) passing wastewater through a thick bed of rocks. Biofilms of bacteria and fungi on the rocks remove much of the organic material dissolved in the wastewater.
- D) adding fertilizer to wastewater and passing it through a culture medium rich in oil-eating prokaryotes.

Answer: <https://biology-forums.com/index.php?topic=1883572>

### Question 1946

Which of the following statements regarding genetic testing is false?

- A) Genetic testing before birth requires the collection of fetal cells.
- B) Carrier testing helps determine whether a person carries a potentially harmful disorder.
- C) The screening of newborns can catch inherited disorders right after birth.
- D) Most human genetic diseases are treatable if caught early.

Answer: <https://biology-forums.com/index.php?topic=1883127>

### Question 1947

Thermoregulation, an important part of homeostasis, is defined as

- A) a mechanism for utilizing body fat for energy.
- B) reduced blood flow to an animal's extremities in order to conserve heat.
- C) the maintenance of internal body temperature within an optimal range despite change in external temperature.
- D) the mechanisms that allow an animal to hibernate without food or drink.

Answer: <https://biology-forums.com/index.php?topic=1881974>

### Question 1948

Two species that occasionally mate and produce zygotes, but that have incompatible genes that prevent the resulting embryo from developing, are affected by

- A) gametic isolation.
- B) reduced hybrid fertility.
- C) reduced hybrid viability.
- D) hybrid breakdown.

Answer: <https://biology-forums.com/index.php?topic=1883442>

### Question 1949

Which of the following statements concerning the role of redox reactions in photosynthesis and cellular respiration is true?

- A) Photosynthesis involves only reductions, whereas respiration involves only oxidations.
- B) Photosynthesis involves only oxidations, whereas respiration involves only reductions.
- C) In photosynthesis, carbon dioxide is oxidized to form sugar, whereas in respiration, sugar is reduced to form carbon dioxide.
- D) In photosynthesis, carbon dioxide is reduced to form sugar, whereas in respiration, sugar is oxidized to form carbon dioxide.

Answer: <https://biology-forums.com/index.php?topic=1883009>

### Question 1950

What happens to the cotyledons of pea and maize seeds?

- A) They remain in the soil and decompose.
- B) They form a protective sheath around the developing root system.
- C) They surround the base of the shoot to provide additional strength.
- D) They immediately begin to use the sun's energy in photosynthesis.

Answer: <https://biology-forums.com/index.php?topic=1882357>

### Question 1951

An airfoil provides lift because air moving over a wing must travel

- A) a greater distance than air moving under the wing, creating a lower pressure system above the wing.
- B) a greater distance than air moving under the wing, creating a higher pressure system above the wing.
- C) a lesser distance than air moving under the wing, creating a lower pressure system above the wing.
- D) a lesser distance than air moving under the wing, creating a higher pressure system above the wing.

Answer: <https://biology-forums.com/index.php?topic=1882256>

### Question 1952

Most of a cell's enzymes are

- A) lipids.
- B) proteins.
- C) amino acids.
- D) carbohydrates.

Answer: <https://biology-forums.com/index.php?topic=1882938>

### Question 1953

Suppose that an elephant with the genotype EEffgHh reproduces with an elephant with the genotype eeFFGgHh. What is the probability that a baby elephant (called a calf) would have the genotype EeFFGghh?

- A) 1/16
- B) 1/32
- C) 1/64
- D) 1/256

Answer: <https://biology-forums.com/index.php?topic=1883158>

### Question 1954

Suppose a species of wild boar (a type of pig) is actively hunted when it is at a young age because at that stage of its development the meat of the boar is particularly tender. What is a likely outcome if this species is overharvested?

- A) The wild boar population will dwindle because their food source will disappear due to habitat loss.
- B) The wild boar population will increase because older boars will continue to survive.
- C) The wild boar population will dwindle and potentially go extinct if not enough boars that can reproduce are left to mate.
- D) The wild boar population will increase because boundaries will help separate boars from humans.

Answer: <https://biology-forums.com/index.php?topic=1882739>

### Question 1955

Animals directly evolved from

- A) plants.
- B) protists.
- C) fungi.
- D) bacteria.

Answer: <https://biology-forums.com/index.php?topic=1883727>

### Question 1956

The example of ocean and lake stickleback fishes indicates that morphology can be altered

- A) only by changing the sequences of protein-coding genes.
- B) by altering the expression of a developmental gene in some parts of the body but not others.
- C) by environmental factors (in this case, pollution).
- D) by the elimination of a gene (Pitx1) from a population, which leads to loss of the trait (body armor and spines).

Answer: <https://biology-forums.com/index.php?topic=1883523>

### Question 1957

Which part of this diagram of a neuron depicts the axon?

- A) part A
- B) part B
- C) part C
- D) part D

Answer: <https://biology-forums.com/index.php?topic=1882197>

### Question 1958

The loss of plant biodiversity, including the wild relatives of crop species, is harmful because these wild relatives

- A) feed most of the world's population.

- B) may be suitable for domestication and regional production.
- C) are often tastier than existing crops.
- D) are a source of genetic diversity that could be used to modify or bolster existing crops.

Answer: <https://biology-forums.com/index.php?topic=1883690>

### Question 1959

To initiate a signal transduction pathway, a signal binds to a receptor protein usually located in the

- A) nucleus.
- B) plasma membrane.
- C) ER.
- D) cytoplasm.

Answer: <https://biology-forums.com/index.php?topic=1883262>

### Question 1960

If we use the letter P to represent the polydactyly gene, what is Jake's genotype?

Cats normally have a total of 18 toes, 5 on each front paw and 4 on each back paw. But some cats express the dominant phenotype for polydactyly, which results in the development of extra toes on one or more paws. Jake, a Canadian tabby cat, has 28 toes and is recognized by the Guinness Book of World Records as the cat with the most toes.

Suppose that Jake mates with a female cat, Lucy, who has 18 total toes. Over several years, they have multiple litters and a total of 16 kittens (10 males and 6 females). The total number of toes on each kitten ranges from 21 to 25.

- A) PP
- B) Pp
- C) pp
- D) You cannot determine Jake's genotype from this information.

Answer: <https://biology-forums.com/index.php?topic=1883167>

### Question 1961

Kudzu is a fast-growing vine that was introduced to the United States in 1876 as a fragrant, ornamental plant and was later used as a source of erosion control. Kudzu grows especially well in the warm, humid climate of the Southeastern United States. In fact, it grows so well that it outgrows and can kill off less successful native plants; it can also kill off areas of forest because it prevents forest trees from receiving sunlight. Kudzu can best be described as

- A) a keystone species.
- B) an invasive species.
- C) a source of primary production.
- D) an abiotic reservoir.

Answer: <https://biology-forums.com/index.php?topic=1882698>

### Question 1962

Excitatory neurotransmitters are most like what part of an automobile?

- A) brakes
- B) windshield wiper
- C) accelerator
- D) horn

Answer: <https://biology-forums.com/index.php?topic=1882190>

### Question 1963

After eating a Yummie cake, which of the following metabolic processes is likely occurring at the fastest rate?

- A) hydrolysis of glycogen
- B) dehydration reactions involving glucose
- C) dehydration reactions involving fatty acids
- D) hydrolysis of cellulose

Answer: <https://biology-forums.com/index.php?topic=1882828>

### Question 1964

An advantage of human testes being positioned in an external sac rather than in the abdominal cavity is that

- A) the distance that that semen must travel during ejaculation is shortened.
- B) the distance that sperm must swim during insemination is shortened.
- C) the testes can be kept cooler than the body's interior.
- D) the testes can enlarge during sexual maturation.

Answer: <https://biology-forums.com/index.php?topic=1882086>

### Question 1965

Which of the following statements regarding the Golgi apparatus is false?

- A) The Golgi apparatus works closely with the endoplasmic reticulum.
- B) The Golgi apparatus serves as a molecular warehouse and finishing factory.
- C) The Golgi apparatus decreases in size when a cell increases its protein production.
- D) The Golgi apparatus modifies chemicals received from the endoplasmic reticulum.

Answer: <https://biology-forums.com/index.php?topic=1882862>

### Question 1966

Which of the following could be a topic for a community-level study of a hydrothermal vent ecosystem?

- A) the relationships between crabs at the vent and other areas of the ocean
- B) the evolution of a certain species of bacteria in response to the changing composition of the water emitted by the hydrothermal vents
- C) the composition of the water emitted by hydrothermal vents
- D) the interactions between Yeti crabs and other species near hydrothermal vents

Answer: <https://biology-forums.com/index.php?topic=1882503>

### Question 1967

The membranous compartmentalization of a cell

- A) divides the cell into two equal-sized halves.
- B) allows different chemical conditions to be maintained in different parts of the cell.
- C) requires the presence of a cell wall.
- D) is common to both prokaryotes and eukaryotes.

Answer: <https://biology-forums.com/index.php?topic=1882849>

### Question 1968

Which of the following organisms belongs to the group represented in box 1?

- A) giraffe
- B) tree
- C) decomposing bacteria
- D) leopard

Answer: <https://biology-forums.com/index.php?topic=1884107>

### Question 1969

Within an ecosystem, a tree is a

- A) secondary consumer.
- B) detritivore.
- C) primary consumer.
- D) producer.

Answer: <https://biology-forums.com/index.php?topic=1882668>

### Question 1970

Genomic libraries can be constructed using either bacterial plasmids or what other vector?

- A) ribosomes
- B) tRNA
- C) human chromosomes
- D) bacteriophages

Answer: <https://biology-forums.com/index.php?topic=1883316>

### Question 1971

The enzyme that converts information stored in RNA to information stored in DNA is

- A) DNA ligase.
- B) reverse transcriptase.
- C) a restriction enzyme.
- D) RNA polymerase.

Answer: <https://biology-forums.com/index.php?topic=1883317>

### Question 1972

Aspirin and other nonsteroidal anti-inflammatory drugs (NSAID) inhibit inflammation by inhibiting an enzyme in the prostaglandin pathway, but by inhibiting this enzyme and this pathway they also inhibit pathways that protect the stomach from damage by stomach acid and that prevent aggregation of blood platelets to form blood clots. What can you conclude from this?

- A) The enzyme inhibition is nonreversible.
- B) The enzyme is found in many different types of cells.
- C) Prostaglandins cause blood clotting.
- D) Aspirin should not be given to people who need to synthesize enzymes.

Answer: <https://biology-forums.com/index.php?topic=1882901>

### Question 1973

Mimosa plants spread their leaflets during the day and fold them at night. You decide to design an experiment to test whether Mimosa's leaf movements are controlled by a biological clock. Which of the following experiments would be the best test of your hypothesis?

- A) Growing the plant indoors and turning the lights on in the middle of the night. If a biological clock is controlling leaf movement, the leaves will open.
- B) Putting the plant in a dark closet in the middle of the day. If the leaves close, a biological clock mechanism is ruled out.
- C) Subjecting the plant to a flash of red light in the middle of the night. If the leaves open at the usual time the next morning, a biological clock mechanism is ruled out.
- D) Putting the plant in a dark closet at nightfall. Check on the plant in the morning about 10 hours later, while the plant is still in the closet. If the leaves are open, a biological clock is indicated.

Answer: <https://biology-forums.com/index.php?topic=1882475>

### Question 1974

The restriction enzyme SmaI has a recognition sequence of GAGCT<sup>^</sup>C, where the caret (^) indicates the cut site. Examine the DNA molecule below.

AGAGCTCAGTCGAGAGCTCAGATCGATAGGAGCTCAGATCTCGATCACCTC  
TCTCGAGTCAGCTCTCGAGTCTAGCTATCCTCGAGTCTAGAGCTAGTGGAG

How many separate molecules of DNA would you end up with if you treated the above DNA molecule with SmaI?

- A) two
- B) three
- C) four
- D) five

Answer: <https://biology-forums.com/index.php?topic=1883351>

### Question 1975

Why do cigarette smokers cough more than nonsmokers?

- A) The tar in cigarette smoke tends to make alveoli stick together, and coughing separates them.
- B) Cigarette smoke harms the cilia that normally move debris out of the lungs, and coughing is the remaining way to clean the lungs.
- C) Cigarette smoking partially paralyzes the muscles in the lungs, resulting in an increased residual volume, and coughing exchanges this "dead air."
- D) By raising the pressure in the lungs, coughing forces more oxygen into the blood.

Answer: <https://biology-forums.com/index.php?topic=1884023>

### Question 1976

The "one gene-one polypeptide" theory states that

- A) the synthesis of each gene is catalyzed by one specific enzyme.
- B) the synthesis of each enzyme is catalyzed by one specific gene.
- C) the function of an individual gene is to dictate the production of a specific polypeptide.
- D) the function of each polypeptide is to regulate the synthesis of each corresponding gene.

Answer: <https://biology-forums.com/index.php?topic=1883186>

### Question 1977

Who developed a theory of evolution almost identical to Darwin's?

- A) Lyell
- B) Wallace
- C) Aristotle
- D) Lamarck

Answer: <https://biology-forums.com/index.php?topic=1883379>

### Question 1978

An experimental forest ecosystem is enclosed in a sealed greenhouse. The entire ecosystem, including the air and soil, is treated with an extremely potent fungicide that kills all fungal life stages including spores. What will probably happen next?

- A) Tree growth will increase because the dead fungi will act as a fertilizer.
- B) Plants will enjoy a long-term increase in growth and survival because of the removal of fungal pathogens.

C) Dead organic matter will accumulate on the forest floor; plant growth will decline because of a lack of nutrients and the loss of mycorrhizal partners.  
D) A few animals will go extinct due to loss of their fungal food sources, but otherwise the forest will be largely unchanged.  
Answer: <https://biology-forums.com/index.php?topic=1883706>

### Question 1979

Which type of plant hormone generally acts as a growth inhibitor?

- A) auxins
- B) gibberellins
- C) cytokinins
- D) abscisic acid

Answer: <https://biology-forums.com/index.php?topic=1882460>

### Question 1980

How much blood is ejected from the left ventricle during one contraction?

- A) 35 mL
- B) 65 mL
- C) 70 mL
- D) 135 mL

Answer: <https://biology-forums.com/index.php?topic=1881908>

### Question 1981

What nucleotide sequence would be found on the partner DNA strand of the strand shown?

- A) ACTGT
- B) UGAGA
- C) TGACA
- D) TGUGU

Answer: <https://biology-forums.com/index.php?topic=1883228>

### Question 1982

If you were just diagnosed with a serious bacterial disease, which of these would predict the most positive outcome for treatment? The disease was acquired

- A) in a hospital, where most of the bacteria are probably already weakened by antibiotics in the environment.
- B) in a livestock barn where the animals have been treated with antibiotics.
- C) in a big city where antibiotics are routinely prescribed by doctors.
- D) in a remote, sparsely populated area where the bacteria have not been exposed to antibiotic drugs.

Answer: <https://biology-forums.com/index.php?topic=1883412>

### Question 1983

The plant growth response to touch is known as

- A) gravitropism.
- B) geotropism.
- C) bolting.
- D) thigmotropism.

Answer: <https://biology-forums.com/index.php?topic=1882472>

### Question 1984

What term refers to seasonal changes in the relative lengths of night and day?

- A) photoperiod
- B) circadian rhythm
- C) gravitropism
- D) phototaxis

Answer: <https://biology-forums.com/index.php?topic=1882478>

### Question 1985

Which of the following processes is endergonic?

- A) the burning of wood
- B) the synthesis of glucose from carbon dioxide and water
- C) the breakdown of glucose
- D) cellular respiration

Answer: <https://biology-forums.com/index.php?topic=1882930>

### Question 1986

The traits that are unique to insects and have probably contributed to their diversity and success include

- A) small body size, an exoskeleton, and sexual reproduction.
- B) flight, short generation times, and complex life cycles including complete metamorphosis.
- C) the exoskeleton, an open circulatory system, and jointed appendages.
- D) the presence of four or more pairs of legs, an exoskeleton, and a water-resistant cuticle.

Answer: <https://biology-forums.com/index.php?topic=1883761>

### Question 1987

The need for intense parental care of offspring favors mating systems that are

- A) polygamous.
- B) diurnal.
- C) monogamous.
- D) promiscuous.

Answer: <https://biology-forums.com/index.php?topic=1882586>

### Question 1988

In mammals, blood returning from the head will pass through the \_\_\_\_\_ just before entering the right atrium.

- A) left atrium
- B) superior vena cava
- C) inferior vena cava
- D) aorta

Answer: <https://biology-forums.com/index.php?topic=1881841>

### Question 1989

After the reverse osmosis system has been operating for 30 minutes, the solution in tank A would

- A) be hypotonic to tank B.
- B) be isotonic to tank B.
- C) be hypertonic to tank B.
- D) move by passive transport to tank B.

Answer: <https://biology-forums.com/index.php?topic=1882953>

### Question 1990

The cells that store starch in dicot roots are located between the

- A) xylem and the phloem.
- B) epidermis and the root hairs.
- C) epidermis and the vascular cylinder.
- D) epidermis and the cortex.

Answer: <https://biology-forums.com/index.php?topic=1882321>

### Question 1991

Which of the following statements about nucleic acid probes is false?

- A) A nucleic acid probe is a double-stranded section of DNA.
- B) A nucleic acid probe can be used to find a specific gene.
- C) A nucleic acid probe binds to a complementary sequence in the gene of interest.
- D) A nucleic acid probe is usually labeled with a radioactive isotope or fluorescent tag to help identify its location.

Answer: <https://biology-forums.com/index.php?topic=1883321>

### Question 1992

As a result of glycolysis, there is a net gain of \_\_\_\_\_ ATP(s).

- A) 0
- B) 1
- C) 2
- D) 36

Answer: <https://biology-forums.com/index.php?topic=1882958>

### Question 1993

Which of the following flower parts produces female gametophytes?

- A) anthers
- B) ovules
- C) stigmas
- D) sepals

Answer: <https://biology-forums.com/index.php?topic=1882346>

### Question 1994

There is a good chance you will eat carrageenan today and that you will eat nori at some point in your life, if you haven't already. In either case, you will be eating a product of

- A) brown algae.
- B) red algae.
- C) green algae.
- D) diatoms.

Answer: <https://biology-forums.com/index.php?topic=1883620>

### Question 1995

You take a 1-mL sample of pond water and add it to a colorless, viscous media in a small petri dish. When you place it under your dissecting microscope, you see three organisms. Two are struggling to move efficiently through the media, while the third moves more quickly. You attribute the faster movement to the third organism's

- A) thick cell wall.
- B) flagella.
- C) fimbriae.
- D) chloroplasts.

Answer: <https://biology-forums.com/index.php?topic=1883623>

### Question 1996

The earliest discovered fossils are of \_\_\_\_\_ dating back to \_\_\_\_\_ years ago.

- A) single-celled eukaryotes; 4.5 billion
- B) prokaryotes; 3.5 billion
- C) algae; 1 billion
- D) fish; 600 million

Answer: <https://biology-forums.com/index.php?topic=1883486>

### Question 1997

What kind of connective tissue has an extracellular liquid matrix called plasma?

- A) nerve tissue
- B) loose connective tissue
- C) adipose tissue
- D) blood

Answer: <https://biology-forums.com/index.php?topic=1883869>

### Question 1998

Which of the following statements about blood clotting is true?

- A) The first response to an injury is dilation of the damaged blood vessels.
- B) During the clotting response, platelets rapidly congregate in the interstitial fluid.
- C) Fibrin is enzymatically converted to fibrinogen.
- D) Threads of fibrin form a fibrin clot.

Answer: <https://biology-forums.com/index.php?topic=1881878>

### Question 1999

Different species of brittle stars (echinoderms) have different feeding mechanisms. When a species of brittle star feeds by using tentacle-like appendages to capture large food particles, it is using which of the following feeding mechanisms?

- A) radula for feeding
- B) suspension feeding
- C) clawlike appendages for feeding
- D) nectar feeding

Answer: <https://biology-forums.com/index.php?topic=1883777>

### Question 2000

A plant stem modified for storage of food such as starch is called a

- A) bulb.
- B) tuber.
- C) taproot.
- D) runner.

Answer: <https://biology-forums.com/index.php?topic=1882319>

### Question 2001

Which of the following groups include organisms that are a key source of food in all aquatic environments and whose fossilized forms are used as a filter and as a grinding and polishing agent?

- A) diatoms
- B) brown algae
- C) amoebas
- D) dinoflagellates

Answer: <https://biology-forums.com/index.php?topic=1883612>

### Question 2002

How are these two amino acids attached together?

- A) amino group to amino group
- B) amino group to carboxylic acid group
- C) carboxylic acid group to carboxylic acid group
- D) through a hydrolysis reaction

Answer: <https://biology-forums.com/index.php?topic=1882819>

### Question 2003

Which of the following organisms has a dominant sporophyte generation and a free-living gametophyte generation?

- A) moss
- B) fern
- C) mushroom
- D) conifer

Answer: <https://biology-forums.com/index.php?topic=1883667>

### Question 2004

One reason it is important to understand community ecology is

- A) to understand the life cycle of fish, such as cichlids.
- B) for identification of stomach microbes.
- C) to aid in conservation of endangered species.
- D) to provide an enriched habitat for humans.

Answer: <https://biology-forums.com/index.php?topic=1882653>

### Question 2005

Intestinal gas is evidence of active \_\_\_\_\_ in one's digestive tract.

- A) thermophiles
- B) methanogens
- C) yeast cultures
- D) halophiles

Answer: <https://biology-forums.com/index.php?topic=1883575>

### Question 2006

Which of the following groups includes protists that reside within the cells of corals?

- A) brown algae
- B) diatoms
- C) dinoflagellates
- D) ciliates

Answer: <https://biology-forums.com/index.php?topic=1883609>

### Question 2007

The function of a sperm cell's acrosome is to

- A) carry the sperm's nucleus.

- B) fuse with the jelly coat of the egg cell.
- C) carry enzymes that help the sperm penetrate the egg.
- D) carry the fuel that powers the sperm.

Answer: <https://biology-forums.com/index.php?topic=1882097>

### Question 2008

Which of the following would be most affected by a mutation that prevented cells from forming tight junctions?

- A) attachment of cells to the surrounding matrix
- B) direct flow of water and small molecules from one cell to another
- C) integrity of the inner lining of the digestive tract
- D) attachment of the cytoskeleton to the inside of the plasma membrane

Answer: <https://biology-forums.com/index.php?topic=1882879>

### Question 2009

Which of the following has not been a significant issue in the creation of genetically modified (GM) organisms?

- A) the fact that some plants carrying genes from other species might represent a threat to the environment
- B) the fact that GM organisms cannot be modified to prevent them from reproducing once they pass beyond the experimental stage
- C) the fact that rogue microbes might transfer dangerous genes into other organisms
- D) the fact that the protein products of transplanted genes might lead to allergic reactions

Answer: <https://biology-forums.com/index.php?topic=1883328>

### Question 2010

Which of the following organisms is a monotreme?

- A) echidna
- B) kangaroo
- C) whale
- D) zebra

Answer: <https://biology-forums.com/index.php?topic=1883811>

### Question 2011

Which of the following statements regarding fins on fishes is true?

- A) Fins evolved so that fish could swim better.
- B) Fins came about because animals couldn't live in water without them.
- C) Fins are an adaptation that aid in swimming.
- D) Fins resulted from a mutation caused by a movement from land to water.

Answer: <https://biology-forums.com/index.php?topic=1883426>

### Question 2012

A scientist performs a controlled experiment. This means that

- A) the experiment is repeated many times to ensure that the results are accurate.
- B) the experiment proceeds at a slow pace to guarantee that the scientist can carefully observe all reactions and process all experimental data.
- C) two versions of the experiment are conducted, one differing from the other by only a single variable.
- D) one experiment is performed, but the scientist controls the variables.

Answer: <https://biology-forums.com/index.php?topic=1884100>

### Question 2013

A single steroid hormone can cause different effects in different cells by

- A) binding to different receptors.
- B) acting on different organelles.
- C) activating different second messengers.
- D) activating different enzymes.

Answer: <https://biology-forums.com/index.php?topic=1882043>

### Question 2014

Most trees and shrubs continue to grow year after year. Such plants are known as

- A) biennials.
- B) perennials.
- C) annuals.
- D) superannuals.

Answer: <https://biology-forums.com/index.php?topic=1882334>

### Question 2015

Because cytotoxic T cells can recognize viral proteins, they can destroy these infected cells. This is particularly important to individuals with certain kinds of cancers because

- A) destroying the infected cells can help slow the spread of the infected cells.
- B) destroying the infected cells can help stop the spread of the infected cells.
- C) destroying the infected cells will help prevent future infections of other viruses.
- D) both A and B.

Answer: <https://biology-forums.com/index.php?topic=1881958>

### Question 2016

The mucus-producing cells that line the stomach

- A) increase the surface of the stomach for faster digestion.
- B) stimulate production of hydrochloric acid.
- C) lubricate and protect the stomach lining.
- D) move food upward in the stomach to prolong digestion.

Answer: <https://biology-forums.com/index.php?topic=1883923>

### Question 2017

The two basic types of circulatory systems that have evolved over time are

- A) flat and circular.
- B) open and closed.
- C) series and parallel.
- D) invertebrate and vertebrate.

Answer: <https://biology-forums.com/index.php?topic=1881833>

### Question 2018

The overall process that refines the filtrate and ultimately returns water and valuable solutes to the blood is known as

- A) reabsorption.
- B) excretion.
- C) collection.
- D) purification.

Answer: <https://biology-forums.com/index.php?topic=1881999>

### Question 2019

Which of the following statements regarding nucleotides is false?

- A) Nucleotides contain lipids.
- B) Nucleotides contain sugar molecules.
- C) Nucleotides can be linked together to form nucleic acids.
- D) Nucleotides contain nitrogenous bases.

Answer: <https://biology-forums.com/index.php?topic=1882803>

### Question 2020

From a sociobiological perspective, altruism is a behavior that

- A) does not have a genetic basis.
- B) has the potential to enhance the altruist's fitness at a later point in time.
- C) will always be selected against.
- D) occurs only in the social insects.

Answer: <https://biology-forums.com/index.php?topic=1882595>

### Question 2021

All of the following mechanisms are used to regulate protein production except

- A) protein activation.
- B) protein breakdown.
- C) DNA replication.
- D) the breakdown of mRNA.

Answer: <https://biology-forums.com/index.php?topic=1883258>

### Question 2022

In a dialysis machine, wastes are removed from blood plasma by the process of

- A) filtration.
- B) diffusion.
- C) reabsorption.
- D) absorption.

Answer: <https://biology-forums.com/index.php?topic=1882007>

### Question 2023

Imagine that blood did not contain any dissolved proteins. What would likely happen when this abnormal blood flows through a capillary bed?

- A) Nearly all of the fluid in the blood would move out of the capillaries.
- B) None of the fluid in the blood would move out of the capillaries.
- C) Some of the proteins in the interstitial fluid would flow into the capillaries.
- D) The blood would flow normally through the capillaries.

Answer: <https://biology-forums.com/index.php?topic=1881885>

### Question 2024

Fast muscle fibers contain a high proportion of myofibrils, which allows the fibers to generate high amounts of force. However, this leaves little room in the fibers for other cellular components, including mitochondria. The opposite is true for slow muscle fibers. Does this information support or refute what you know about the fatigue-susceptibility of fast and slow fibers? Why or why not?

- A) It supports it because if fast fibers have less room for mitochondria than slow fibers do, they cannot produce as much ATP and thus are less fatigue-resistant than slow fibers.
- B) It supports it because if fast fibers have less room for mitochondria than slow fibers do, they can produce more ATP than slow fibers and thus are more fatigue-resistant than slow fibers.
- C) It refutes it because if fast fibers have less room for mitochondria than slow fibers do, they can produce more ATP than slow fibers and thus are less fatigue-resistant than slow fibers.
- D) It refutes it because if fast fibers have less room for mitochondria than slow fibers do, they cannot produce as much ATP and thus are more fatigue-resistant than slow fibers.

Answer: <https://biology-forums.com/index.php?topic=1882295>

### Question 2025

During production of urine, a major function of the kidney is

- A) water conservation.
- B) amino acid production.
- C) detoxification.
- D) uric acid production.

Answer: <https://biology-forums.com/index.php?topic=1882001>

### Question 2026

Which of the following animals is an ape?

- A) New World monkey
- B) Old World monkey
- C) orangutan
- D) tarsier

Answer: <https://biology-forums.com/index.php?topic=1883818>

### Question 2027

The human lymphatic system consists of all of the following structures except the

- A) thymus.
- B) tonsils.
- C) spleen.
- D) pancreas.

Answer: <https://biology-forums.com/index.php?topic=1881920>

### Question 2028

When DNA molecule "A" is cut with the restriction enzyme EcoRI, it is cut into four pieces. When DNA molecule "B," which is exactly identical to DNA molecule "A" except for the presence of one SNP, is cut with EcoRI, it is cut into three pieces. What is the best explanation for this observation?

- A) The SNP occurs in all EcoRI restriction sites in DNA molecule "B."
- B) The SNP occurs in a single EcoRI restriction site in DNA molecule "B."
- C) Not enough EcoRI was used to cut DNA molecule "B."
- D) An excess of EcoRI was used to cut DNA molecule "A."

Answer: <https://biology-forums.com/index.php?topic=1883360>

### Question 2029

Why can some plants be cloned from a single cell?

- A) Plant cells do not differentiate even when mature, so any cell can grow into an entire plant.
- B) Plant cells can dedifferentiate and give rise to all of the specialized cells required to produce an entire plant.
- C) Plant cells can produce genes to replace those lost during development.
- D) Plant cells are capable of self-renewal by utilizing cellular components from adjacent cells.

Answer: <https://biology-forums.com/index.php?topic=1883266>

### Question 2030

Which of the following statements regarding genetics is false?

- A) In keeping with our greater complexity, the human genome has about 100 times more genes than that of yeast.
- B) Gene duplication helps to explain how mammals can detect and discriminate among such a wide range of odors.
- C) About 99% of the genes of humans and mice are related by descent from a common ancestor.
- D) The more recently two species have branched from a common ancestor, the more similar we expect their DNA sequences to be.

Answer: <https://biology-forums.com/index.php?topic=1883541>

### Question 2031

The density of Douglas firs in an old-growth forest is estimated by counting the Douglas firs in four sample plots of 1 hectare each. The number of fir trees in the plots is 10, 12, 7, and 11, respectively. What is the estimated density of firs in the forest?

- A) 5 trees per hectare
- B) 10 trees per hectare
- C) 20 trees per hectare
- D) 25 trees per hectare

Answer: <https://biology-forums.com/index.php?topic=1882610>

### Question 2032

Which of the following are important in breaking down organic material in fertile topsoil?

- A) abrasive granite particles
- B) humus and cations
- C) bacteria and fungi
- D) plant roots

Answer: <https://biology-forums.com/index.php?topic=1882408>

### Question 2033

In a showy flower such as a magnolia or rose, the flower parts that play the main role in attracting the notice of animal pollinators are the

- A) petals.
- B) sepals.
- C) fruits.
- D) stigmas.

Answer: <https://biology-forums.com/index.php?topic=1882341>

### Question 2034

Darwin found that many of the species on the Galpagos islands

- A) resembled species on the nearest mainland.
- B) resembled species in Europe.
- C) resembled species from Australia.
- D) were identical to South American species.

Answer: <https://biology-forums.com/index.php?topic=1883377>

### Question 2035

Protecting the endangered black-footed ferret from extinction involved

- A) captive breeding and reintroduction.
- B) collecting individuals from multiple small populations and combining them into a single large population.
- C) vaccinating the remaining population against sylvatic plague.
- D) providing food during harsh winters.

Answer: <https://biology-forums.com/index.php?topic=1882723>

### Question 2036

\_\_\_\_\_ cells in leaves are specialized for photosynthesis.

- A) Companion
- B) Mesophyll
- C) Sclerenchyma
- D) Tracheid

Answer: <https://biology-forums.com/index.php?topic=1883002>

### Question 2037

\_\_\_\_\_ are heterotrophic protists; \_\_\_\_\_ are photoautotrophic protists.

- A) Mixotrophs; protozoans
- B) Protozoans; algae
- C) Protozoans; plants
- D) Parasites; protozoans

Answer: <https://biology-forums.com/index.php?topic=1883585>

### Question 2038

In rickets, lack of calcium decreases the strength of the mineral matrix of compact bone so that it is unable to

- A) resist compression.
- B) complete extension.
- C) complement muscle contraction.
- D) bend at the joints.

Answer: <https://biology-forums.com/index.php?topic=1882302>

### Question 2039

If a prokaryote is placed in an aquatic environment that has moderate sunlight availability as well as dead plant material, an effective mode of nutrition would be

- A) photoautotrophic behavior.
- B) chemotrophic behavior.
- C) mixotrophic behavior.
- D) chemoautotrophic behavior.

Answer: <https://biology-forums.com/index.php?topic=1883626>

### Question 2040

Cigarette smoking and secondhand smoke cause cancer due to the

- A) effects they have on our breathing mechanisms.
- B) chemical compounds in the smoke.
- C) fact that the chemical compounds are resistant to human immune systems.
- D) immunosuppressive effects they display.

Answer: <https://biology-forums.com/index.php?topic=1884024>

### Question 2041

A friend accidentally sends an email to you that contains a computer virus from his computer. Without knowing it, you infect your computer with the virus when you open the email. This process of spreading the computer virus via email is most like which of the following processes?

- A) binary fission
- B) conjugation
- C) transduction
- D) transformation

Answer: <https://biology-forums.com/index.php?topic=1883215>

### Question 2042

A biology teacher takes fish, algae, pond weed, invertebrates, and bottom muck from a local pond and establishes them in an aquarium. When the system is stable, the teacher seals it into a large, airtight glass box and leaves the box in a sunny location. After three months, the organisms in the aquarium appear alive and healthy. Which of the following statements about the experiment is true?

- A) No energy has entered or left the glass box during the three months.
- B) Some of the energy in the system has moved from one organism to another during the three months.
- C) The air in the glass box contains no carbon dioxide.
- D) During the three months, the biomass of animal life was greater than the biomass of plant life.

Answer: <https://biology-forums.com/index.php?topic=1882682>

### Question 2043

Using a six-sided die, what is the probability of rolling either a 5 or a 6?

- A)  $1/6$   $1/6 = 1/36$
- B)  $1/6 + 1/6 = 1/3$
- C)  $1/6 + 1/6 = 2/3$
- D)  $1/6$

Answer: <https://biology-forums.com/index.php?topic=1883119>

### Question 2044

What is the atomic difference between uranium-235 and uranium-238?

- A) Uranium-235 has three fewer protons than uranium-238.
- B) Uranium-235 has three fewer neutrons than uranium-238.
- C) Uranium-235 has three fewer electrons than uranium-238.
- D) Uranium-235 has three fewer atoms than uranium-238.

Answer: <https://biology-forums.com/index.php?topic=1882785>

### Question 2045

Individual prokaryote cells are about \_\_\_\_\_ eukaryote cells; collectively, all prokaryote cells on Earth \_\_\_\_\_.

- A) the same size as; weigh about one-tenth the total mass of eukaryote cells
- B) 10 times bigger than; weigh about 10 times as much as the total mass of eukaryote cells
- C) one-tenth as big as; weigh about one-tenth the total mass of eukaryote cells
- D) one-tenth as big as; weigh about 10 times as much as the total mass of eukaryote cells

Answer: <https://biology-forums.com/index.php?topic=1883562>

### Question 2046

Which of the following is a way that plants use animals as a defense against herbivores?

- A) production of an amino acid that harms herbivores
- B) attraction of wasps that kill herbivorous caterpillars
- C) release of microbe-killing chemicals in response to infection
- D) coevolution between plants and predators

Answer: <https://biology-forums.com/index.php?topic=1882486>

### Question 2047

In mammals, which of the following vessels transports oxygenated blood from the lung back to the heart?

- A) pulmonary artery
- B) pulmonary vein
- C) vena cava
- D) coronary artery

Answer: <https://biology-forums.com/index.php?topic=1881842>

### Question 2048

What is one overall conclusion that you can draw from these results?

- A) There was no noticeable difference between the male and female frogs in group 2 in percentage of frogs with high retardant levels.
- B) As compared to the group 1 male frogs, group 1 female frogs had a lower percentage of frogs with high retardant levels.
- C) As compared to the group 2 female frogs, there were a lower percentage of group 2 male frogs with high levels of flame retardants in their blood.
- D) As compared to the group 2 male frogs, there were a lower percentage of group 2 female frogs with high levels of flame retardants in their blood.

Answer: <https://biology-forums.com/index.php?topic=1882077>

### Question 2049

Which of the following substances induces "bolting," the rapid elongation of a plant stem?

- A) gibberellin
- B) abscisic acid
- C) ethylene
- D) phytochrome

Answer: <https://biology-forums.com/index.php?topic=1882458>

### Question 2050

The greatest annual input and least seasonal variation in solar radiation occurs in the

- A) Southern Hemisphere.
- B) temperate zones.
- C) tropics.
- D) polar regions.

Answer: <https://biology-forums.com/index.php?topic=1882512>

### Question 2051

Which of the following structures constitutes part of the axial skeleton?

- A) skull
- B) pelvic girdle
- C) pectoral girdle
- D) leg bones

Answer: <https://biology-forums.com/index.php?topic=1882265>

### Question 2052

Which of the following statements regarding saltwater fish is true?

- A) The concentration of solutes in the internal fluids of saltwater fish is much lower than that in the surrounding water.
- B) The concentration of solutes in the internal fluids of saltwater fish is higher than that in the surrounding environment.
- C) Saltwater fish produce large amounts of diluted urine.
- D) Saltwater fish must visit freshwater streams and rivers entering the ocean to maintain the correct concentration of solutes in their internal fluids.

Answer: <https://biology-forums.com/index.php?topic=1881984>

### Question 2053

Where is the antigen-binding site of this antibody?

- A) site A
- B) site B
- C) site C
- D) site D

Answer: <https://biology-forums.com/index.php?topic=1881969>

### Question 2054

The transfer of genetic information from DNA to RNA is called

- A) translation.
- B) transcription.
- C) initiation.
- D) elongation.

Answer: <https://biology-forums.com/index.php?topic=1883185>

### Question 2055

Which of the following exhibits bilateral symmetry?

- A) a butterfly
- B) a sponge
- C) a sea anemone
- D) a pair of hands

Answer: <https://biology-forums.com/index.php?topic=1883776>

### Question 2056

A spot where two continental plates are sliding past one another may be prone to

- A) volcanoes.
- B) earthquakes.
- C) tsunamis.
- D) wildfires.

Answer: <https://biology-forums.com/index.php?topic=1883513>

### Question 2057

Which of the following statements best describes the basis of sensory adaptation?

- A) A continuously stimulated sensory receptor triggers fewer action potentials, so stimuli sent to the brain decrease and awareness of the stimuli is diminished.
- B) The nerve fiber synapsed with a sensory receptor gradually returns to its baseline level of firing despite continued neurotransmitter stimulation.

- C) The spinal cord interneurons that receive a prolonged stimulus gradually come to ignore it.  
D) The thalamic centers that receive a prolonged stimulus gradually come to ignore it.

Answer: <https://biology-forums.com/index.php?topic=1882204>

### Question 2058

Under what conditions would you expect a plant to have the highest concentration of abscisic acid?

- A) in a wet tropical rain forest  
B) in a cool environment after a heavy rain  
C) in a houseplant growing in low light conditions  
D) in a desert after a long drought

Answer: <https://biology-forums.com/index.php?topic=1882461>

### Question 2059

Which structure in the image has a different number of chromosomes than the others?

- A) structure A  
B) structure B  
C) structure C  
D) structure D

Answer: <https://biology-forums.com/index.php?topic=1882374>

### Question 2060

In which of the following situations would speciation be most likely to occur?

- A) A population of juniper shrubs is split in two by a canyon. Every year, strong winds carry a small amount of the shrubs' pollen across the canyon.  
B) A Japanese mollusk species whose larvae are often carried from port to port in ship bilge (waste) water now flourishes in San Francisco Bay, a busy commercial port.  
C) Bighorn sheep occupy mountains from Canada to Death Valley in Southern California, interbreeding all the way. The populations at the two ends of the range live in very different environments.  
D) Seven monkeys escape from an enclosure. To everyone's surprise, they establish a small but viable population, coexisting successfully with humans in a partly suburban environment very different from their native African habitat.

Answer: <https://biology-forums.com/index.php?topic=1883449>

### Question 2061

Marine animals that have body fluids with a solute concentration equal to that of the surrounding seawater are

- A) osmoregulators.  
B) osmoconformers.  
C) hypotonic.  
D) hypertonic.

Answer: <https://biology-forums.com/index.php?topic=1881981>

### Question 2062

In photosynthesis, the chemiosmotic production of ATP

- A) requires oxygen.  
B) is similar to the production of ATP in mitochondria.  
C) is done by the Calvin cycle.  
D) is a result of the oxidation of glucose.

Answer: <https://biology-forums.com/index.php?topic=1883033>

### Question 2063

The pronghorn antelope of the United States and the saiga antelope of the central Asian steppes live in similar habitats and have similar adaptations. Which of the following features would you be surprised to find in a saiga antelope?

- A) camouflaging coloration  
B) teeth adapted to grinding tough forage  
C) a warmly insulating winter coat  
D) a digestive tract without cellulose-digesting bacteria

Answer: <https://biology-forums.com/index.php?topic=1882508>

### Question 2064

In thinking about their role in cell division, oncogenes are like the \_\_\_\_\_ of a car, while tumor suppressor genes are like the \_\_\_\_\_ of a car.

- A) gas pedal; brakes  
B) steering wheel; brakes

- C) gas pedal; headlights
- D) brakes; gas pedal

Answer: <https://biology-forums.com/index.php?topic=1883294>

### Question 2065

Which of the following results from stimulation by the sympathetic nervous system?

- A) release of glucose from the liver
- B) decreased heart rate
- C) stimulation of the digestive organs
- D) constriction of the bronchi

Answer: <https://biology-forums.com/index.php?topic=1882170>

### Question 2066

The freshwater leech is an organism that feeds off of the blood of other organisms such as frogs and turtles. Which of the following describes the relationship between freshwater leeches and frogs or turtles?

- A) herbivory
- B) predation
- C) mutualism
- D) parasitism

Answer: <https://biology-forums.com/index.php?topic=1882669>

### Question 2067

The addition of oxygen instead of carbon dioxide to RuBP results in

- A) cellular respiration.
- B) photorespiration.
- C) photophosphorylation.
- D) aerobic respiration.

Answer: <https://biology-forums.com/index.php?topic=1883038>

### Question 2068

Mendel conducted his most memorable experiments on

- A) peas.
- B) roses.
- C) guinea pigs.
- D) fruit flies.

Answer: <https://biology-forums.com/index.php?topic=1883100>

### Question 2069

Humans share several features with salamanders. Certain genes and proteins are nearly identical between the two species; both species have four limbs with a similar skeletal structure; the species' early embryos are very similar; and where the salamander has a functional tail, humans have a vestigial tailbone. In evolutionary terms, these are examples of

- A) geographic similarity.
- B) homology.
- C) adaptation by natural selection.
- D) coincidental similarity.

Answer: <https://biology-forums.com/index.php?topic=1883391>

### Question 2070

When one DNA molecule is copied to make two DNA molecules, the new DNA contains

- A) none of the parent DNA.
- B) 50% of the parent DNA.
- C) 75% of the parent DNA.
- D) 100% of the parent DNA

Answer: <https://biology-forums.com/index.php?topic=1883180>

### Question 2071

Feathers are an example of a/an \_\_\_\_\_; they originally evolved \_\_\_\_\_.

- A) homology; for flight
- B) adaptation; for some other function and only later became adapted for flight
- C) exaptation; in anticipation of future use in the development of flight

D) exaptation; for some other function and only later became adapted for flight

Answer: <https://biology-forums.com/index.php?topic=1883525>

### Question 2072

Osteoporosis has long been recognized as a problem for women after menopause, but it is also emerging as a health concern for

- A) women in their 20s and 30s.
- B) teenage men.
- C) men over the age of 65.
- D) men and younger people in general.

Answer: <https://biology-forums.com/index.php?topic=1882272>

### Question 2073

Metabolic activities that involve "burning" carbohydrates release energy. When our bodies "burn" carbohydrates, what are we doing?

- A) transferring some energy from the carbohydrate molecule to other molecules and releasing lower energy food molecules into the alimentary canal
- B) breaking down food molecules into smaller molecules such as simple sugars that have more energy than the original food molecule and can be used in the cell more easily
- C) transferring energy from the bonds in food molecules to molecules that make that energy more readily available (like ATP) and releasing simple low-energy molecules (like CO<sub>2</sub> and H<sub>2</sub>O) to the environment
- D) breaking down carbohydrate molecules to smaller components that are then used to build larger molecules that the body needs

Answer: <https://biology-forums.com/index.php?topic=1883971>

### Question 2074

The technique called radiometric dating is based on

- A) the steady, clocklike decay of certain radioactive isotopes over time.
- B) the assumption that radioactive isotopes accumulate in fossils at a constant rate.
- C) the formation of radioactive molecules in rocks after they are laid down.
- D) the use of fossils of known age to determine how fast carbon-14 decays.

Answer: <https://biology-forums.com/index.php?topic=1883497>

### Question 2075

Which of the following statements regarding Ulva is true?

- A) Ulva, a green algae, resembles land plants because it produces diploid gametes.
- B) Ulva, a brown algae, has a complex life cycle with diploid body cells and haploid gametes.
- C) Ulva, a green algae, has a complex life cycle with diploid body cells and haploid gametes.
- D) Ulva, a green algae, has a complex life cycle with alternation between multicellular diploid and haploid generations.

Answer: <https://biology-forums.com/index.php?topic=1883637>

### Question 2076

You are trying to determine the linkage map of a series of genes, X, Y, and Z, from *Caenorhabditis elegans*, a nematode worm commonly used in scientific research. From doing several crossover experiments, you know that the recombination frequency between X and Y is 11.5%, between Y and Z is 13%, and between X and Z is 25%. What is a possible sequence of these genes?

- A) X-Z-Y
- B) Y-Z-X
- C) Z-X-Y
- D) X-Y-Z

Answer: <https://biology-forums.com/index.php?topic=1883159>

### Question 2077

The teeth of grain-eating animals (such as horses) are usually broad and ridged. This makes the teeth suitable for grinding and chewing. Meat-eating animals (such as lions) have pointed teeth that are good for puncturing and ripping flesh. This illustrates

- A) a result of natural selection only.
- B) the connection between form and function only.
- C) a food web.
- D) a result of natural selection as well as the connection between form and function.

Answer: <https://biology-forums.com/index.php?topic=1884096>

### Question 2078

The symmetry of echinoderms generally includes

- A) radially symmetrical larvae and adults.
- B) bilaterally symmetrical larvae and adults.

C) bilaterally symmetrical larvae and radially symmetrical adults.  
D) radially symmetrical larvae and bilaterally symmetrical adults.  
Answer: <https://biology-forums.com/index.php?topic=1883764>

### Question 2079

Examine the following two DNA sequences.

Sequence 1:ATGCGATGCTAGCAT

Sequence 2:ATGCGATGATAGCAT

If both of these sequences code for proteins, how might the function of protein 2 differ from the function of protein 1? Use the genetic code below for assistance.

- A) Protein 1 and protein 2 will function exactly the same.
- B) Protein 1 will be shorter than protein 2, so they will not function the same.
- C) Protein 2 will be shorter than protein 1, so they will not function the same.
- D) Protein 2 has a different sequence, so it will function differently from protein 1.

Answer: <https://biology-forums.com/index.php?topic=1883231>

### Question 2080

The primary source of energy for hydrothermal vent communities is

- A) the heat of the water emerging from the vents.
- B) oxidation of petroleum compounds in the vent water.
- C) oxidation of hydrogen sulfide in the vent water.
- D) reduction of carbon dioxide in the vent water.

Answer: <https://biology-forums.com/index.php?topic=1882499>

### Question 2081

The Yellowstone to Yukon Conservation Initiative is a plan to

- A) connect all of the national parks in the western United States.
- B) connect all of the national parks in the United States.
- C) connect parks in the United States and Canada with protected corridors where wildlife can travel safely.
- D) create a giant, fenced private land area between the national parks in the United States to create a protected zone for wildlife.

Answer: <https://biology-forums.com/index.php?topic=1882732>

### Question 2082

Suppose that in 1990, fungal treatment was added to stream water contaminated from a textile mill. The toxins in the water tend to lower pH levels, and scientists wanted to study how adding the fungal treatment affected stream pH levels. pH levels were recorded every year for five years. Results indicated that the acidity of the stream water decreased from pH 2.5 in the first year to pH 5.9 by the fifth year. Scientists concluded that

- A) the fungal treatment had little to no effect on detoxifying the stream water.
- B) the fungal treatment had a positive effect on detoxifying the stream water.
- C) the fungal treatment had completely detoxified the stream water.
- D) there was not enough evidence to determine the effects of the fungal treatment on the toxic stream water.

Answer: <https://biology-forums.com/index.php?topic=1883650>

### Question 2083

Another term for gestation is

- A) conception.
- B) fertilization.
- C) development.
- D) pregnancy.

Answer: <https://biology-forums.com/index.php?topic=1882113>

### Question 2084

Natural selection tends to correlate the structures of a nervous system with an animal's interaction with the environment. A good example is sessile or slow-moving molluscs such as clams, which

- A) have little or no cephalization and simple sense organs.
- B) use chemical synapses to process complex information.
- C) have a well-developed brain that functions as a master control center.
- D) use their circulatory system as a mechanism for distributing nerve impulses.

Answer: <https://biology-forums.com/index.php?topic=1882165>

### Question 2085

Scientists evaluating the Cretaceous mass extinction have concluded that

- A) an asteroid impact was probably the triggering event for the extinction.
- B) only an extraterrestrial impact could have caused such a big extinction event.
- C) climate change would not have been involved in producing the extinctions.
- D) ecological factors such as disease and competition probably caused the dinosaurs to go extinct.

Answer: <https://biology-forums.com/index.php?topic=1883517>

### Question 2086

Which of the following statements regarding genetic diversity is false?

- A) Genetic diversity is enhanced by random fertilization.
- B) Genetic diversity is enhanced by independent orientation of chromosomes at metaphase I.
- C) Genetic diversity is enhanced by mitosis.
- D) Genetic diversity is enhanced by crossing over during meiosis.

Answer: <https://biology-forums.com/index.php?topic=1883069>

### Question 2087

A group of single cell organisms collected from the ocean was brought into the lab for examination. The lab assistant was concerned that the water had become full of toxic waste products and so added clean water to the culture. All of the organisms died, and when she looked at them under the microscope, all she could see were bits and pieces of them scattered throughout the water. What likely happened?

- A) She added water that was hypotonic to the culture of organisms, and they ruptured.
- B) She added sea water to which she had added too much salt, and they ruptured.
- C) She added water isotonic to the organisms, causing too much water to move in and out of the organism, and they ruptured.
- D) She added too little salt to the sea water she added, and the organisms all lost too much water and shriveled up.

Answer: <https://biology-forums.com/index.php?topic=1882948>

### Question 2088

Basic science discoveries often lead to the development of technology, and the development of technology often leads to new scientific discoveries.

Which of the following is not an accurate pairing of a technology and a discovery?

- A) measurement of atmospheric CO<sub>2</sub> and understanding of climate change
- B) sequencing of genomes and understanding evolutionary relationships among organisms
- C) genetic engineering and creation of new drugs
- D) invention of the microscope and creation of evolutionary trees

Answer: <https://biology-forums.com/index.php?topic=1884101>

### Question 2089

The Pasteur effect shows that yeast consume glucose at a higher rate under anaerobic conditions than under aerobic conditions. Which of the following statements correctly explains this observation?

- A) Yeast are obligate anaerobes, so aerobic conditions will kill yeasts.
- B) Yeast are photosynthetic, so they are able to produce their own oxygen.
- C) Less ATP is made under anaerobic conditions, so more glucose must be consumed to produce an equivalent amount of ATP.
- D) This observation is incorrect. Aerobic conditions mean that cells make more ATP and use more glucose.

Answer: <https://biology-forums.com/index.php?topic=1882983>

### Question 2090

All of the cardiac cells working together can cause the robot leg to move in a way that individual cells could not. This is an example of

- A) adaptation.
- B) emergent properties of cells.
- C) energy flow through an ecosystem.
- D) internal environment regulation.

Answer: <https://biology-forums.com/index.php?topic=1884112>

### Question 2091

Consider the following sentence: "The dog did not eat." Which of the following variations of this sentence is most like a base substitution mutation?

- A) The dog did not et.
- B) The dog dog did not eat.
- C) The did dog not eat.
- D) The doe did not eat.

Answer: <https://biology-forums.com/index.php?topic=1883199>

### Question 2092

Answers to questions about the immediate mechanisms for a behavior are called

- A) conclusions.
- B) proximate causes.
- C) habituation.
- D) ultimate causes.

Answer: <https://biology-forums.com/index.php?topic=1882560>

### Question 2093

Evidence from fossil dentition suggests that Australopithecus species

- A) evolved specifically to eat meat.
- B) experienced a decrease in both tooth size and brain size.
- C) were direct ancestors of modern humans.
- D) were adapted to function successfully in a wide range of habitats.

Answer: <https://biology-forums.com/index.php?topic=1883854>

### Question 2094

Which of the following describes the stage of the cardiac cycle shown?

- A) AV and SL valves both open, ventricles contracting
- B) AV valves open, SL valves closed, ventricles contracting
- C) AV valves closed, SL valves open, ventricles contracting
- D) AV valves closed, SL valves open, ventricles relaxed

Answer: <https://biology-forums.com/index.php?topic=1881893>

### Question 2095

The alleles of a gene are found at \_\_\_\_\_ chromosomes.

- A) the same locus on nonhomologous
- B) different loci on homologous
- C) different loci on nonhomologous
- D) the same locus on homologous

Answer: <https://biology-forums.com/index.php?topic=1883115>

### Question 2096

The certainty of paternity is greatest in organisms that

- A) are promiscuous.
- B) have extensive parental care.
- C) use internal fertilization.
- D) mate and lay eggs at the same time.

Answer: <https://biology-forums.com/index.php?topic=1882587>

### Question 2097

Bile produced in the liver is stored in the \_\_\_\_\_ before entering the intestine.

- A) pancreas
- B) blood
- C) gallbladder
- D) common bile duct

Answer: <https://biology-forums.com/index.php?topic=1883937>

### Question 2098

A florist assembles a bouquet of flowers from the following:

1. lilies, which have long leaves with parallel veins
2. Queen Anne's lace, also known as wild carrot because of its large taproot
3. buttercups, with their five lovely yellow petals
4. new shoots of daisies with two small cotyledons

This bunch of flowers contains

- A) one eudicot and three monocots.
- B) two eudicots and two monocots.
- C) three eudicots and one monocot.

D) all eudicots and no monocots.

Answer: <https://biology-forums.com/index.php?topic=1882370>

### Question 2099

In the three-domain system, the eukaryotes are represented

- A) only within the domain Eukarya.
- B) only within the domain Archaea.
- C) only within the kingdom Protista.
- D) in all three domains.

Answer: <https://biology-forums.com/index.php?topic=1883546>

### Question 2100

For most sexually reproducing organisms, Mendel's laws

- A) cannot strictly account for the patterns of inheritance of many traits.
- B) explain the biological mechanisms behind why certain genes are dominant or recessive.
- C) help us understand the global geographic patterns of genetic disease.
- D) can predict whether offspring will be male or female with 100% accuracy.

Answer: <https://biology-forums.com/index.php?topic=1883128>

### Question 2101

Which of the following tundra features can be found at the top of the Andes Mountains in Ecuador?

- A) fierce winds and frigid nights
- B) permafrost
- C) large trees with shallow roots
- D) a brief, bright growing season and a long, dark winter

Answer: <https://biology-forums.com/index.php?topic=1882541>

### Question 2102

Consider the following statement: "If all vertebrates have backbones, and turtles are vertebrates, then turtles have backbones." This statement is an example of

- A) a hypothesis.
- B) rationalization.
- C) deductive reasoning.
- D) inductive reasoning.

Answer: <https://biology-forums.com/index.php?topic=1884098>

### Question 2103

While walking in your basement, you hear a crunching noise and notice that you have stepped on an organism. You look closely and see part of a segmented body and a few jointed appendages. What phylum does this animal represent?

- A) Echinodermata
- B) Annelida
- C) Arthropoda
- D) Chordata

Answer: <https://biology-forums.com/index.php?topic=1883756>

### Question 2104

The existence of a hydrostatic pressure gradient in phloem tubes can be accounted for by

- A) the fact that the leaves are higher than the roots, which means that gravity creates pressure.
- B) the diffusion of water from one sieve-tube cell to the next.
- C) the loading of sugars into phloem at sources and removal of sugars at sinks.
- D) the active transport of water from sugar sources to sugar sinks.

Answer: <https://biology-forums.com/index.php?topic=1882401>

### Question 2105

Which of the following would have the greatest number of muscle cells per motor unit?

- A) muscles controlling the movement of our hands
- B) facial muscles
- C) a thigh muscle
- D) muscles controlling the movement of an eyeball

Answer: <https://biology-forums.com/index.php?topic=1882287>

### Question 2106

A typical sponge is best described as

- A) a slow-moving suspension feeder with a true coelom.
- B) a sessile suspension feeder with bilateral symmetry.
- C) a slow-moving carnivore with no true tissues or symmetry.
- D) a sessile suspension feeder with no true tissues or body symmetry.

Answer: <https://biology-forums.com/index.php?topic=1883740>

### Question 2107

What are the consequences if decomposers are removed from the carbon cycle?

- A) Fewer carbon compounds are broken down; therefore, less CO<sub>2</sub> is released into the atmosphere.
- B) Loss of decomposers causes an increase in CO<sub>2</sub> levels in the atmosphere.
- C) Primary consumers are not able to consume as many producers.
- D) An increase in the burning of wood and fossil fuels will occur.

Answer: <https://biology-forums.com/index.php?topic=1882699>

### Question 2108

In which of the following situations would plant reproduction be most likely to be pollinator-limited?

- A) a very large field of a single crop covering a large area
- B) a field of wildflowers in a very cold region
- C) a species of plant with a very long growing season
- D) plants that produce large fruits

Answer: <https://biology-forums.com/index.php?topic=1882365>

### Question 2109

Fungal diseases common in \_\_\_\_\_ include \_\_\_\_\_ and \_\_\_\_\_.

- A) plants; smuts; rusts
- B) animals; smuts; chytrids
- C) plants; ringworm; coccidioidomycosis
- D) humans; rusts; vaginal yeast

Answer: <https://biology-forums.com/index.php?topic=1883704>

### Question 2110

Which of the following statements comparing spermatogenesis and oogenesis is true?

- A) During oogenesis, four cells are produced with each sharing equally the cytoplasm from the parent cell.
- B) Men, but not women, can produce gametes throughout their adult lives.
- C) Spermatogenesis and oogenesis rely upon mitosis to produce gametes.
- D) Spermatogenesis, but not oogenesis, is an example of gametogenesis.

Answer: <https://biology-forums.com/index.php?topic=1882091>

### Question 2111

Mechanoreceptors (touch and pressure) are not evenly spaced on your body. What is an advantage of having mechanoreceptors located farther apart?

- A) allows often used parts of the human body to feel pressure more severely than areas where mechanoreceptors are closer together
- B) allows often used parts of the human body to feel pressure less severely than areas where mechanoreceptors are closer together
- C) allows for greater dendrite regeneration after the body has experienced excessive pressure
- D) allows for a thicker epidermis than in areas where mechanoreceptors are closer together

Answer: <https://biology-forums.com/index.php?topic=1882239>

### Question 2112

Where does the information from the light receptors undergo its first level of neural processing?

- A) in the retina
- B) in the optic nerve
- C) in the primary visual cortex
- D) in the hippocampus

Answer: <https://biology-forums.com/index.php?topic=1882229>

### Question 2113

A muscle fiber from the latissimus dorsi (one of the back muscles) of a chimpanzee has a lot of mitochondria and myoglobin and can generate relatively little force. Which type of muscle fiber is being described?

- A) a fast, fatigue-resistant fiber
- B) a fast, fatigue-susceptible fiber
- C) a slow, fatigue-resistant fiber
- D) a slow, fatigue-susceptible fiber

Answer: <https://biology-forums.com/index.php?topic=1882292>

### Question 2114

Which of the following pairs of hormones have opposite effects?

- A) testosterone and melatonin
- B) progesterone and insulin
- C) parathyroid hormone and calcitonin
- D) oxytocin and prolactin

Answer: <https://biology-forums.com/index.php?topic=1882055>

### Question 2115

If you inflate a balloon and then let it go, the air rushing out moves the balloon in a way that is similar to the way that a \_\_\_\_\_ moves.

- A) snake
- B) kangaroo
- C) squid
- D) shark

Answer: <https://biology-forums.com/index.php?topic=1882252>

### Question 2116

Which of the following generates the ATP that is required for movement of the sperm's tail?

- A) a mitochondrion in the neck and middle piece
- B) mitochondria in the sperm tail
- C) the sperm plasma membrane
- D) the acrosome

Answer: <https://biology-forums.com/index.php?topic=1882098>

### Question 2117

During filtration in the glomerulus, which of the following enters Bowman's capsule from the bloodstream?

- A) ammonia and red blood cells
- B) nucleic acids
- C) lymphocytes
- D) water

Answer: <https://biology-forums.com/index.php?topic=1881996>

### Question 2118

A small seed may grow into a very large tree. As the tree grows, it adds a great deal of mass. Where does most of this mass come from?

- A) something in the air
- B) something in the soil
- C) something in the water
- D) sunlight

Answer: <https://biology-forums.com/index.php?topic=1882428>

### Question 2119

Which class of hormones produced in the roots of plants promotes cell division and growth and retards the aging of flowers and leaves?

- A) gibberellins
- B) phytochromes
- C) cytokinins
- D) ethylene

Answer: <https://biology-forums.com/index.php?topic=1882451>

### Question 2120

The pesticide-eating bacteria probably evolved from species that

- A) fed on pesticides present on the early planet Earth.
- B) fed on the tissues and blood of cattle and sheep.

C) were previously adapted to colonize anaerobic environments.  
D) fed on molecules with a chemical structure similar to pesticides.  
Answer: <https://biology-forums.com/index.php?topic=1883648>

### Question 2121

Which of the following correctly lists the order in which structures within the ear transfer a sound wave during hearing?  
A) eardrum, hammer, anvil, stirrup, oval window, auditory canal  
B) eardrum, stirrup, hammer, anvil, oval window, auditory canal  
C) auditory canal, eardrum, hammer, anvil, stirrup, oval window  
D) auditory canal, eardrum, stirrup, hammer, anvil, oval window  
Answer: <https://biology-forums.com/index.php?topic=1882212>

### Question 2122

Most of the protein measured in the cells was likely synthesized by  
A) mitochondria.  
B) nucleolus.  
C) smooth endoplasmic reticulum.  
D) ribosomes.  
Answer: <https://biology-forums.com/index.php?topic=1882889>

### Question 2123

The maximum amount of air that a human can inhale and exhale is called the  
A) tidal volume.  
B) vital capacity.  
C) residual volume.  
D) inhalation capacity.  
Answer: <https://biology-forums.com/index.php?topic=1884025>

### Question 2124

Lack of exercise and activity can be one of several reasons a person might become constipated, or be unable to have regular bowel movements. Which of the four stages of food processing is directly affected in this situation?  
A) ingestion  
B) digestion  
C) absorption  
D) elimination  
Answer: <https://biology-forums.com/index.php?topic=1883936>

### Question 2125

In May 2013, a drug-resistant strain of H7N9 bird flu was discovered in China. The implication(s) of a drug-resistant virus strain is(are)  
A) that it will be difficult to eradicate.  
B) that it could proliferate quickly.  
C) that it should be studied carefully.  
D) all of the above.  
Answer: <https://biology-forums.com/index.php?topic=1881956>

### Question 2126

According to recent genetic research, the complexity of an organism  
A) is directly correlated with the number of protein-coding genes in its genome.  
B) is inversely related to the number of protein-coding genes in its genome.  
C) has more to do with how genes are used than with which genes are present.  
D) is not related to genes or development, so it must have another source.  
Answer: <https://biology-forums.com/index.php?topic=1883775>

### Question 2127

The density of the aquaporins in the presence of vasopressin was approximately  
A) half as much as before the administration of vasopressin.  
B) twice as much as before the administration of vasopressin.  
C) four times as much as before the administration of vasopressin.  
D) unchanged by the administration of vasopressin.  
Answer: <https://biology-forums.com/index.php?topic=1882026>

### Question 2128

The \_\_\_\_\_ is a passageway shared by both food and air.

- A) trachea
- B) pharynx
- C) larynx
- D) nasal cavity

Answer: <https://biology-forums.com/index.php?topic=1884019>

### Question 2129

If you lay your forearm along a table, you can rotate it so that your hand changes from a palm-down to a palm-up position. This is possible because your radius and ulna join at a

- A) ball-and-socket joint.
- B) hinge joint.
- C) pivot joint.
- D) ligament.

Answer: <https://biology-forums.com/index.php?topic=1882274>

### Question 2130

Low levels of the neurotransmitter dopamine can lessen the ability to focus effectively on tasks. However, high levels of dopamine can result in feelings of motivation. How would you classify dopamine and why?

- A) Dopamine is excitatory because it enhances motivation levels.
- B) Dopamine is inhibitory because it diminishes the ability to focus.
- C) Dopamine is both inhibitory and excitatory because it can enhance motivation levels but diminish the ability to focus.
- D) There is not enough information given to answer the question.

Answer: <https://biology-forums.com/index.php?topic=1882193>