The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

LIFE SCIENCE: BIOLOGY

Tuesday, January 20, 2026 — 1:15 p.m. to 4:15 p.m., only

Student Name _____

School Name _____

The possession or use of any communications device is strictly prohibited when taking this examination. If you have or use any communications device, no matter how briefly, your examination will be invalidated and no score will be calculated for you.

Print your name and the name of your school on the lines above.

Use your knowledge of **Life Science: Biology** to answer all questions in this examination.

You are to answer all questions in this examination. You may use scrap paper to work out the answers to the questions, but be sure to record your answers on your answer sheet and in your test booklet. A separate answer sheet for multiple-choice questions has been provided to you. Follow the instructions from the proctor for completing the student information on your answer sheet. Record your answers for the constructed response questions in your test booklet.

All answers in your test booklet should be written in pen, except for graphs and drawings, which should be done in pencil.

When you have completed the examination, you must sign the declaration printed on your separate answer sheet, indicating that you had no unlawful knowledge of the questions or answers prior to the examination and that you have neither given nor received assistance in answering any of the questions during the examination. Your answer sheet and test booklet cannot be accepted if you fail to sign this declaration.

NOTICE …

A four-function or scientific calculator must be available for you to use while taking this examination.

Note that diagrams are not drawn to scale unless otherwise noted.

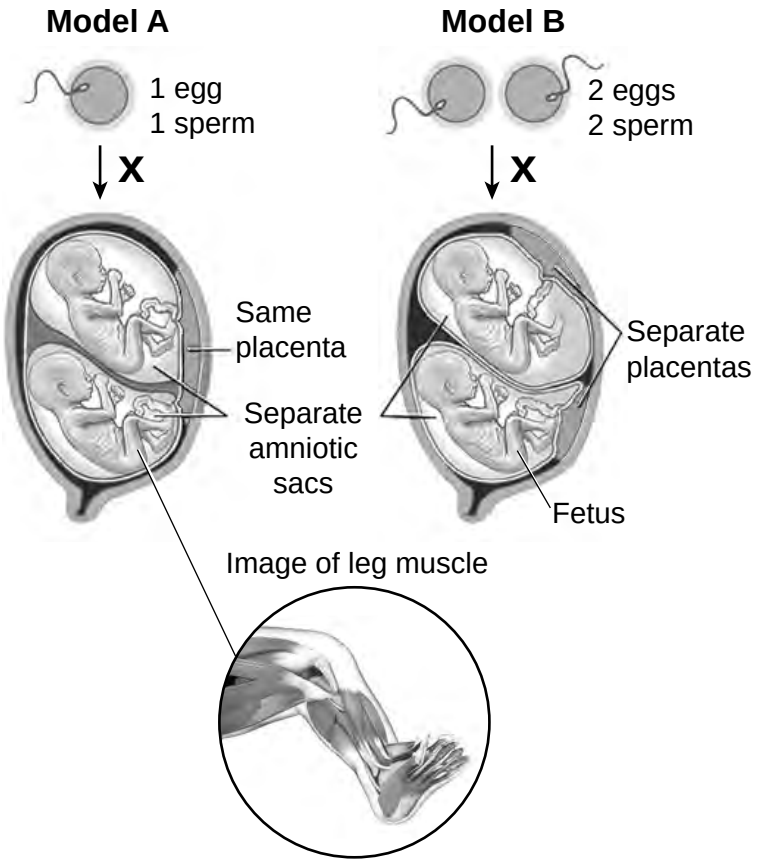
DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.

Base your answers to questions 1 through 5 on the information below and on your knowledge of biology.

Two Kinds of Twins

Twins are two offspring produced by the same pregnancy. The most common types of twins are identical twins and fraternal twins. The genes of fraternal twins may vary as much as non-twin siblings, whereas identical twins share the same DNA. However, as identical twins age, their physical characteristics can show differences that distinguish them from each other.

The models below represent some information about twin development.



1 Use the information in the models to identify which model (*A* or *B*) represents fetuses that would continue to develop into identical twins *and* identify *one or more* structures in the model that you selected that could be used to support your answer. [1]

Model: _____

Structure(s):

_____

_____

2 Which statement describes how a process that occurs at *X* within the models results in the specialized cells seen in the fetus's leg?

(1) A fertilized egg cell divides into muscle and bone cells with different DNA.

(2) An egg cell and a sperm cell can each change into muscle or bone cells in the developing fetus.

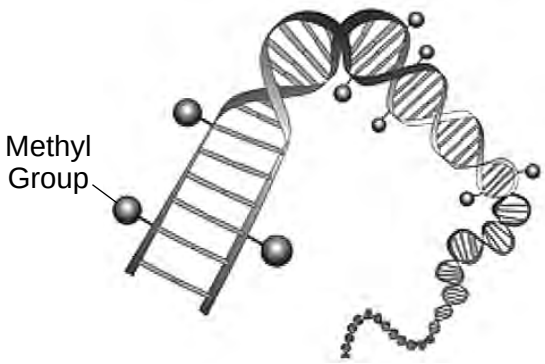
(3) A cell in a developing fetus can divide into muscle and bone cells with the same DNA, but the cells have different shapes and functions.

(4) A developing fetus has some muscle and bone cells from its mother and some from its father.

3 Use evidence *and* reasoning to defend the claim that processes that occur during sexual reproduction result in fraternal twins having different traits. [1]

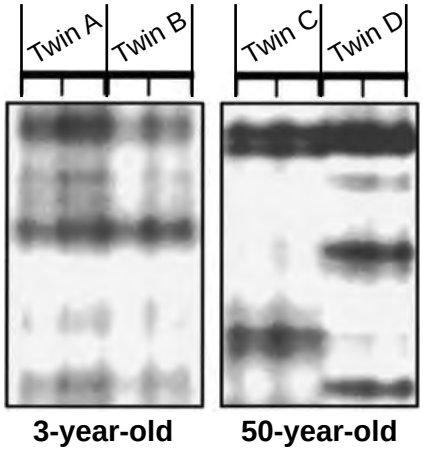
Scientists are investigating how the expression of genes in identical twins may be altered by epigenetic changes. Epigenetic changes occur when certain chemical groups, such as methyl groups, attach to a cell's DNA and influence the expression of particular genes. Environmental factors and lifestyle choices such as diet have been linked to epigenetic changes. The model below shows how methyl groups can attach to DNA.

Methylated DNA



Electrophoresis is a process that can be used to compare DNA segment migration through a gel. The image below shows a comparison of DNA taken from body cells of 3-year-old identical twins and 50-year-old identical twins.

DNA Comparison by Electrophoresis



4 A researcher wants to determine the cause of the amount of variation seen between identical twins at 50 years old when compared to twins at 3 years old. Which question should they ask to help them determine the cause?

(1) How does the number of methyl groups attached to the DNA of 50-year-olds compare to 3-year-olds?

(2) Why does the DNA in 3-year-olds and 50-year-olds contain the same type of bases?

(3) If methyl groups are attached to the DNA of identical twins, how will they be inherited by offspring?

(4) How does the DNA sequence in the cells of 3-year-old twins and 50-year-old twins compare?

5 One of the 50-year-old twins, twin C, has been identified as being at risk for developing diabetes because a specific gene has been methylated. The same gene in twin D does not show signs of this change. How might genetic technology be used to prevent twin C from developing diabetes later in life?

(1) Use splicing enzymes to remove the methyl groups on the amino acid sequence of the gene that causes diabetes.

(2) Develop and use medications that would remove methyl groups to allow normal gene expression.

(3) Develop medications that are able to add methyl groups to other regions of the DNA of twin C.

(4) Using splicing enzymes to add methyl groups to twin C's proteins to prevent diabetes.

Base your answers to questions 6 through 9 on the information below and on your knowledge of biology.

Space Invader

Hydrilla is an invasive aquatic plant with an extremely high growth rate. It can grow up to 2.5 cm per day, producing thick mats in waterways. *Hydrilla* has the same access to resources needed to carry out photosynthesis as native plants such as pondweed, but it invades their space, obtaining available resources faster and more efficiently.

The thick mats that *Hydrilla* forms are caused by long stems that branch at the surface of the water. The long stems can easily be broken off the parent plant by actions like water movement, animal activity, or human recreation, such as boating. A small piece of *Hydrilla* can establish a new population.

Hydrilla Mat

6 Which question would help a student gather information to correctly show the role of DNA in the passing of traits from the original *Hydrilla* plant to the offspring that grow when broken off?

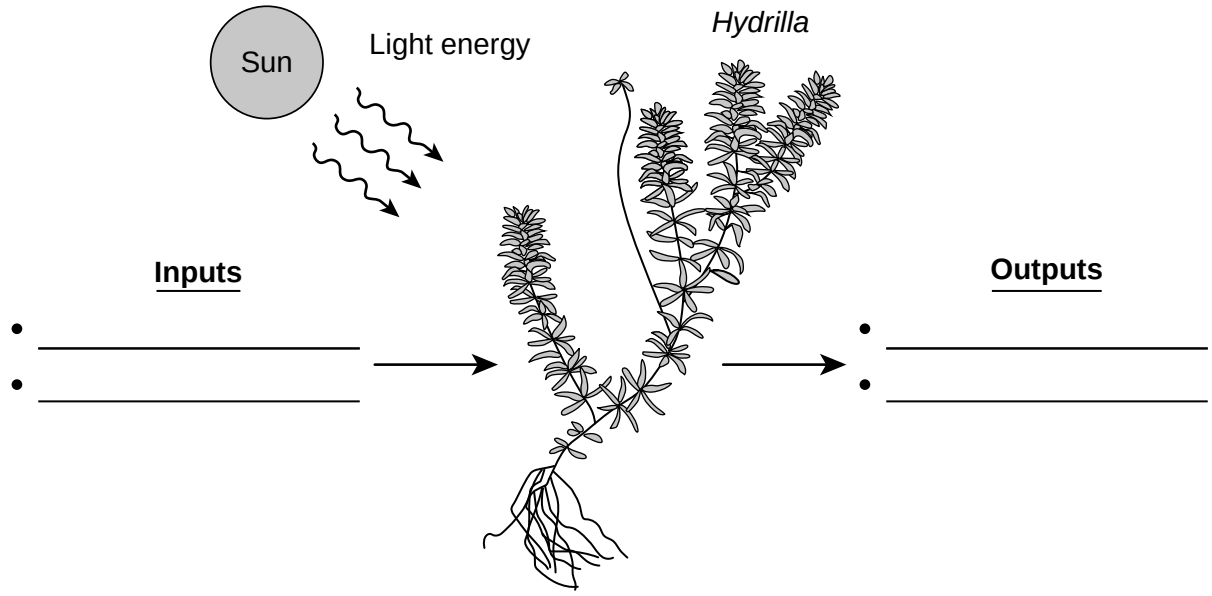
(1) Do the new *Hydrilla* offspring have traits identical to the original because they received half of their DNA from each of their parent plants?

(2) Do the offspring have traits identical to the original population because the DNA in the new *Hydrilla* population is the same as the DNA in the broken pieces of the parent plant?

(3) Do the plants in the new population of *Hydrilla* have different traits from the parent plants because they have different amounts of DNA from each other?

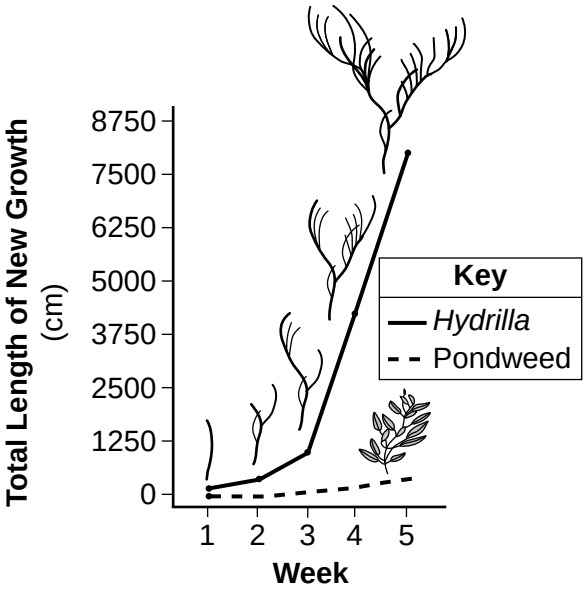
(4) Do the gametes produced by *Hydrilla* have the same DNA as the leaf cells of the plant, resulting in identical physical traits in the offspring?

7 Complete the model by identifying the inputs *and* outputs of the process used by *Hydrilla* to outcompete native plants. [1]

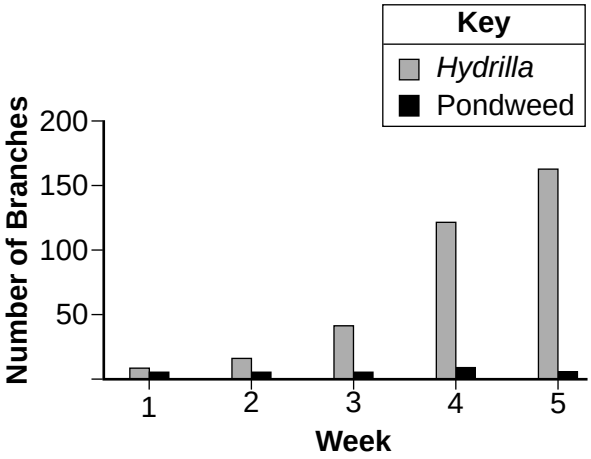


Hydrilla can use the limited light that penetrates the water surface during the morning hours, whereas other plants cannot. *Hydrilla* use this energy to extend their deep-water sprouts upwards toward the surface of the water.

Average Growth of *Hydrilla* Compared to Pondweed



Number of Branches Produced by *Hydrilla* and Pondweed



8 Which statement provides evidence from the mathematical representations provided and supports the claim that *Hydrilla*'s ability to efficiently capture resources will have *negative* effects on the biodiversity of the waterway in which they live?

(1) *Hydrilla* can produce more branches in five weeks than native pondweed, resulting in more oxygen being produced by cellular respiration. This causes a decrease in the number of other organisms found in the ecosystem.

(2) *Hydrilla* can double its new growth every week, which uses excessive amounts of nitrogen from the environment for lipid production. This results in fewer organisms being able to survive.

(3) *Hydrilla* form longer branches than native pondweed, which absorb sunlight at a faster rate. This reduces a needed resource and decreases biodiversity.

(4) *Hydrilla* produce roughly 15 times the number of branches than that of native pondweed. This allows them to consume other plant species faster and decreases biodiversity.

Human recreational activities, such as boating and fishing, have transported pieces of *Hydrilla* to different bodies of water across the United States. Various methods have been implemented in local waterways to control the *Hydrilla* population.

9 Which solution would best control the *Hydrilla* population in bodies of water *without* harming native populations?

(1) recruiting volunteers to remove pondweed out of a local waterway before fishing season

(2) applying herbicides to waterways where *Hydrilla* are located at the start of boating season

(3) applying chemicals that coat the surface of water, blocking light in ponds

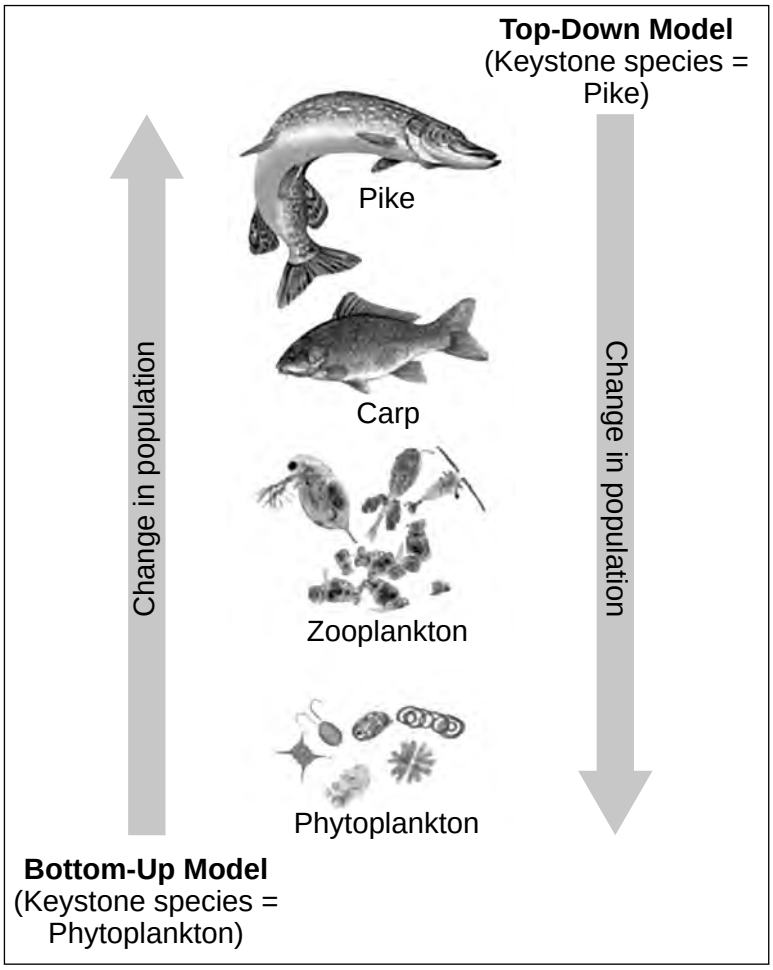
(4) requiring boats to be inspected for *Hydrilla* before entering a waterway

Base your answers to questions 10 through 13 on the information below and on your knowledge of biology.

Keystone Species Rule

Some organisms play a disproportionately large role in an ecosystem. The presence or absence of these species has a very large impact on the rest of the ecosystem and how it functions. These organisms are known as keystone species. The impact of these changes is known as a trophic cascade and can occur from the top-down or the bottom-up within the trophic levels of the food chain, as represented in the diagram below.

Bottom-Up and Top-Down Cascade Model for an Aquatic Ecosystem



10 Which statement provides evidence that supports the claim that the complex interactions of bottom-up *and* top-down cascading play a role in maintaining relatively consistent numbers of organisms in a stable ecosystem?

(1) When both pike and phytoplankton populations increase in number, the ecosystem remains stable, indicating that all the organisms survive.

(2) As either pike or phytoplankton decrease in number, the stability of the ecosystem is greatly reduced.

(3) A significant increase in zooplankton population will cause a top-down ecosystem to become unstable but have no effect on bottom-up ecosystems.

(4) In a top-down cascade, zooplankton help maintain ecosystem stability, while carp help maintain ecosystem stability in a bottom-up cascade.

11 Which statement best uses the process of carbon cycling in the biosphere to explain why phytoplankton function as a keystone species for this ecosystem?

(1) The phytoplankton return carbon to the atmosphere in the form of carbon dioxide by photosynthesis, and that carbon can be consumed by other organisms.

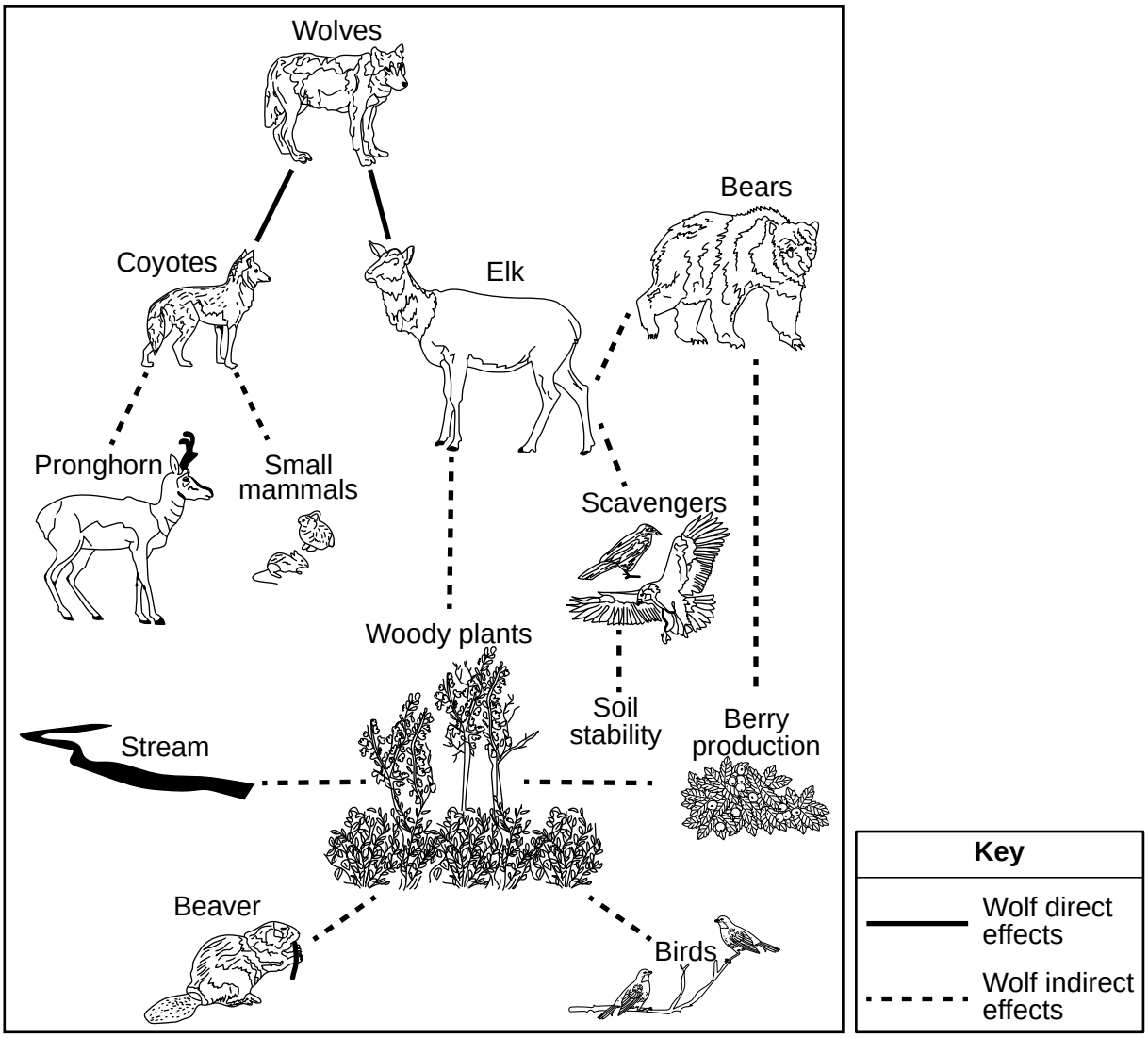
(2) The atmosphere absorbs carbon as part of the products excreted by phytoplankton, and that carbon can be used by other animals.

(3) The phytoplankton return carbon to the geosphere in the form of carbon dioxide by decomposing, and that carbon can be consumed by other organisms.

(4) The hydrosphere provides carbon dioxide to the phytoplankton, which allows phytoplankton to provide nutrients to other animals.

Keystone species can include large predators, such as the wolf population in Yellowstone Park. The model below illustrates some of the direct and indirect effects of wolf predation on populations within an ecosystem.

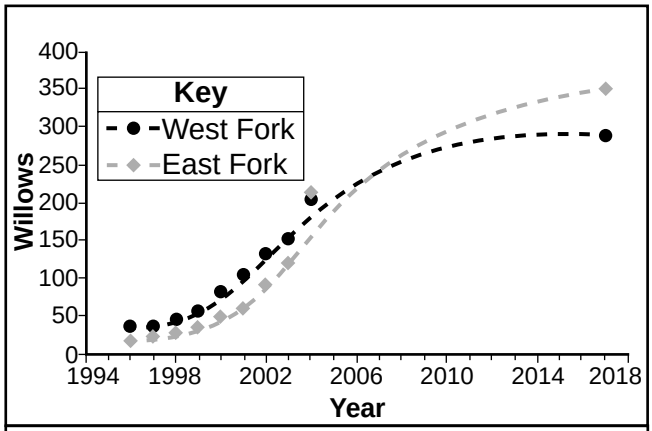
Some Effects of Wolf Predation in Yellowstone Park

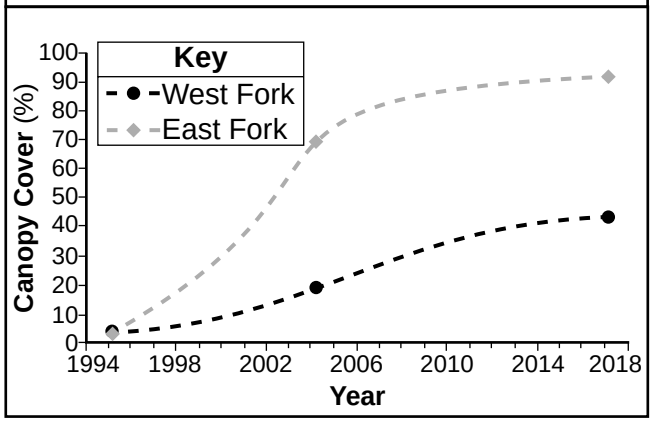


At the beginning of the 20th century, wolves were over-hunted in Yellowstone Park. By 1926, wolves had been removed from the park. The elk population in Yellowstone increased and ate trees, such as willows, cottonwoods, and aspens, in large numbers. Beavers would also eat these trees and use them to build their dams.

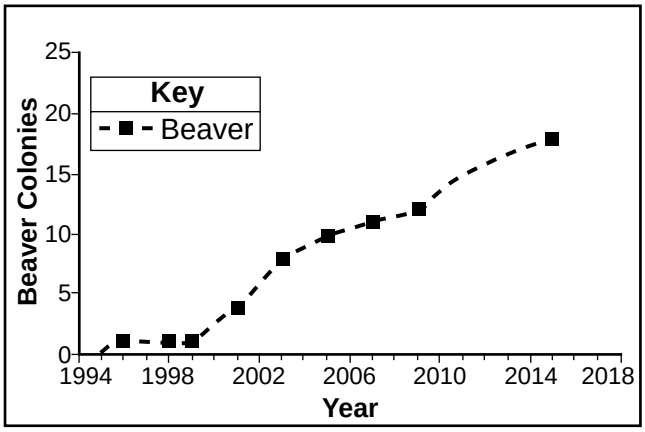
In 1995, wolves were reintroduced into the park. The graphs below show changes in two locations in Yellowstone, East Fork and West Fork, in the willow tree population, in the amount of tree (canopy) cover, and in the beaver population that occurred after the wolf reintroduction.

Changes in Trees in Yellowstone





Changes in Beaver Population



12 Using evidence from the graphs and information provided, describe how the decision by humans to reintroduce the wolves into Yellowstone in 1995 had an impact on the environment of the area. [1]

In some studies, the presence of wolves has been associated with changes in elk behavior. GPS trackers were used to monitor the movements of elk in areas of Yellowstone Park where the number of wolves was high.

13 Which statement would provide evidence that increased elk survival in Yellowstone is related to herd behavior?

(1) The GPS information showed that larger elk herds had identical survival rates to elk traveling alone.

(2) The GPS information indicated that elk herds began to graze in different regions of the park where the number of wolves was lower.

(3) The GPS information indicated that the change in the grazing pattern of elk herds increased the chances that some elk would be safe while most of the population would be preyed upon.

(4) The GPS information indicated that as wolves moved into areas where elk herds feed, the elk herds remained in the same areas.

Base your answers to questions 14 through 18 on the information below and on your knowledge of biology.

Solving the Problem of Cat Allergies

Domestic cats are a very popular pet for humans. However, for 10–20% of people, cats can cause allergic reactions. Allergy symptoms are caused by exposure to an allergen, which can sometimes be a protein. Most cat allergy symptoms can be traced to the protein, *Fel d 1*. This protein is produced by the cells of various structures within the body of the cat, including salivary glands within the mouth and oil glands within the skin.

Information regarding the structure of *Fel d 1* is included below.

Protein	Partial Amino Acid Sequence
Fel d 1 (Allergen)	GLU TYR VAL GLU GLN VAL ALA GLN TYR LYS ALA LEU

14 Which statement supports the claim that the structure of DNA determines the structure of the *Fel d 1* protein molecule produced by cat cells?

(1) Proteins within the DNA of cat cells store the code for specific amino acids that are required to produce *Fel d 1*.

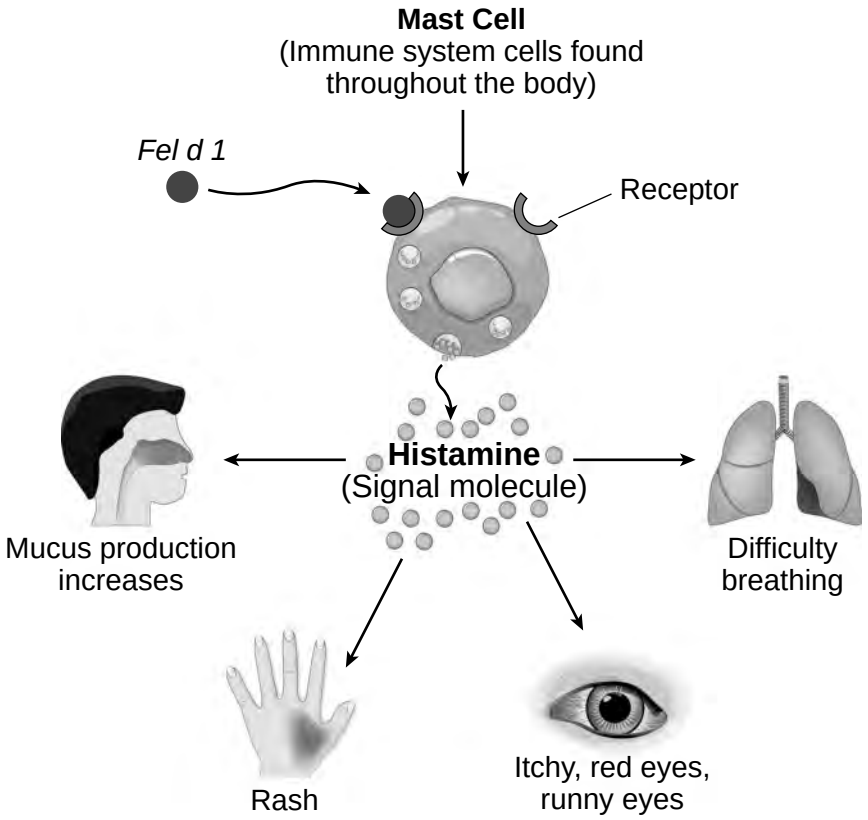
(2) DNA within cat cells codes for a specific sequence of amino acids resulting in the production of *Fel d 1* in some cells.

(3) The specific amino acid sequence present in cat cells produces the necessary DNA to synthesize *Fel d 1* in some cells.

(4) DNA needed by cat cells is stored within the nucleus and released when *Fel d 1* production is required.

Part of the mechanism responsible for the symptoms of a cat allergy are shown in the model below.

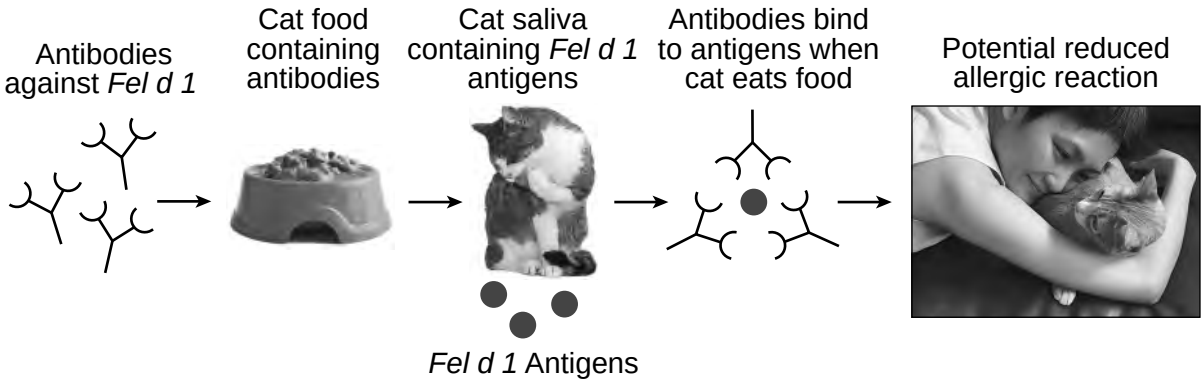
An Allergic Response



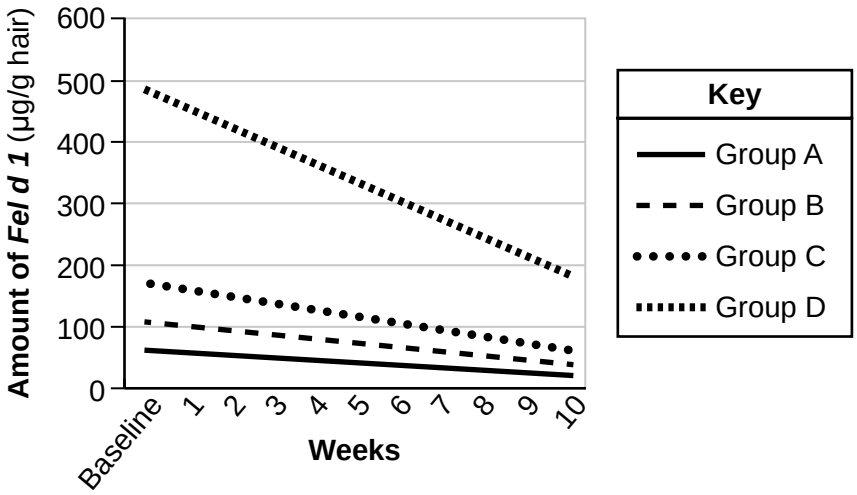
15 Based on the model above, describe how components of the immune system *and* respiratory system interact when a person with a cat allergy is exposed to *Fel d 1*. [1]

A company recently came out with a new cat food that is treated with antibodies. They claim feeding this food to cats can reduce the amount of *Fel d 1* protein on cat fur. Cats produce different amounts of *Fel d 1* based on sex, testosterone production, and age. In a study, 105 cats were divided into four groups based on their initial *Fel d 1* levels. The cats were fed equal amounts of antibody-treated food for several weeks. Results of the study are shown in the graph below.

Procedure Used to Reduce *Fel d 1* on Cats



Change in *Fel d 1* Over 10 Weeks



16 Which statement explains the variation shown by week 10 in the amount of *Fel d 1* per gram of hair in the cats in Group *A*?

(1) The antibodies in the food acted as a genetic factor by preventing the cells of the salivary glands in the cat from producing as much *Fel d 1*.

(2) The antibodies in the food acted as an environmental factor by preventing the cells of the salivary glands in the cat from producing as much *Fel d 1*.

(3) The antibodies in the food acted as a genetic factor by binding to much of the *Fel d 1* produced by the cats.

(4) The antibodies in the food acted as an environmental factor by binding to much of the *Fel d 1* produced by the cats.

Other researchers are using CRISPR-cas9 to solve the problem of allergy-causing cats. CRISPR-cas9 is a genetic technology that enables researchers to edit parts of an organism's DNA by removing, adding, or altering sections of their DNA sequence. Researchers injected fertilized cat eggs with the extra DNA bases before any mitotic division. This prevented cells with the edited DNA from producing the functioning allergy-causing protein.

17 Which claim regarding the genetic makeup of the kittens produced by this technology is supported by the information provided?

(1) All cells within the bodies of the kittens will contain the genetic change, so it can be passed on to future offspring.

(2) Only the skin and salivary gland cells of the kittens will inherit the genetic change, so it can not be passed on to future offspring.

(3) Half of the kitten's cells will contain the edited genes, so it will have a 50% chance of passing the new gene on to future offspring.

(4) Only the reproductive cells will contain the genetic change from the edited DNA, so the trait will be passed on to future offspring.

18 Construct an explanation for how genes determine the structure of the *Fel d 1* allergen by explaining why the use of CRISPR-cas9 to edit the cat's DNA resulted in the inability of the salivary glands of cats to produce functional *Fel d 1* protein. [1]

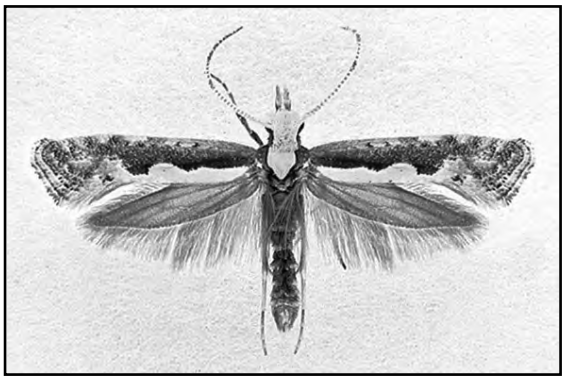
Base your answers to questions 19 through 22 on the information below and on your knowledge of biology.

A Hard Pest to Manage

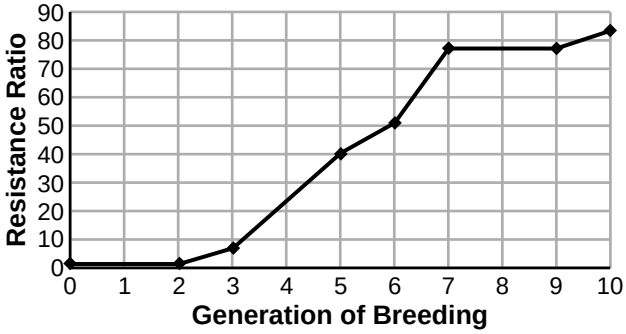
The diamondback moth is an invasive species in many parts of New York State. The larval stage is an agricultural pest because it consumes vegetation and destroys crops such as cabbage, broccoli, and cauliflower. Chemical pesticides, such as butane-fipronil, can be used to control the effect of pests such as the diamondback moth. Some information about the diamondback moth is shown below.

Larvae

Adult



The Effect of Butane-Fipronil on the Resistance Ratio of Diamondback Moths Over Time



19 Using evidence from the graph, which statement best explains the resistance ratio of diamondback moths?

(1) The proportion of the population that was resistant to butane-fipronil decreased over time because moths with resistance are less likely to survive and reproduce.

(2) The proportion of the population that was resistant to butane-fipronil increased over time because moths without resistance are more likely to survive and reproduce.

(3) The proportion of the population that was resistant to butane-fipronil increased over time because moths with resistance are more likely to survive and reproduce.

(4) Total resistance in the moth population does not change, but the proportion of resistant moths increases because the offspring are more likely to survive and reproduce.

20 Which question would a scientist ask to clarify the role of DNA in passing butane-fipronil resistance from one generation to the next?

(1) Does pesticide resistance in larvae result from a body cell mutation?

(2) Do larval forms with pesticide resistance have DNA that is identical to the adult form?

(3) Do the parents have a gene that provides pesticide resistance within their gametes?

(4) Do all of the offspring inherit identical DNA from both parents?

As an alternative to chemical pesticides, some crops have been treated with a type of bacteria called *Bacillus thuringiensis* (*Bt*). *Bt* produces proteins that are toxic to specific insect species and can be used as pesticides. Scientists studied the effect of *Bt* toxins on diamondback moth larvae. The table shows some data from the investigation.

Mortality (%) of Diamondback Moth Larvae Due to Exposure to Four *Bt* Toxins

Diamondback Moth Larvae	Type of *Bt* Toxin	Mortality (%)
Group 1	Cry1Aa	98
	Cry1Ab	97
	Cry1Ac	94
	Cry1F	100
Group 2	Cry1Aa	11
	Cry1Ab	2
	Cry1Ac	10
	Cry1F	0

21 Which statement best explains the variation in mortality observed in the two groups of diamondback moth larvae?

(1) Group 1 larvae most likely have the trait for resistance to *Bt* toxins because the mortality is higher.

(2) Group 2 larvae most likely have the trait for resistance to *Bt* toxins because the mortality is lower.

(3) Group 1 larvae most likely have the trait for resistance to chemical pesticides because the mortality is lower.

(4) Group 2 larvae most likely have the trait for resistance to chemical pesticides because the mortality is higher.

There are many mechanisms that cause pesticide resistance in insects. One mechanism changes the production of a protein that is needed for the transport of substances across the cell membrane. This occurs in both the diamondback moth and the European corn borer. The European corn borer can also develop resistance to *Bt* toxins.

Adult European Corn Borer

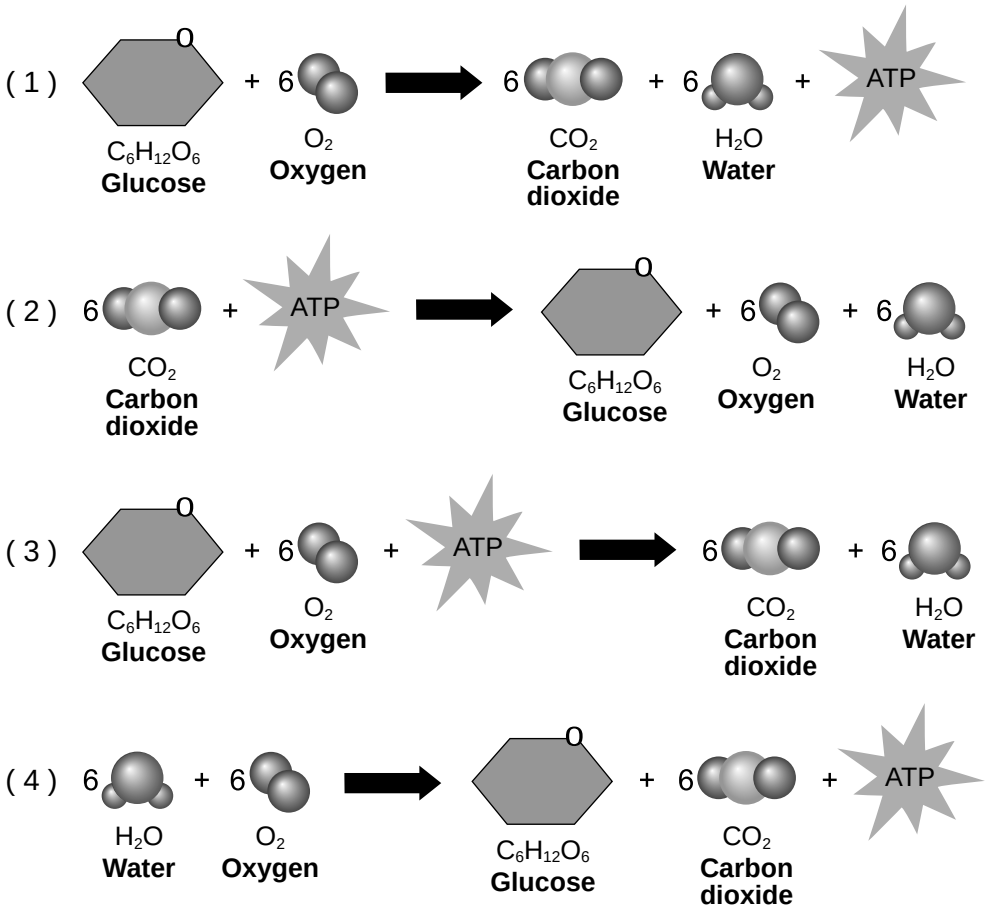
22 Describe the scientific information that could be used to support the claim that the European corn borer and diamondback moth share a common ancestor. [1]

Base your answers to questions 23 through 27 on the information below and on your knowledge of biology.

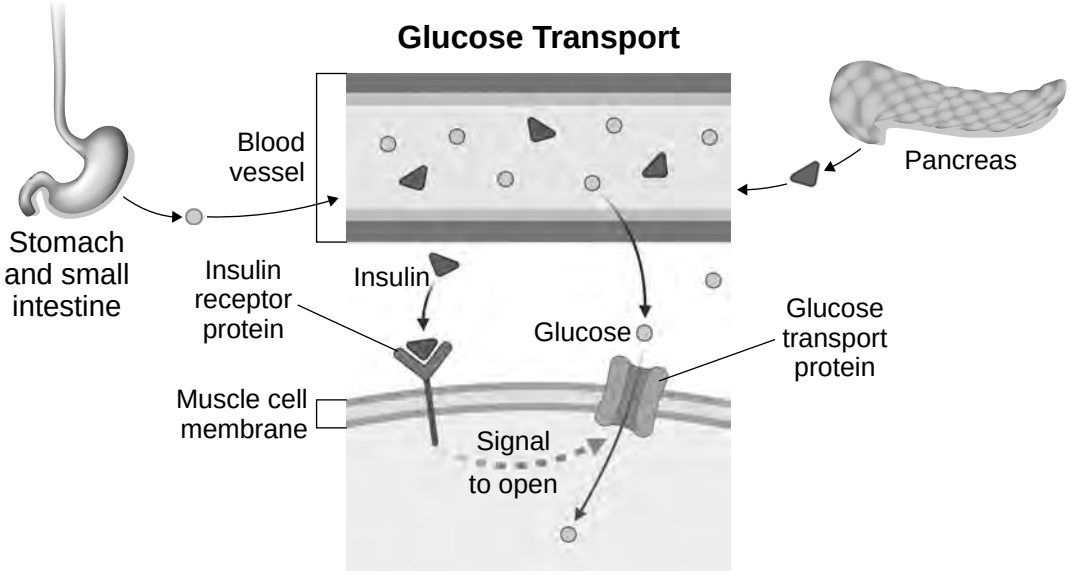
Diabetes

Diabetes is a chronic health condition that affects how the body regulates blood sugar (glucose). There are multiple forms of diabetes, including Type 1 and Type 2. Multiple symptoms can be used to diagnose diabetes. One of the symptoms associated with diabetes is muscle weakness and fatigue.

23 Which model summarizes the process that could be disrupted by diabetes, resulting in muscle fatigue?



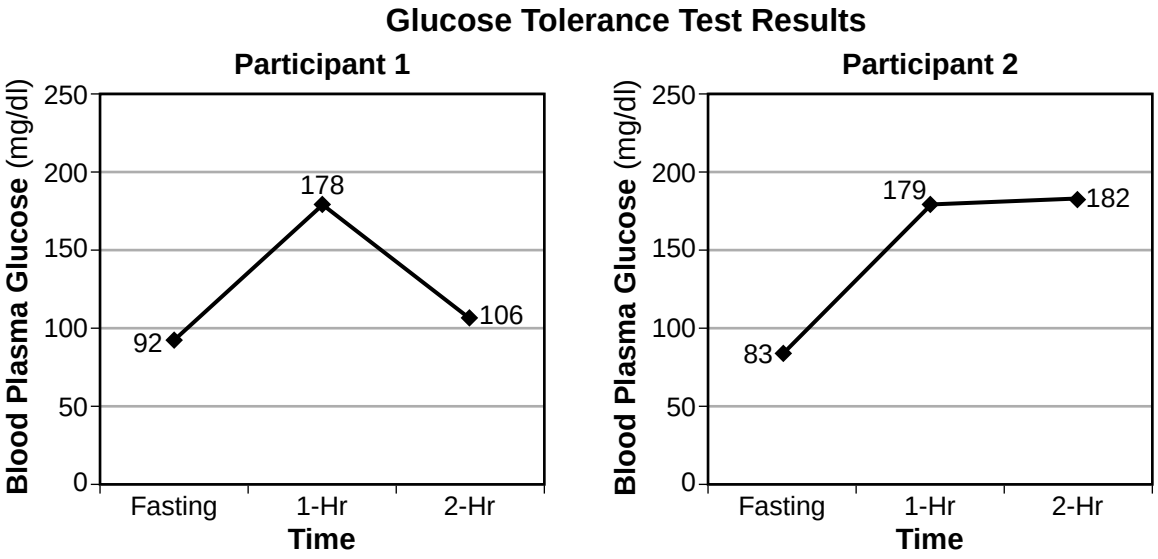
The model below represents the interaction of structures within body systems that maintain normal levels of blood glucose in a person without diabetes.



24 Using the model above, identify *two* body systems and describe how the systems interact to regulate glucose in an individual *without* diabetes. [1]

Type 1 and Type 2 diabetes differ in their causes, onset, and management even though both result in issues with insulin. Type 1 diabetes is characterized by the reduced ability of the pancreas to produce insulin. Insulin is produced normally in Type 2 diabetes, but the cells of the body do not respond properly.

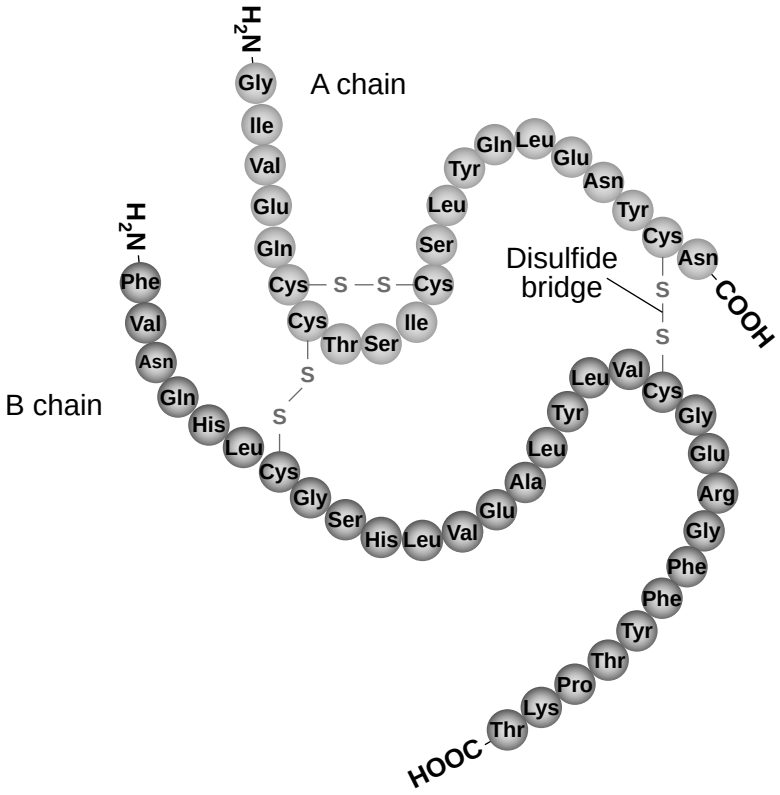
Glucose tolerance tests are used to diagnose issues with blood glucose regulation. Twenty study participants were asked to fast (not eat) before consuming 75g of glucose. Their blood was drawn at intervals to assess the body's response. The graphs below show some information from two participants in the study.



25 Use evidence to describe the role of insulin in a feedback mechanism that helps an individual maintain homeostasis in Participant 1 but *not* in Participant 2. [1]

Proteins are made of one or more chains of amino acids. Bonds, such as disulfide bridges, can form between the amino acids of two separate chains to contribute to the structure of the protein. The model below shows some information about a segment of an insulin protein.

Insulin Protein Segment Model



26 Which evidence best supports the claim that a mutation would change the structure of insulin?

(1) If the instructions that code for Cys change, then a different amino acid might be included in the amino acid chain, decreasing the ability to form a disulfide bridge, which will change the structure of insulin.

(2) If the instructions that code for Tyr change, then a different amino acid might be included in the amino acid chain, decreasing the ability to form a disulfide bridge, which will change the structure of insulin.

(3) If the instructions that code for a different amino acid changed to code for Cys, the location of the disulfide bridge would change, decreasing the ability to form a disulfide bridge, which will maintain the structure of insulin.

(4) If the instructions that code for a different amino acid changed to code for Tyr, the location of the disulfide bridge would change, increasing the ability to form a disulfide bridge, which will maintain the structure of insulin.

The management of diabetes has been improved through the use of technological advances. The following chart shows some information about possible management strategies for a person with diabetes.

Possible Management Strategies for a Person with Diabetes

Management Option	Description
Personal injectables	**Benefits** • Improved blood sugar control • Potential weight loss • Effectively lower blood glucose levels **Risks** • Hypoglycemia (low blood glucose) • Injection site reactions (pain, redness, itching, swelling) • Expensive (cost of supplies)
Insulin pump therapy	**Benefits** • Precise insulin delivery • Greater lifestyle flexibility (meal timing, exercise routines) • Reduced frequency of injections **Risks** • Infusion site issues (irritated, infected, blocked) • Pump malfunction (can lead to rapid rise in blood glucose) • Expensive (cost of pump, pump supplies, not all insurance covers a pump)
Continuous glucose monitors (sensors)	**Benefits** • Provides real time glucose data • Better blood sugar control • Reduced risk of complications from injections **Risks** • Complex to use (training and education required) • Expensive (cost of sensors and parts, not all insurance covers sensors and supplies)
Pancreas transplant	**Benefits** • Improved blood sugar control • Slow down/prevent long-term complications • Insulin independence (no need for external insulin) **Risks** • Surgery: complications (bleeding, infections, blood clots) and high costs • Lifelong immunosuppressant medications that increase risk of infections • Pancreas may fail or have reduced function

27 Analyze the given management strategies for a person with diabetes. State **one** criterion *and* **one** constraint that the scientists considered when developing these solutions to best meet the needs and wants of diabetics. [1]

Base your answers to questions 28 through 32 on the information below and on your knowledge of biology.

Honeybee Behavior and Threats

Honeybees are social insects that live in large cooperative groups called hives. They are vital to the health of many ecosystems. As they eat pollen and nectar from flowers, they aid in the pollination of many flowering plants.

Honeybees exhibit group decision-making when they choose a new nesting site. Stressors such as a growing hive population, animal disruption, habitat fragmentation by humans, or a lack of available food will signal that the hive needs to find a new home. This causes the honeybees to engage in swarming behavior. Hives of up to 10,000 bees will send hundreds of scouts to find potential new sites, and they collectively select the best location.

A Honeybee Swarm

28 Which solution could a community use to most effectively *reduce* the impact of human activity on the honeybee populations?

(1) Apply herbicides to limit the growth of plants that compete with bee food sources.

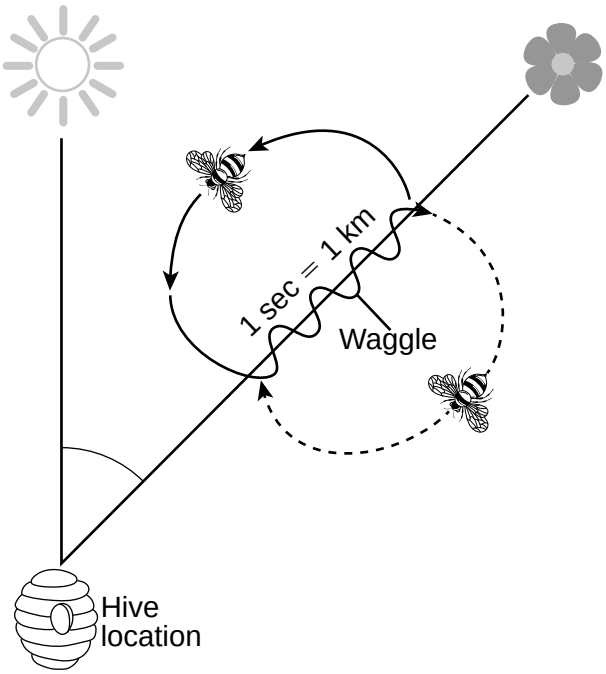
(2) Create gardens and public spaces with native flowering plants.

(3) Create enclosed spaces around the hives so that bees will be unable to leave the area.

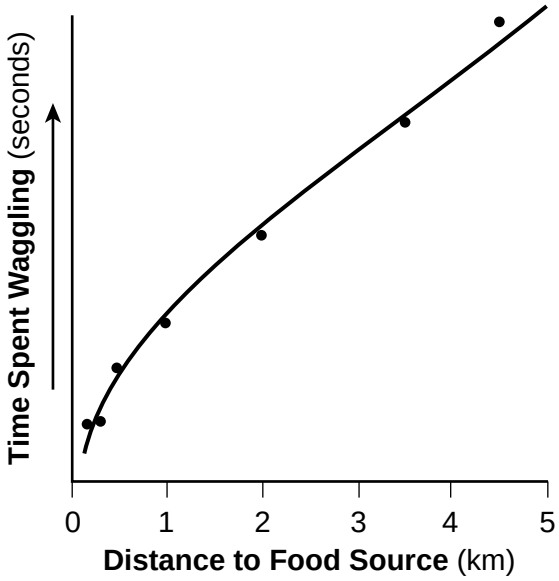
(4) Apply pesticides to eliminate other insects that feed on pollen and nectar.

When a worker bee finds a new food source, it will return to the hive and engage in a behavior known as the "waggle dance." The bee will move in a figure-eight pattern and waggle its abdomen. The speed and direction of the pattern communicates to the other bees where the new food source is located. The models below show information about this behavior.

Waggle Dance Relating to the Directions to the Food Source



Waggle Dance Relating to the Distance to the Food Source



29 Based on the information above, how does the waggle dance of an individual bee have a beneficial effect for the hive?

(1) Being able to communicate through the waggle dance allows bees to find other hives and share resources with them.

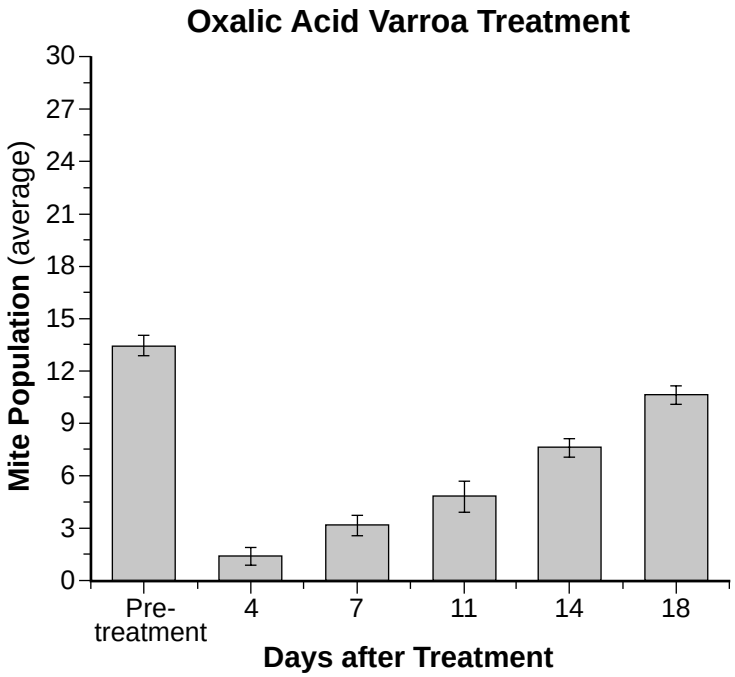
(2) Being able to communicate through the waggle dance allows bees in the hive to better avoid predators.

(3) Being able to communicate through the waggle dance allows bees in the hive to gather resources more efficiently.

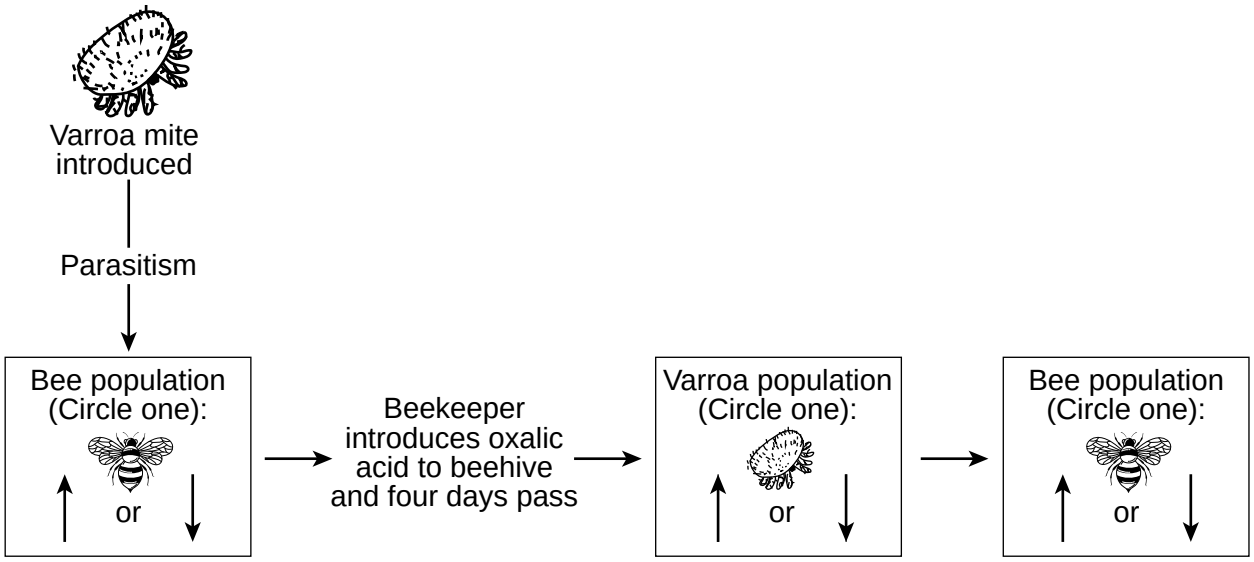
(4) Being able to communicate through the waggle dance allows bees in the hive to recognize which plants are food sources.

The Varroa mite is an invasive parasite of western honeybees. A mite infestation can cause a honeybee population to collapse. The mite feeds on both adult bees and larvae and can kill the larvae before they hatch. Adult bees try to protect their colony by cleaning out mites and removing infected bees.

Beekeepers treat heavily infested hives with oxalic acid, which kills Varroa mites. The data below show information about the number of mites in bee colonies before and after treatment with oxalic acid.



30 Use the information provided to complete the diagram below by circling the arrow in *each* box that describes the population trend that best supports the explanation that populations of bees are affected by mites and oxalic acid treatment. [1]



31 Based on the data provided, which explanation best describes the effectiveness of using oxalic acid treatments every 18 days to reduce the number of invasive Varroa mites over time?

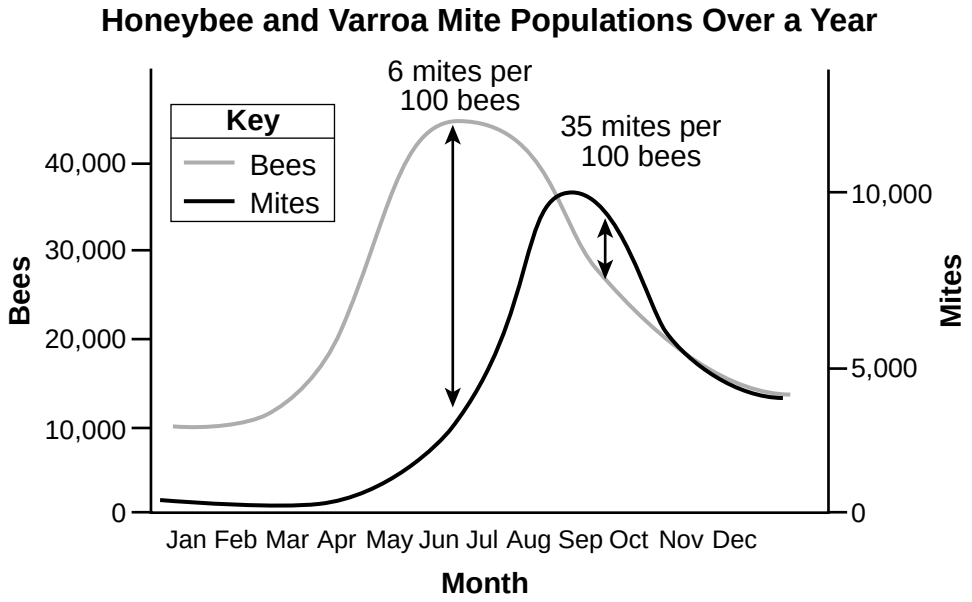
(1) This treatment would be effective because the number of living mites continues to decrease for several weeks after oxalic acid exposure.

(2) This treatment would not be effective because an individual Varroa mite would become resistant to oxalic acid if they are treated frequently.

(3) This treatment would not be effective because Varroa mites that have a natural resistance to oxalic acid would survive and reproduce.

(4) This treatment would be effective because it gives the Varroa mites enough time to learn to avoid hives that contain oxalic acid.

Varroa mites can become dormant during cold winter months. As bee populations increase, the Varroa mites come out of dormancy and start to affect the bees in larger numbers. Studies have shown that rates of infestation above 5% in the fall reduce colony survival, with higher rates resulting in greater losses over the winter. The graph below shows how the number of bees and mites in a hive changed over the course of a year.



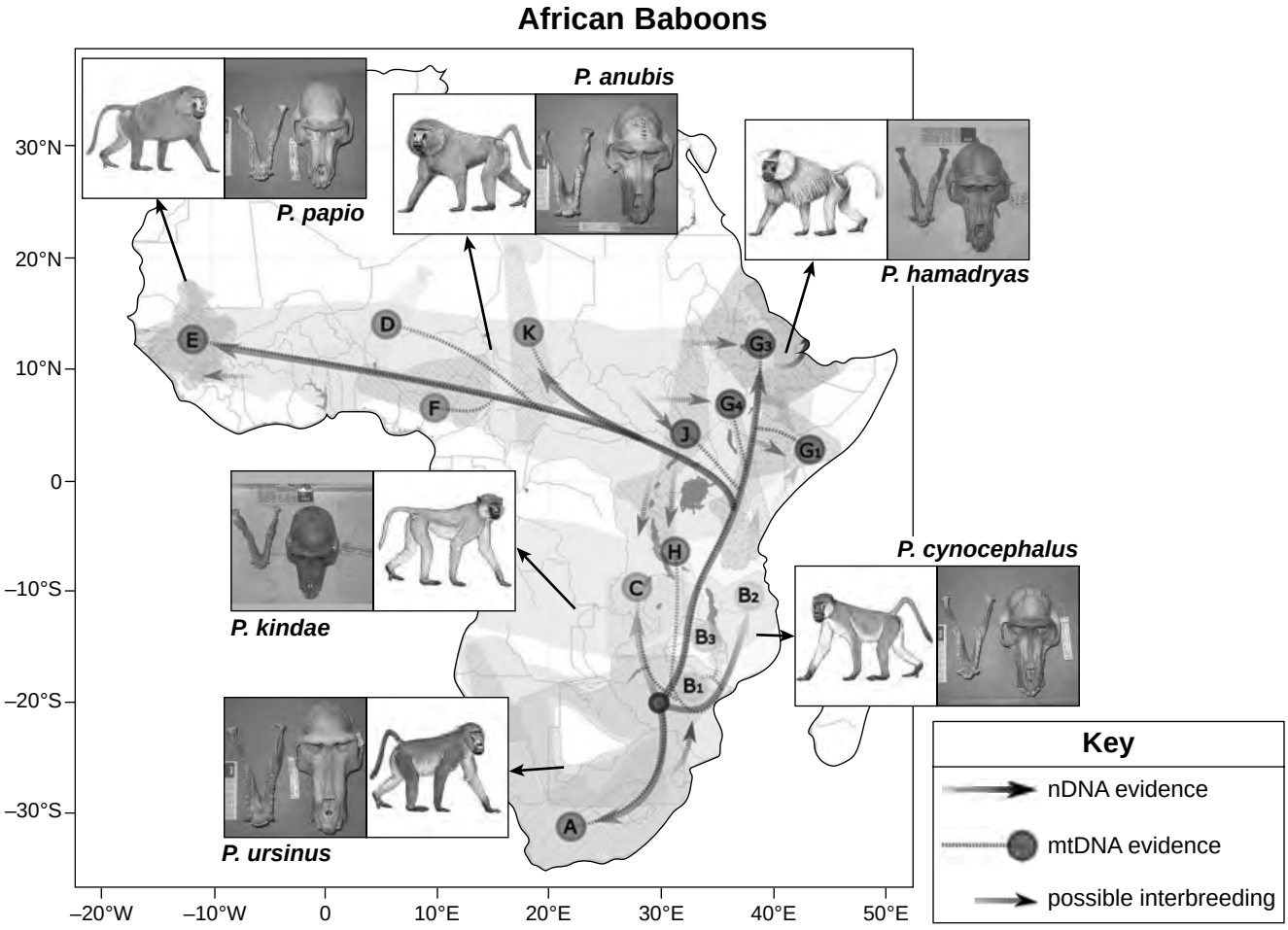
32 Using evidence and reasoning, evaluate the claim that the time of year for a Varroa mite treatment may determine whether a new ecosystem results in the following year. [1]

☐ Claim is valid ☐ Claim is not valid

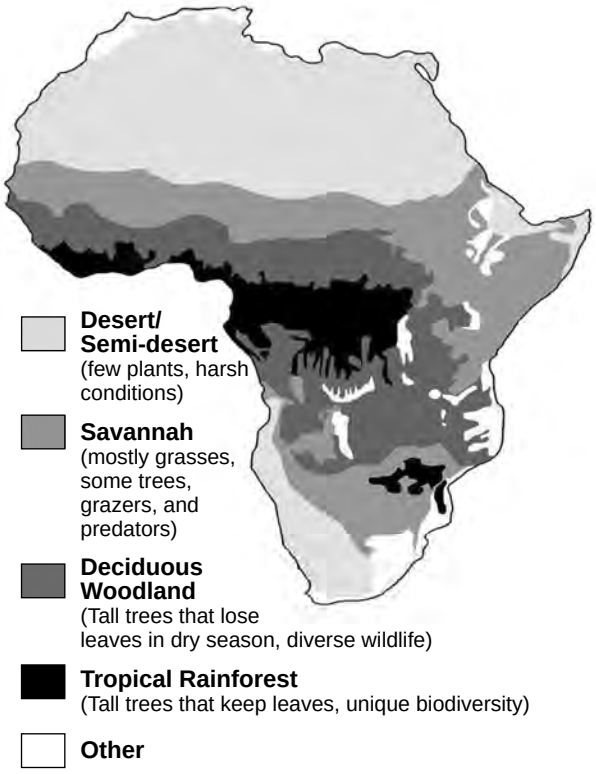
Base your answers to questions 33 through 36 on the information below and on your knowledge of biology.

Baboon Evolution

African baboons have been studied for their evolutionary relationships. Although all baboons are closely related and can reproduce, they are given separate species names due to the differences in their appearance, behaviors, and habitats. Since all baboon species can interbreed, genetic patterns have been closely examined in both the nuclear DNA (nDNA) and mitochondrial DNA (mtDNA). mtDNA is located in the mitochondria and is inherited only from the mother, who is more likely to remain in the geographic region of birth than males. The following diagrams show some information about African baboons and their biomes. Each letter indicates a different mtDNA group.



Map of Biomes in Africa



33 Which line of empirical evidence supports the claim that African baboons share a common ancestor?

(1) Changes in mtDNA affected skull shape over generations.

(2) The skulls of modern baboons are identical in groups *A* and *C*.

(3) Changes in mtDNA originated from one location.

(4) Longer facial fur resulted from nDNA changes in groups *A* and *B*.

34 Which evidence best explains how the evolution of African baboons is the result of an environmental factor?

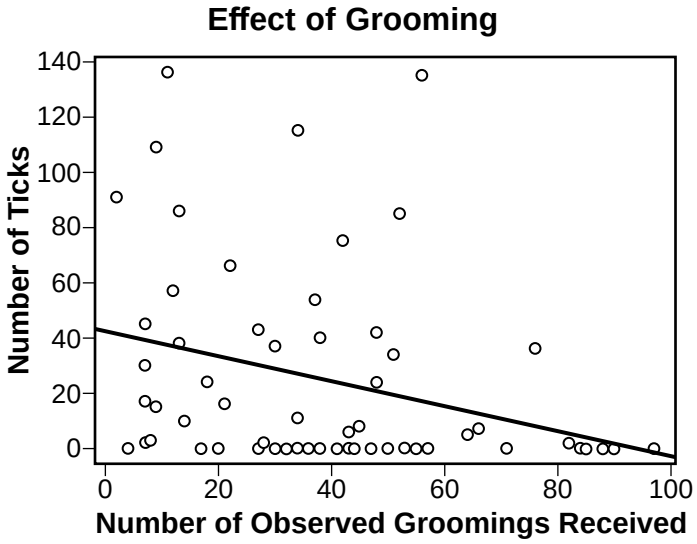
(1) The facial hair of *P. papio* best protects it from desert sandstorms.

(2) The jaw of *P. kindae* makes it better suited for diverse environments.

(3) The facial hair of *P. hamadryas* allows it to blend in with the tall trees.

(4) The jaw of *P. ursinus* makes it better suited for a rainforest environment.

African baboons engage in a social behavior called grooming that involves the removal of parasites, such as ticks, that transmit infectious and toxic diseases. Ticks prefer dry environments with an average yearly rainfall of less than 750 mm per year. These ticks impact African baboons by reducing the ability to carry oxygen in the blood, which can cause death in infants and young baboons. Grooming behaviors strengthen bonds and social connections that build and maintain relationships. Studies have shown that the likelihood of participating in social behaviors is influenced by specific genes. The graph below shows some information about grooming in African baboons.



35 Describe the evidence from the graph that supports the claim that grooming increases an African baboon's chance to survive and reproduce. [1]

36 Which statement provides evidence that explains how an environmental factor could cause a change in gene frequency for the likelihood of social behaviors in African baboons?

(1) When average rainfall increases, increased grooming behavior decreases the probability of passing genes to offspring for the likelihood of participating in social grooming.

(2) When average rainfall increases, increased grooming behavior increases the probability of passing genes to offspring for the likelihood of participating in social grooming.

(3) When average rainfall decreases, increased grooming behavior decreases the probability of passing genes to offspring for likelihood of participating in social grooming.

(4) When average rainfall decreases, increased grooming behavior increases the probability of passing genes to offspring for the likelihood of participating in social grooming.

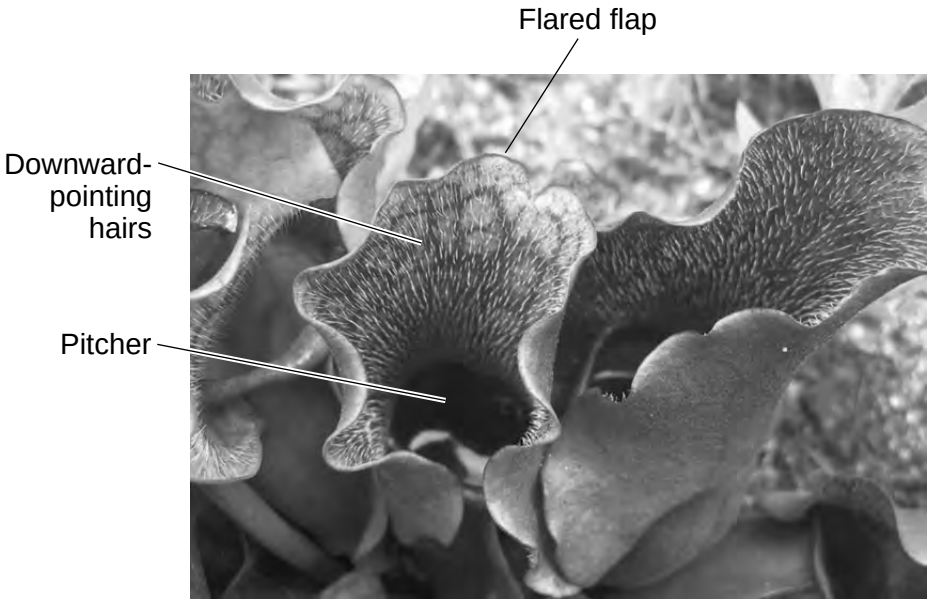
Base your answers to questions 37 through 40 on the information below and on your knowledge of biology.

Purple Insect Eater

Carnivorous plants are unique in the way they obtain and cycle compounds necessary for life functions. The purple pitcher plant (*Sarracenia purpurea*) is a photosynthetic carnivorous plant often found in wetland soil, such as peat bogs in the Adirondack mountains.

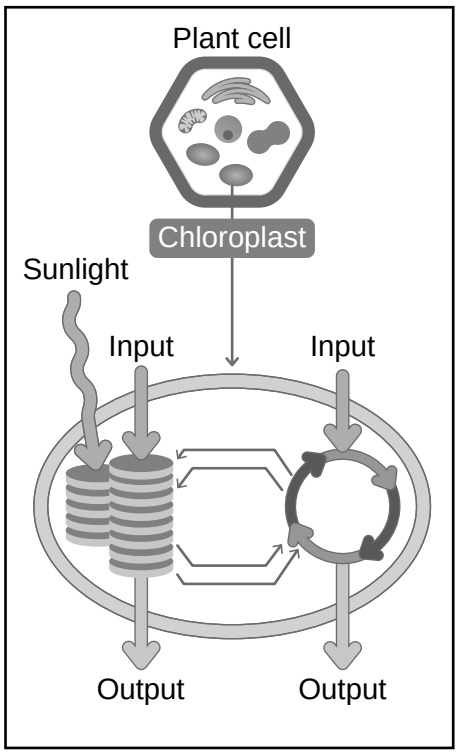
The pitcher part of the plant is a modified hollow leaf that naturally fills with water. Insects are attracted to a sugary nectar secreted by the flared flap of the pitcher. The downward-pointing hairs lining the flap encourage insects to travel into the pitcher. The insects slide down into the fluid-filled main body of the pitcher and are digested by enzymes released by the plant.

Purple Pitcher Plant



Like most plants, the cells of pitcher plants are able to cycle carbon, as shown in the model below.

Model of the Processes of the Purple Pitcher Plant



37 Using the model, which statement best identifies the energy conversion that occurs in the pitcher plant?

(1) The chemical energy in carbon dioxide is transformed into light energy for glucose and oxygen.

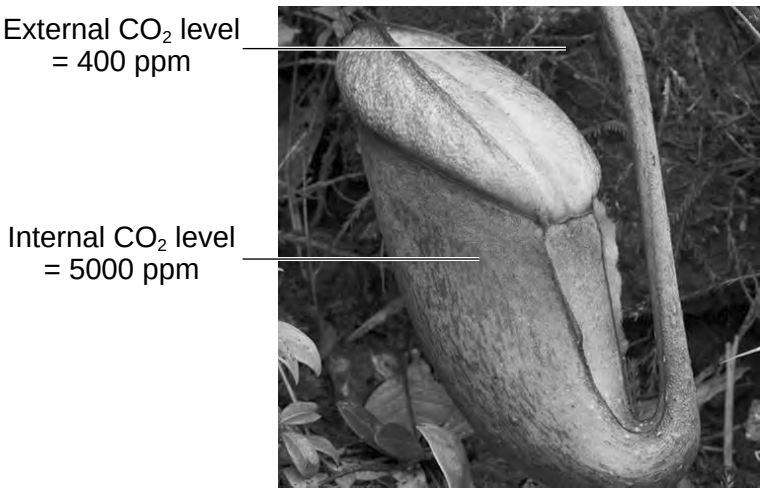
(2) Light energy allows carbon dioxide to enter the leaf and allows glucose to exit.

(3) Light energy is captured by the leaf and converted into stored energy within the chemical bonds of glucose.

(4) The chemical energy in glucose is converted into light energy, stored in oxygen.

Researchers determined that carbon dioxide levels inside some kinds of pitcher plants can vary from the outside of the plant.

Concentration In and Around the Pitcher Plant



38 Which of these statements best predicts the movement of carbon between Earth's spheres that produced the differences in carbon dioxide concentrations when the pitcher opens up?

(1) Carbon dioxide in the biosphere will move into the hydrosphere because the hydrosphere has a higher carbon dioxide concentration.

(2) Carbon dioxide in the atmosphere will move into the biosphere because the concentration of carbon dioxide is greater in the atmosphere.

(3) Carbon dioxide from the hydrosphere will move into the biosphere because the concentration of carbon dioxide is greater in the biosphere.

(4) Carbon dioxide from the biosphere will move into the atmosphere because the biosphere has a higher carbon dioxide concentration.

Peat bogs are low in available essential nutrients such as nitrogen, calcium, magnesium, and potassium. Only 20% of the nitrogen used by pitcher plants is absorbed from the peat soil in which they grow. Pitcher plants break down the protein-rich insects into smaller molecules, using enzymes found in their fluid-filled pitchers.

Pitcher plants produce both pitchers and flat leaves. Flat leaves are more efficient at carrying out photosynthesis. Acid rain resulting from the combustion of fossil fuels has gradually added more nitrogen to the peat bogs in the Adirondacks.

Scientists wanted to know if the changes in the amount of available nitrogen caused changes in the pitcher plants. They planted several pitcher plants in different pots. Each pot had soil with a different amount of nitrogen in it. They found that the plants with more nitrogen in the soil produced fewer pitchers and more flat leaves than pitcher plants in low-nitrogen soils.

39 How does this evidence support the scientists' claim that increased nitrogen makes the pitcher plants more effective at cycling carbon?

(1) Pitcher plants that have sufficient nitrogen in their soil have less of a need to undergo photosynthesis, so they produce fewer pitchers.

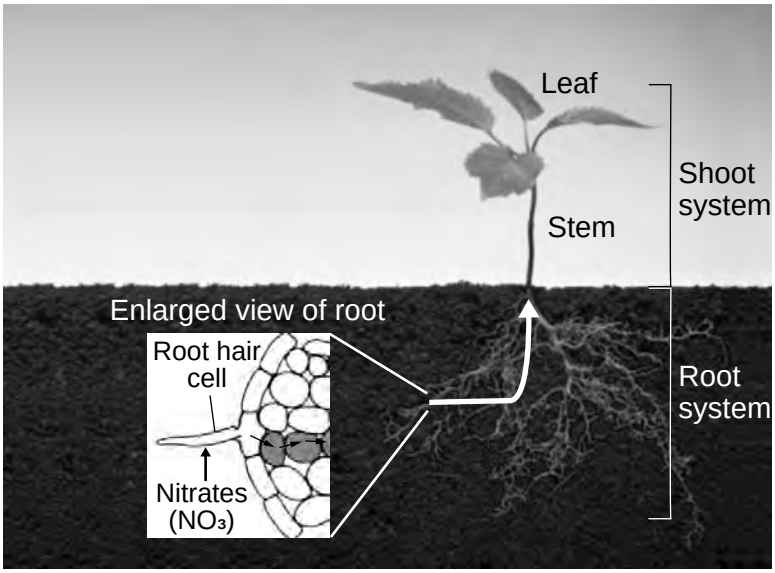
(2) The pitcher plants in higher-nitrogen soils have less of a need to consume insects, so they are able to use more of their leaves for photosynthesis.

(3) The pitcher plants in high-nitrogen soils grow more flat leaves because they need other elements from insects to combine with nitrogen.

(4) Pitcher plants produce more flat leaves so that they are better at obtaining nitrogen from the soil.

Plants must obtain necessary compounds from their surrounding environment using specialized structures. Below is a representation of the process of nitrogen uptake occurring in non-carnivorous plants.

Plant Structures and Systems Involved in Nutrient Uptake



40 Using the model above, describe how components of the two systems interact in the non-carnivorous plant to obtain nitrogen from the surrounding environment that is necessary for its leaves to produce chlorophyll. [1]

Base your answers to questions 41 through 45 on the information below and on your knowledge of biology.

Zebra Coat Patterns

A rare zebra coloration was discovered in Maasai Mara National Reserve in Kenya. The young plains zebra, named Tira, has black fur with white spots covering his body. His parents have the typical black and white stripe patterns usually seen in zebra species.

41 Which question would help scientists understand why the spotted zebra's coat pattern is different from its striped parents?

(1) Are the pattern differences in the zebras the result of heritable variations in DNA between parents and their offspring?

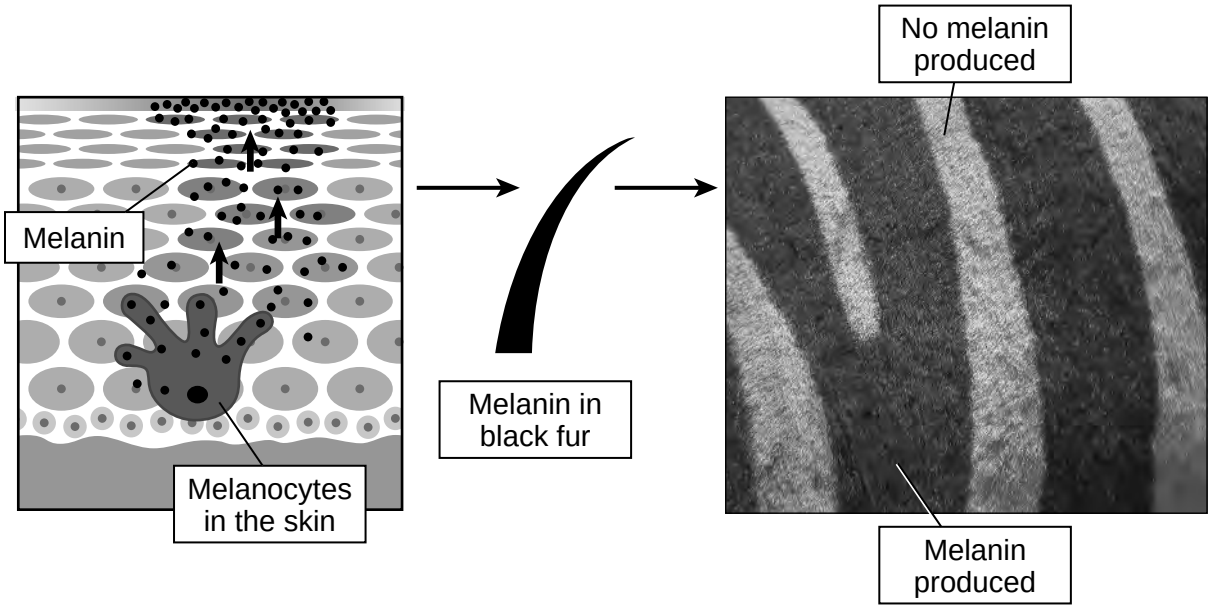
(2) Will the spotted coat pattern increase in frequency in the population because the trait is advantageous?

(3) How does the amount of DNA in the spotted zebra's skin cells compare with the amount in the skin cells of the parents?

(4) Does the pattern in the offspring differ from the parents because it needs to blend in better with the environment?

Melanin is a pigment produced in the skin cells of mammals, including zebras. It gives mammal skin and fur its coloration. Melanocytes are specialized cells found in certain layers of the skin that produce this protein. The amount of pigment produced and the area where it deposits are some factors that determine the patterns of coloration in a zebra's fur.

Melanin Production and Deposition



42 Describe evidence that would best support the explanation that spotted zebras and striped zebras have the same DNA sequence for their unique coloration patterns. [1]

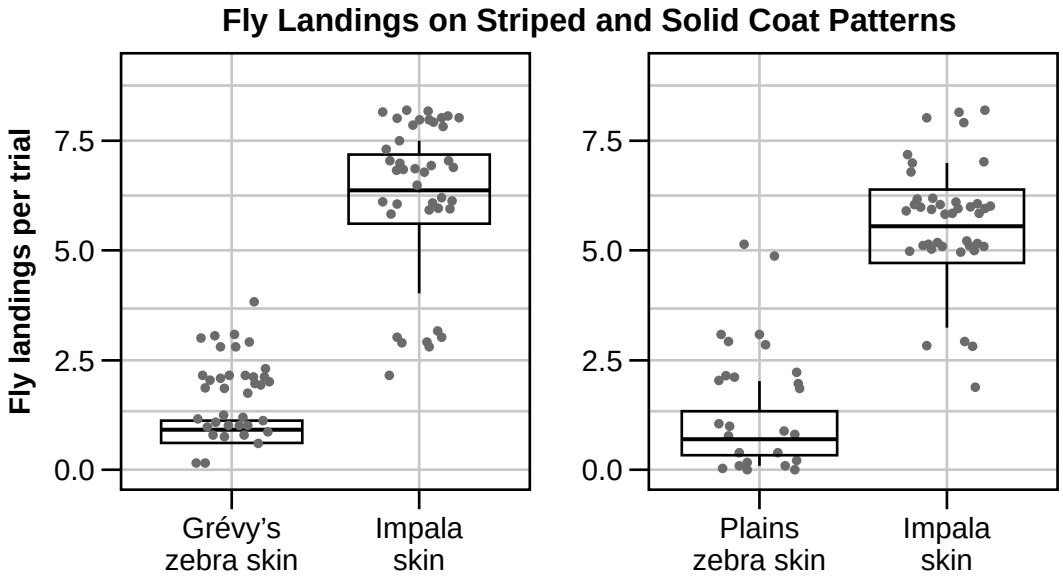
In the past, some scientists have suggested that stripes help zebras blend into their environment or that stripes are like a fingerprint that allow zebras to identify each other. Another hypothesis is that stripes prevent flies from landing on zebras, reducing the possibility of contracting a fatal disease carried by flies.

Researchers on a Kenyan savannah investigated whether flies prefer to land on striped or solid animal coats. The researchers measured how many flies landed on plains zebras, Grévy's zebras, and solid-colored impalas.

Plains zebra

Grévy's zebra

Impala



43 The researchers claimed that an environmental factor may have affected the evolution of the zebra's striped coat. Which row of the table uses evidence gathered by the researchers to justify why their claim is correct *or* incorrect?

Row	Claim	Reasoning
(1)	Correct	Flies are more attracted to the impala's solid coat, resulting in more flies biting the zebras, and decreasing the zebras' chance of surviving and reproducing.
(2)	Correct	Stripes reduce the number of biting flies landing on zebras, resulting in a decrease in the chance of disease from flies, and increasing the zebras' chance of surviving and reproducing.
(3)	Incorrect	Stripes increase the number of biting flies landing on zebras, resulting in an increase in the chance of disease from flies, and decreasing the zebras' chance of surviving and reproducing.
(4)	Incorrect	Flies are more attracted to the impala's solid coat, resulting in fewer flies biting the zebras, and increasing the zebras' chance of surviving and reproducing.

The zebra's natural habitat is in sub-Saharan Africa. Due to human activities such as agriculture and the building of roads and cities, zebra habitat is becoming increasingly fragmented or broken up. This isolates zebra populations from breeding with other populations.

In 2020, a group of scientists studied the genetic diversity of plains zebra populations in Africa.

Information about the frequency of the varied coat patterns in plains zebra populations is included in the table below.

Location	Plains Zebra Population Relative Size	Approximate Frequency of Varied Coat Patterns
Etosha National Park, Namibia	Larger	0.05%
Lake Mburo National Park, Uganda	Smaller	5%

44 Which statement best uses the data gathered by the researchers to predict the variation and distribution of coat patterns in future generations of plains zebras?

(1) The probability of finding zebras with varied coat patterns will be highest in Lake Mburo National Park because the population there is small and isolated.

(2) The probability of finding zebras with varied coat patterns will be lowest in Lake Mburo National Park because the population there is small and isolated.

(3) The probability of finding zebras with varied coat patterns will be highest in Etosha National Park because the population there is small and isolated.

(4) The probability of finding zebras with varied coat patterns will be lowest in Etosha National Park because the population there is small and isolated.

The total population of the plains zebras has undergone an approximate 25% decline since 2002. The table below includes information on possible solutions to stabilizing and restoring zebra populations.

Solutions to Stabilize and Restore Zebra Populations

Solution	Summary
Wildlife Corridors	Create protected pathways between habitats
Sustainable Land Use Planning	Work with communities to limit development in key zebra habitats
Protected Areas	Expand or establish conservation areas and reserves

45 Identify a solution from the table and describe how it would *reduce* human impact on habitat fragmentation *and* benefit plains zebra populations. [1]

Solution: _____

Description:

_____

_____

_____

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LIFE SCIENCE: BIOLOGY

The State Education Department / The University of the State of New York

Regents Examination in Life Science: Biology – January 2026

Scoring Key: Multiple-Choice Questions

Examination	Date	Question Number	Scoring Key	Question Type	Credit	Weight
Life Science: Biology	January '26	**2**	3	MC	1	1
Life Science: Biology	January '26	**4**	1	MC	1	1
Life Science: Biology	January '26	**5**	2	MC	1	1
Life Science: Biology	January '26	**6**	2	MC	1	1
Life Science: Biology	January '26	**8**	3	MC	1	1
Life Science: Biology	January '26	**9**	4	MC	1	1
Life Science: Biology	January '26	**10**	2	MC	1	1
Life Science: Biology	January '26	**11**	4	MC	1	1
Life Science: Biology	January '26	**13**	2	MC	1	1
Life Science: Biology	January '26	**14**	2	MC	1	1
Life Science: Biology	January '26	**16**	4	MC	1	1
Life Science: Biology	January '26	**17**	1	MC	1	1
Life Science: Biology	January '26	**19**	3	MC	1	1
Life Science: Biology	January '26	**20**	3	MC	1	1
Life Science: Biology	January '26	**21**	2	MC	1	1
Life Science: Biology	January '26	**23**	1	MC	1	1
Life Science: Biology	January '26	**26**	1	MC	1	1
Life Science: Biology	January '26	**28**	2	MC	1	1
Life Science: Biology	January '26	**29**	3	MC	1	1
Life Science: Biology	January '26	**31**	3	MC	1	1
Life Science: Biology	January '26	**33**	3	MC	1	1
Life Science: Biology	January '26	**34**	2	MC	1	1
Life Science: Biology	January '26	**36**	4	MC	1	1
Life Science: Biology	January '26	**37**	3	MC	1	1
Life Science: Biology	January '26	**38**	4	MC	1	1
Life Science: Biology	January '26	**39**	2	MC	1	1
Life Science: Biology	January '26	**41**	1	MC	1	1
Life Science: Biology	January '26	**43**	2	MC	1	1
Life Science: Biology	January '26	**44**	1	MC	1	1

Scoring Key: Constructed Response Questions

Examination	Date	Question Number	Scoring Key	Question Type	Credit	Weight
Life Science: Biology	January '26	**1**	–	CR	1	1
Life Science: Biology	January '26	**3**	–	CR	1	1
Life Science: Biology	January '26	**7**	–	CR	1	1
Life Science: Biology	January '26	**12**	–	CR	1	1
Life Science: Biology	January '26	**15**	–	CR	1	1
Life Science: Biology	January '26	**18**	–	CR	1	1
Life Science: Biology	January '26	**22**	–	CR	1	1
Life Science: Biology	January '26	**24**	–	CR	1	1
Life Science: Biology	January '26	**25**	–	CR	1	1
Life Science: Biology	January '26	**27**	–	CR	1	1
Life Science: Biology	January '26	**30**	–	CR	1	1
Life Science: Biology	January '26	**32**	–	CR	1	1
Life Science: Biology	January '26	**35**	–	CR	1	1
Life Science: Biology	January '26	**40**	–	CR	1	1
Life Science: Biology	January '26	**42**	–	CR	1	1
Life Science: Biology	January '26	**45**	–	CR	1	1

Key
MC = Multiple-choice question
CR = Constructed-response question

The chart for determining students' final examination scores for the **January 2026 Regents Examination in Life Science: Biology** will be posted on the Department's web site at **https://www.nysedregents.org/life_science_biology/** no later than January 20, 2026. Conversion charts provided for the previous administrations of the Living Environment examination must NOT be used to determine students' final scores for this administration.

FOR TEACHERS ONLY

The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

LIFE SCIENCE: BIOLOGY

Tuesday, January 20, 2026 — 1:15 to 4:15 p.m., only

RATING GUIDE

Directions to the Teacher:

Refer to the directions on page 2 before rating student papers.

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations and select the link "Scoring Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents Examination period.

Directions to the Teacher

Follow the procedures below for scoring student answer papers for the Regents Examination in Life Science: Biology. Additional information about scoring is provided in the publication *Directions for Scoring Regents Examinations*.

Allow 1 credit for each correct response.

At least two science teachers must participate in the scoring of the open-ended questions on a student's paper. Each of these teachers should be responsible for scoring a selected number of the open-ended questions on each answer paper. No one teacher is to score more than approximately one-half of the open-ended questions on a student's answer paper. Teachers may not score their own students' answer papers.

Students' responses must be scored strictly according to the Rating Guide. For open-ended questions, credit may be allowed for responses other than those given in the rating guide if the response is a scientifically accurate answer to the question and demonstrates adequate knowledge as indicated by the examples in the rating guide. Do not attempt to correct the student's work by making insertions or changes of any kind. On the student's separate answer sheet, for each question, record the number of credits earned and the teacher's assigned rater/scorer letter.

Fractional credit is *not* allowed. Only whole-number credit may be given for a response. If the student gives more than one answer to a question, only the first answer should be rated. Units need not be given when the wording of the questions allows such omissions.

For hand scoring, raters should enter the scores earned in the appropriate boxes printed on the separate answer sheet. Next, the rater should add these scores and enter the total in the space provided. The student's score for the Life Science: Biology test should be recorded in the space provided. Then the student's raw score on the test should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations no later than January 20, 2026. The student's scale score should be entered in the box labeled "Scale Score" on the student's answer sheet. The scale score is the student's final examination score.

Schools are not permitted to rescore any of the open-ended questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score.

The test item map on page 10 identifies the Performance Expectation with which each test question is aligned. All NYSP-12SLS Performance Expectations are three-dimensional (https://www.nysed.gov/sites/default/files/programs/standards-instruction/p-12-science-learning-standards.pdf). The integration of these three dimensions provides students with a context for the content of science (DCI), the methods by which science knowledge is acquired and understood (SEP), and the ways in which the sciences are connected through concepts that have universal meaning across the disciplines (CCC).

1 [1] Allow 1 credit for Model *A* and correct identification of a structure. Acceptable responses include, but are not limited to:

— They started with one fertilized egg, so their DNA is identical.

— They usually share the same placenta.

— They developed from the same sperm and egg.

2 [1] Allow 1 credit for 3.

3 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Fraternal twins result from two eggs and two sperm, which carry many different combinations of chromosomes. Due to the mixing of genes/chromosomes during meiosis, the twins will inherit different traits from each parent.

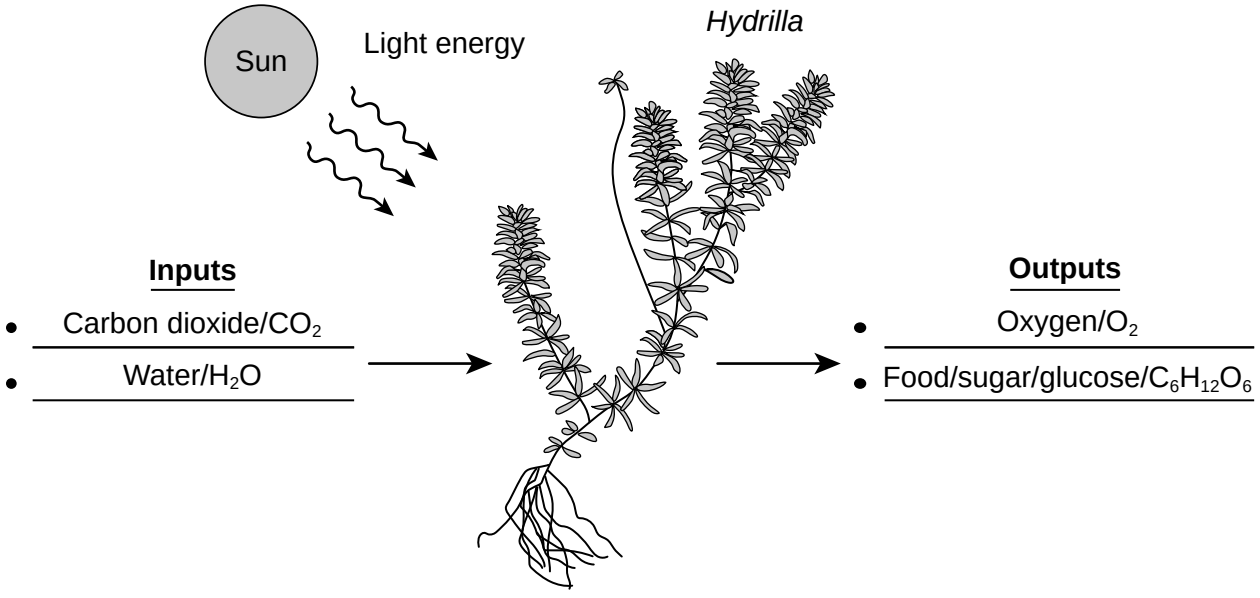
— Fraternal twins that have genes from different sperm and eggs will have different traits, because genes come together in new combinations when sex cells are produced.

4 [1] Allow 1 credit for 1.

5 [1] Allow 1 credit for 2.

6 [1] Allow 1 credit for 2.

7 [1] Allow 1 credit for a complete model.



8 [1] Allow 1 credit for 3.

9 [1] Allow 1 credit for 4.

10 [1] Allow 1 credit for 2.

11 [1] Allow 1 credit for 4.

12 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— This would increase the biodiversity of the park. The graphs show how the reintroduction of the wolves in 1995 resulted in an increase in both the number of willows and the percentage of canopy coverage in Yellowstone, as well as the number of beaver colonies.

— After the wolves were reintroduced in 1995, populations of willows increased. The percentage of canopy cover also increased, allowing for more and diverse animal species to find suitable habitat.

13 [1] Allow 1 credit for 2.

14 [1] Allow 1 credit for 2.

15 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Histamines are released by mast cells of the immune system when *Fel d 1* binds to their receptors. These histamines signal cells of the nasal passages in the respiratory system to produce mucus.

— Immune system cells called mast cells release a signaling molecule that causes the airways in the lungs to constrict/the lungs to have difficulty breathing.

16 Allow 1 credit for 4.

17 Allow 1 credit for 1.

18 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The *Fel d 1* genes determine the structure of the allergen protein because they contain a code that is transcribed and then translated to produce a chain of amino acids with a specific order that will determine the shape of the protein. CRISPR-cas9 editing of the *Fel d 1* gene would change the DNA code and therefore change the order of amino acids and the shape of the protein. Proteins with the wrong shape do not function properly.

— CRISPR-cas9 editing would change the DNA/genetic code so the protein that results from that code would have a different shape that may no longer function or will not be produced at all, resulting in no allergen.

19 [1] Allow 1 credit for 3.

20 [1] Allow 1 credit for 3.

21 [1] Allow 1 credit for 2.

22 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The fact that the diamondback moth and European corn borer can both develop resistance to *Bt* toxins by producing the same protein indicates that they must have similar DNA and are likely to have a recent common ancestor.

— Similarities in DNA sequences can produce similar amino acid sequences (proteins) that result in *Bt* toxin resistance, which means they could have a common ancestor.

23 [1] Allow 1 credit for 1.

24 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The endocrine system releases insulin into the circulatory system, which carries insulin to the cells.

— The blood vessels of the circulatory system carry the insulin/glucose to the muscles of the musculoskeletal system.

— The digestive system breaks down food into glucose, which diffuses into the circulatory system to transport glucose throughout the body.

25 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The blood plasma glucose kept increasing at the two-hour mark in Participant 2, indicating that insulin is not playing a role in bringing glucose back to the set point as it did in Participant 1.

— The blood plasma glucose levels returned to a normal range after two hours in Participant 1 but not in Participant 2. This indicates that insulin is functioning normally in a properly functioning feedback loop in Participant 1 but not in Participant 2.

26 [1] Allow 1 credit for 1.

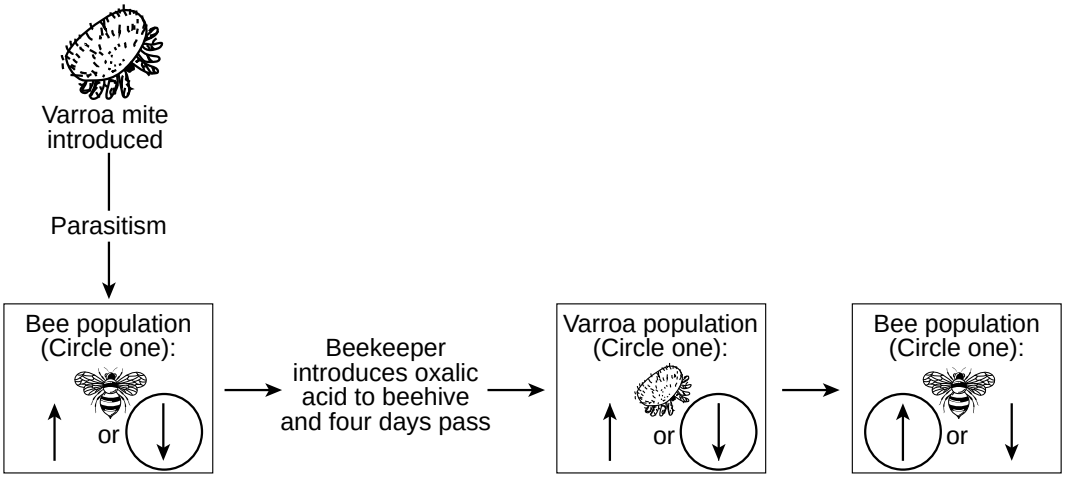
27 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

Criterion	Constraint
– improved blood sugar control – reduce risk of future complications	– cost – side effects

28 [1] Allow 1 credit for 2.

29 [1] Allow 1 credit for 3.

30 Allow 1 credit for:



31 [1] Allow 1 credit for 3.

32 [1] Allow 1 credit. Acceptable responses include but are not limited to:

Claim is valid	– Treatment in the spring may not improve colony survival because the treatment lasts only 18 days, so the infestation rates may be above 5% in the fall, reducing the bee population in the spring, resulting in the fewer pollinators. – Treatment in the fall will reduce the infestation rate, which will not result in the death of the colony. This will maintain biodiversity in the ecosystem.
Claim is not valid	– Although the time of year the mites are treated will affect the colony's survival, we don't have enough information to know if this would result in a new ecosystem.

33 [1] Allow 1 credit for 3.

34 [1] Allow 1 credit for 2.

35 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— If the observed groomings received are 100, there are no ticks present; therefore the African baboon will have stronger social bonds and be less likely to die from disease, increasing its chances of surviving and reproducing.

— If an African baboon receives fewer groomings, it is more likely to have ticks, which makes it more likely to be exposed to diseases and die as an infant or juvenile.

36 [1] Allow 1 credit for 4.

37 [1] Allow 1 credit for 3.

38 [1] Allow 1 credit for 4.

39 [1] Allow 1 credit for 2.

40 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The root hair cell in the root system takes in nitrogen in the form of nitrates from the soil and transports it throughout the plant through the stem of the shoot system.

— Nitrogen/nitrates are taken in by the root hair cells and moved to the leaves of the plants through the stem.

— Nitrogen/nitrates are taken in by the root system and moved to the cells of the plant through the shoot system.

41 [1] Allow 1 credit for 1.

42 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Both spotted and striped zebras produce the same protein/melanin/pigment, so the DNA sequence in the melanin gene must be the same.

— Since the zebras produce the same protein, the DNA, which codes for the production of melanin, is the same.

43 [1] Allow 1 credit for 2.

44 [1] Allow 1 credit for 1.

45 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

Wildlife Corridors

— Joining fragmented areas would allow populations to migrate, which would allow individuals from different populations to reproduce and increase genetic diversity.

Sustainable Land Use Planning

— Limited development would prevent additional habitat fragmentation and would prevent zebra populations from becoming isolated from one another.

Protected Areas

— New conservation areas will not be fragmented and would allow zebra populations to have usable land to live on and graze.

The *Chart for Determining the Final Examination Score for the January 2026 Regents Examination in Life Science: Biology* will be posted on the Department's web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations no later than January 20, 2026. Conversion charts provided for previous administrations of the Regents Examination in Life Science: Biology must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

Suggestions and feedback from teachers provide an important contribution to the test development process. The Department provides an online evaluation form for State assessments. It contains spaces for teachers to respond to several specific questions and to make suggestions. Instructions for completing the evaluation form are as follows:

1. Go to https://www.nysed.gov/state-assessment/teacher-feedback-state-assessments.
2. Click Regents Examinations.
3. Complete the required demographic fields.
4. Select the test title from the Regents Examination dropdown list.
5. Complete each evaluation question and provide comments in the space provided.
6. Click the SUBMIT button at the bottom of the page to submit the completed form.

THE STATE EDUCATION DEPARTMENT

THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

January 2026 Life Science: Biology Test Item Map to the Standards

Question	Type	Points	Performance Expectation
1	Constructed Response	1	HS-LS1-8
2	Multiple Choice	1	HS-LS1-4
3	Constructed Response	1	HS-LS3-2
4	Multiple Choice	1	HS-LS3-1
5	Multiple Choice	1	HS-ETS1-2
6	Multiple Choice	1	HS-LS3-1
7	Constructed Response	1	HS-LS1-5
8	Multiple Choice	1	HS-LS2-2
9	Multiple Choice	1	HS-ETS1-3
10	Multiple Choice	1	HS-LS2-6
11	Multiple Choice	1	HS-ESS2-6
12	Constructed Response	1	HS-LS2-7
13	Multiple Choice	1	HS-LS2-8
14	Multiple Choice	1	HS-LS1-1
15	Constructed Response	1	HS-LS1-2
16	Multiple Choice	1	HS-LS3-3
17	Multiple Choice	1	HS-LS3-2
18	Constructed Response	1	HS-LS1-1
19	Multiple Choice	1	HS-LS4-3
20	Multiple Choice	1	HS-LS3-1
21	Multiple Choice	1	HS-LS3-3
22	Constructed Response	1	HS-LS4-1
23	Multiple Choice	1	HS-LS1-7
24	Constructed Response	1	HS-LS1-2
25	Constructed Response	1	HS-LS1-3
26	Multiple Choice	1	HS-LS1-1
27	Constructed Response	1	HS-ETS1-1
28	Multiple Choice	1	HS-ETS1-2
29	Multiple Choice	1	HS-LS2-8
30	Constructed Response	1	HS-LS2-2
31	Multiple Choice	1	HS-LS4-2
32	Constructed Response	1	HS-LS2-1
33	Multiple Choice	1	HS-LS4-1
34	Multiple Choice	1	HS-LS4-2
35	Constructed Response	1	HS-LS2-8
36	Multiple Choice	1	HS-LS4-4
37	Multiple Choice	1	HS-LS1-5
38	Multiple Choice	1	HS-ESS2-6
39	Multiple Choice	1	HS-LS2-3
40	Constructed Response	1	HS-LS1-2
41	Multiple Choice	1	HS-LS3-1
42	Constructed Response	1	HS-LS1-1
43	Multiple Choice	1	HS-LS4-2
44	Multiple Choice	1	HS-LS3-3
45	Constructed Response	1	HS-LS2-7

The State Education Department / The University of the State of New York

Regents Examination in Life Science: Biology – January 2026

Chart for Converting Total Test Raw Scores to Final Exam Scores (Scale Scores)

(Use for the January 2026 exam only.)

Raw Score	Scale Score	Performance Level
45	**100**	5
44	**98**	5
43	**96**	5
42	**95**	5
41	**93**	5
40	**92**	5
39	**90**	5
38	**89**	5
37	**88**	5
36	**86**	5
35	**85**	5
34	**84**	4
33	**83**	4
32	**82**	4
31	**81**	4

Raw Score	Scale Score	Performance Level
30	**80**	4
29	**79**	4
28	**78**	4
27	**76**	4
26	**75**	3
25	**74**	3
24	**72**	3
23	**71**	3
22	**69**	3
21	**68**	3
20	**65**	3
19	**64**	2
18	**62**	2
17	**59**	2
16	**57**	2

Raw Score	Scale Score	Performance Level
15	**55**	2
14	**52**	1
13	**49**	1
12	**46**	1
11	**43**	1
10	**39**	1
9	**36**	1
8	**32**	1
7	**28**	1
6	**25**	1
5	**21**	1
4	**17**	1
3	**13**	1
2	**9**	1
1	**4**	1
0	**0**	1

To determine the student's final examination score (scale score), find the student's total test raw score in the column labeled "Raw Score" and then locate the scale score that corresponds to that raw score. The scale score is the student's final examination score. Enter this score in the space labeled "Scale Score" on the student's answer sheet.

Schools are not permitted to rescore any of the open-ended questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

Because scale scores corresponding to raw scores in the conversion chart change from one administration to another, it is crucial that for each administration the conversion chart provided for that administration be used to determine the student's final score. The chart above is usable only for this administration of the Regents Examination in Life Science: Biology.