Name: _____

New York State Testing Program

Intermediate-level Science Test

Grade 8

Spring 2026

RELEASED QUESTIONS

INTERMEDIATE-LEVEL SCIENCE TEST

Intermediate-level Science Test

TIPS FOR TAKING THE TEST

Here are some ideas to help you do your best:

- Be sure to read all the directions carefully.
- Read each question carefully.
- Think about the answer before making your choice or writing your answer.
- Make sure you read all the information given for each question.
- Diagrams included in the test are not drawn to scale unless otherwise noted.
- You have a ruler and a calculator that you can use on the test if they help you answer the question.

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

Cowbirds

The brown-headed cowbird is a species of bird found in North America. It gets its name for the brown coloring on its head and its tendency to live with cows and bison on grassy fields. As these grazing animals roam, grasshoppers and other insects in the meadow grass are disturbed and change position, making themselves visible to cowbirds that feed on them. In addition to these insects, cowbirds feed upon other insects found on the backs of cows and bison.

Brown-headed Cowbird on Bison

1 Which statement best describes the interaction between cowbirds and bison?

A Cowbirds and bison compete for resources.

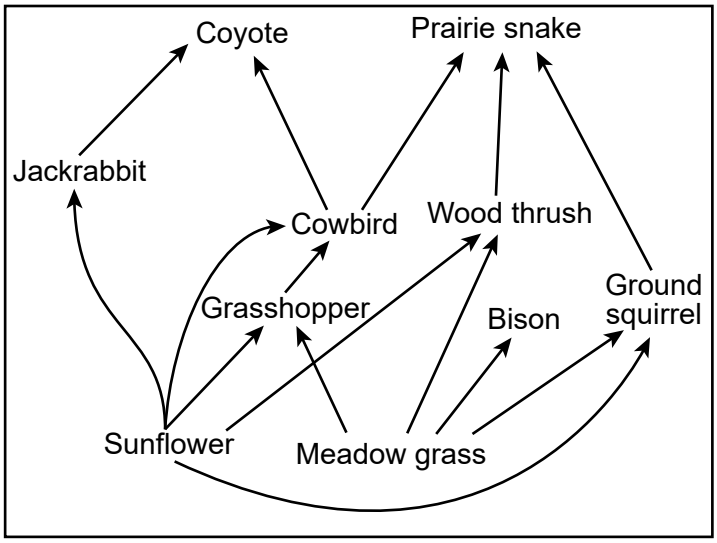
B Cowbirds benefit and bison are harmed.

C Cowbirds benefit and bison are unaffected.

D Cowbirds are actively hunted by bison.

The cowbird and bison are organisms commonly found in Midwest forest edge habitats in the United States. The model below represents a food web containing the cowbird, bison, and other organisms in the same ecosystem.

Food Web



2 A predator-prey relationship displayed in this food web is

A grasshopper and bison

B cowbird and meadow grass

C prairie snake and ground squirrel

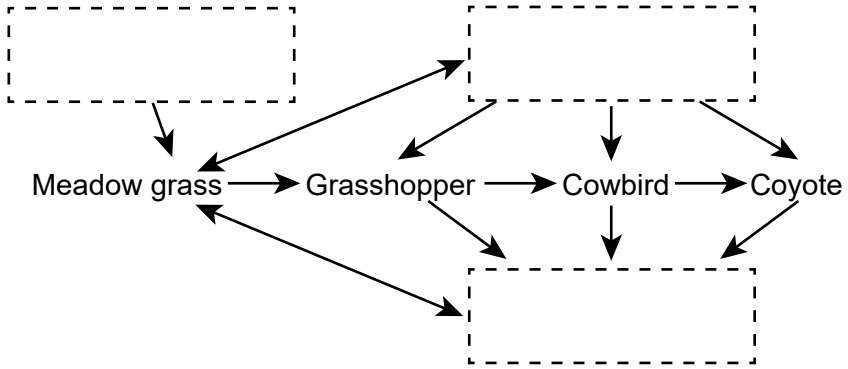
D coyote and wood thrush

3 Based on the *Food Web* model, place the correct terms from the choices below in the model to describe a possible cycling of matter and flow of energy between the living parts and non-living parts of this ecosystem. Each term may only be used once. [1]

Choices for Terms:

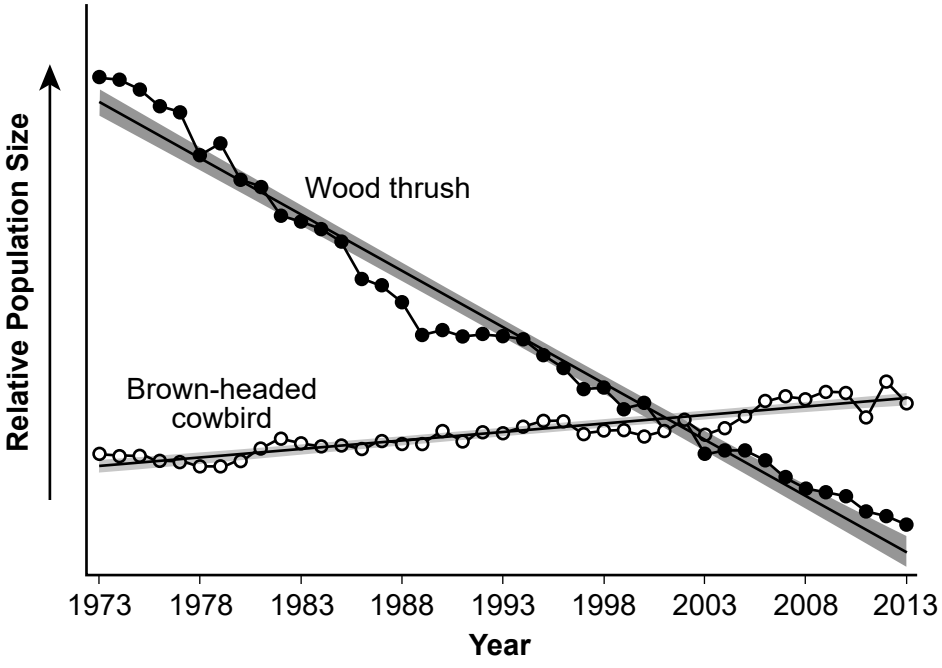
Oxygen	Carbon dioxide	Sunlight

Model for Cycling of Matter and Flow of Energy



Scientists have studied the population changes of the wood thrush and brown-headed cowbird, two bird species living in the same habitat. The graph below shows some information about these two bird species in the United States.

Relative Population Sizes of Wood Thrush and Brown-headed Cowbird in the United States

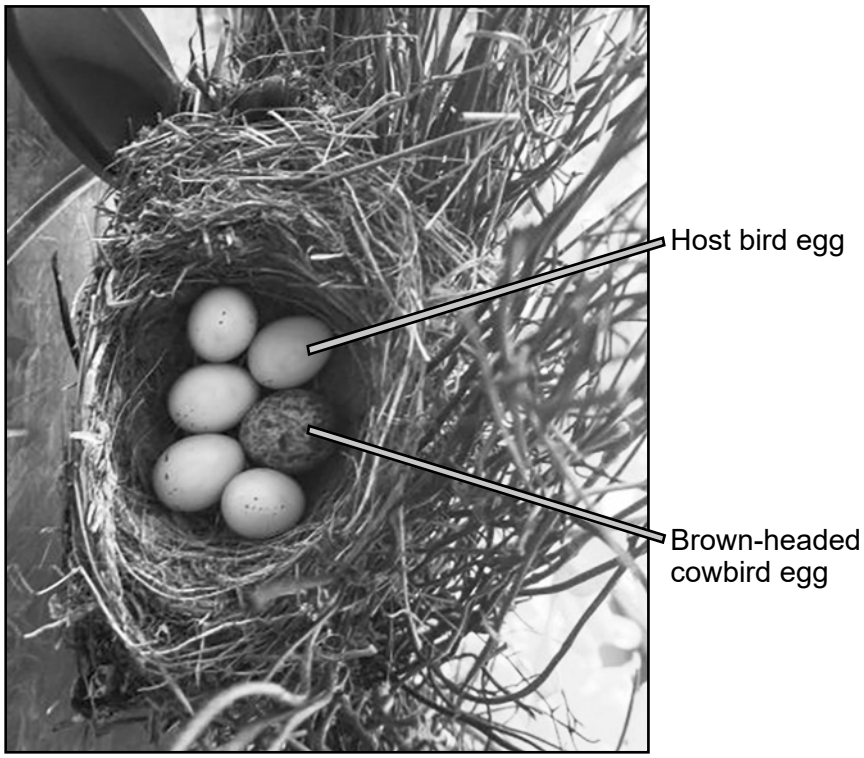


GO ON

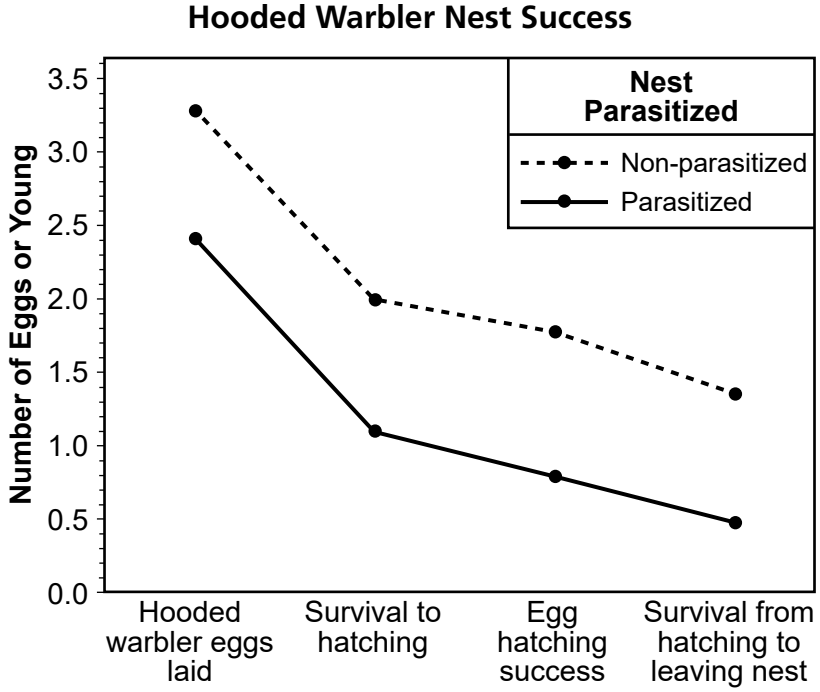
4 Explain, using evidence from the graph *and* the *Food Web* model, how changes in the population of cowbirds affected the amount of energy available for the coyote population between 1973 and 2013. [1]

The brown-headed cowbird has an uncommon nesting behavior. Herds of bison migrate throughout the year over great distances. Due to their adaptation of living with bison and cattle, cowbirds cannot stay in one location to raise young in a nest. Therefore, cowbirds don't make nests but instead lay their eggs in the nests of other bird species. The unsuspecting host birds then raise the cowbird chicks as if they were their own.

Eggs in Nest



Scientists have studied how cowbird nesting behavior has affected the hooded warbler in northwestern Pennsylvania. Scientists refer to host nests containing a cowbird egg as being parasitized. The graph below shows the results of an eight-year study of 847 nests.



5 Which statement identifies the evidence from the graph that shows that the behavior of cowbirds laying eggs in the hooded warbler's nest is considered parasitism?

A A larger number of hooded warbler eggs hatch in parasitized nests than the number of cowbird eggs.

B A smaller number of hooded warbler eggs hatch in parasitized nests than the number of cowbird eggs.

C A smaller number of hooded warblers survive from hatching to leaving the nest in non-parasitized nests compared to parasitized nests.

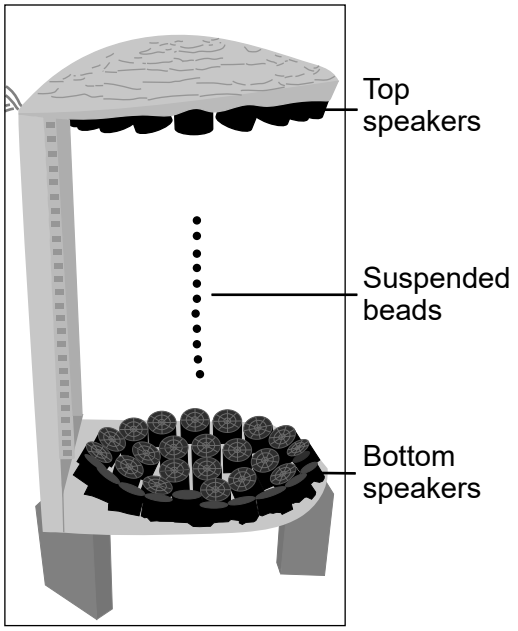
D A larger number of hooded warblers survive from hatching to leaving the nest in non-parasitized nests compared to parasitized nests.

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

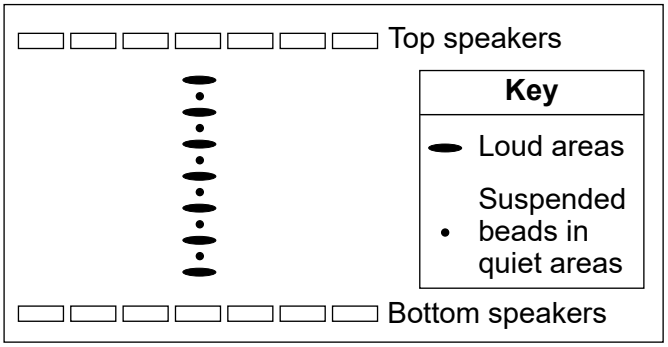
Acoustic Levitation

An acoustic levitator makes objects hover in the air between two small groups of speakers using sound waves. One group of speakers is above the hovering objects and the other group is below. When the sound waves produced by both groups of speakers have the same frequency, the waves combine and form quiet and loud areas. Small beads or drops of liquid put into the space between the speakers will be suspended in the quiet areas. The diagram below shows an acoustic levitator. The model below shows the quiet and loud areas between the two groups of speakers and the location of the suspended beads.

Acoustic Levitator



Model of Locations of Loud and Quiet Areas in the Acoustic Levitator



6 Which row in the table represents the directions of sound waves and the direction of air particle vibration for the *Model of Locations of Loud and Quiet Areas in the Acoustic Levitator*?

Row	Direction of Sound Waves Produced by Top Speakers	Direction of Sound Waves Produced by Bottom Speakers	Direction of Air Particle Vibration
1			
2			
3			
4			

A Row 1

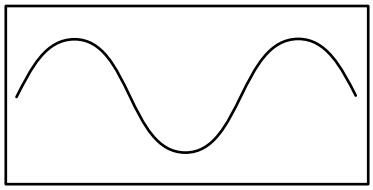
B Row 2

C Row 3

D Row 4

The speakers in the acoustic levitator are powered by electricity. The energy of the sound waves produced by the speakers is controlled with an amplifier. A section of an air pressure wave at a low amplification is shown below, drawn to scale.

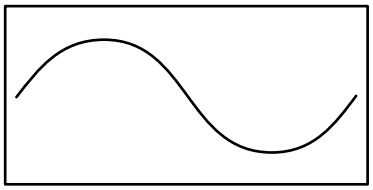
Low Amplification Wave



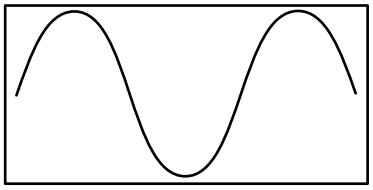
7 Another sound wave was produced using a higher amplification. Complete the flowchart below by placing the letter of the correct choice for *Effect on Wave Pattern* and *Effect on Wave Characteristic* in the appropriate boxes. The choices for *Effect on Wave Pattern* have been drawn to the same scale as the *Low Amplification Wave*. [1]

Choices for Effect on Wave Pattern:

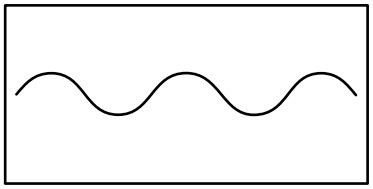
A



B



C



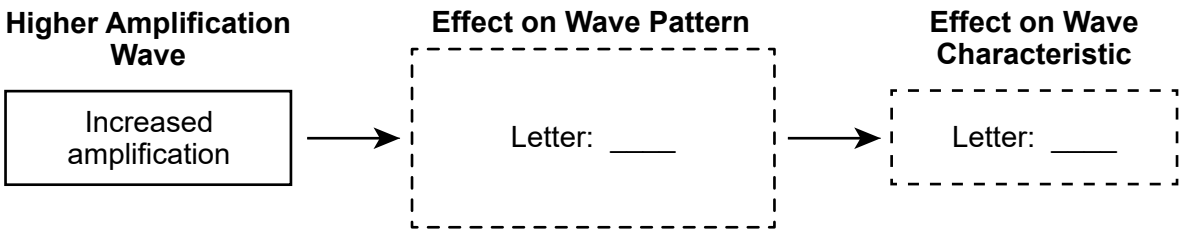
Choices for Effect on Wave Characteristic:

D Increased frequency

E Decreased frequency

F Louder

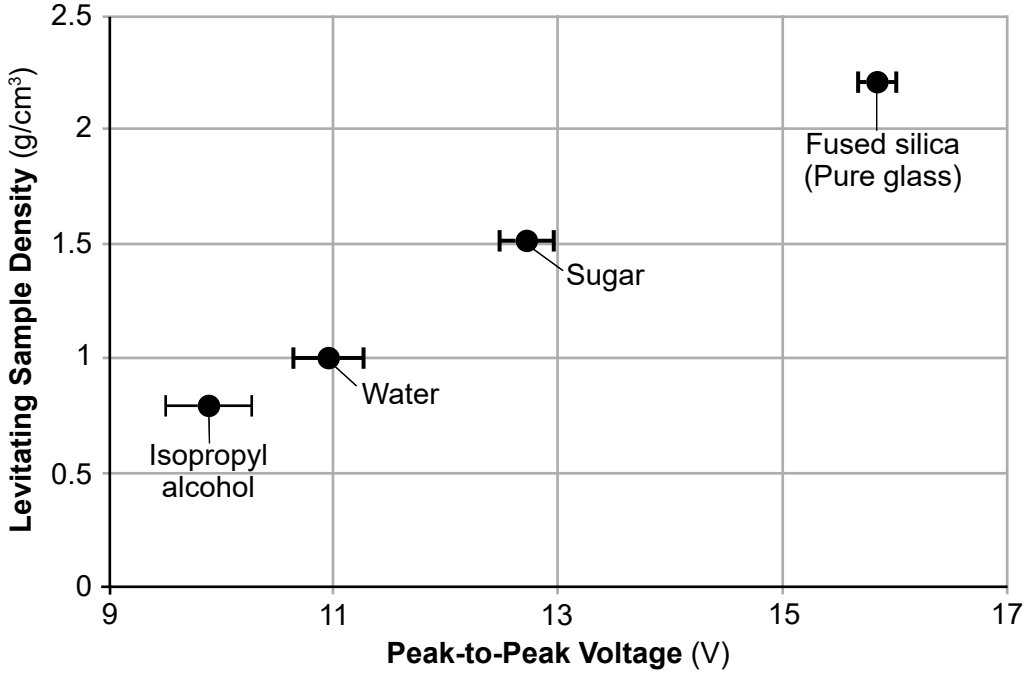
G Quieter



GO ON

Different substances can be suspended in the acoustic levitator. The graph below shows the amount of peak-to-peak voltage (measurement similar to energy) required to suspend samples of equal-volume substances having different densities. The range is indicated for each data point.

Relationship Between Sample Density and Peak-to-Peak Voltage of an Acoustic Levitator



8 Based on analysis of the given evidence, which table contains the terms that correctly complete the argument below?

Of the substances in the graph, __1__ has the greatest density. As a result, the samples of this substance have the __2__ mass and require waves with the __3__ to be suspended.

1	isopropyl alcohol
2	least
3	highest frequency

A

1	isopropyl alcohol
2	greatest
3	greatest energy

C

1	fused silica
2	greatest
3	greatest energy

B

1	fused silica
2	least
3	highest frequency

D

GO ON

9 Although acoustic levitation has many practical applications on Earth, it is not practical in space. Explain why the use of acoustic levitation, such as the one described using speakers, is ***not*** possible in outer space. [1]

Base your answers to questions 10 through 14 on the information below and on your knowledge of science.

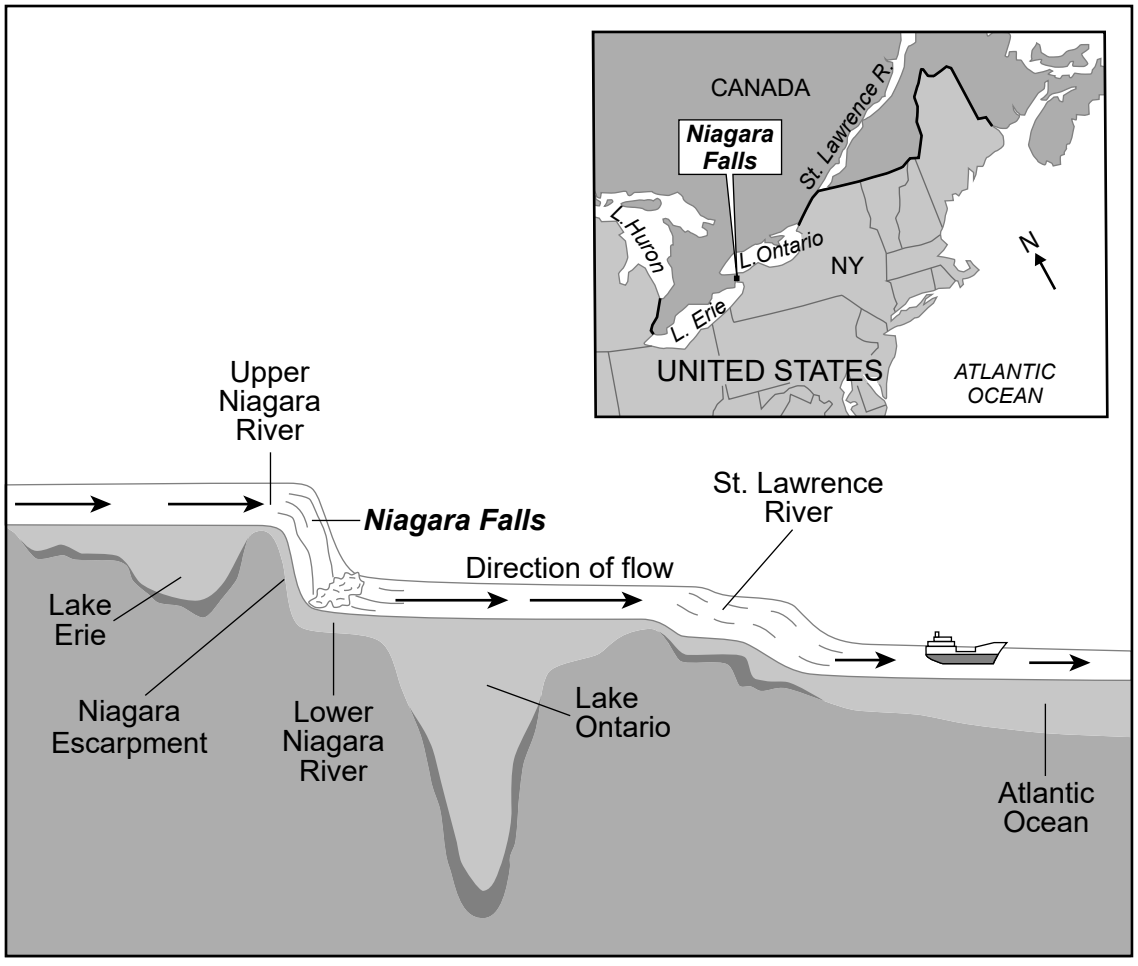
The Changing Landscape of Niagara Falls

Niagara Falls formed about 12,000 years ago. The melting ice from retreating glaciers released fresh water that formed the Great Lakes. Water flowing from Lake Erie to Lake Ontario created the Niagara River. Niagara Falls separates the upper Niagara River from the lower Niagara River. The depth of the lakes changes throughout the year. The highest lake levels occur in spring and early summer.

The model below shows some information about the topography and water flow in the Great Lakes Region.

Model 1

Water Flow Through Some Great Lakes



10 Which table contains the phrases that correctly complete the statement below about water cycle processes and the flow of water in the Great Lakes?

The increase in the depth of the Great Lakes in the spring is most likely due to ___1___ and water flows northeast from Lake Ontario through the St. Lawrence River due to ___2___.

1	snow melt and precipitation
2	the force of gravity causing water to flow from high elevation to low elevation

A

1	infiltration and runoff
2	the rotation of Earth causing water to flow to the Atlantic Ocean

C

1	precipitation and infiltration
2	the force of wind causing water to flow in the same direction as the jet stream

B

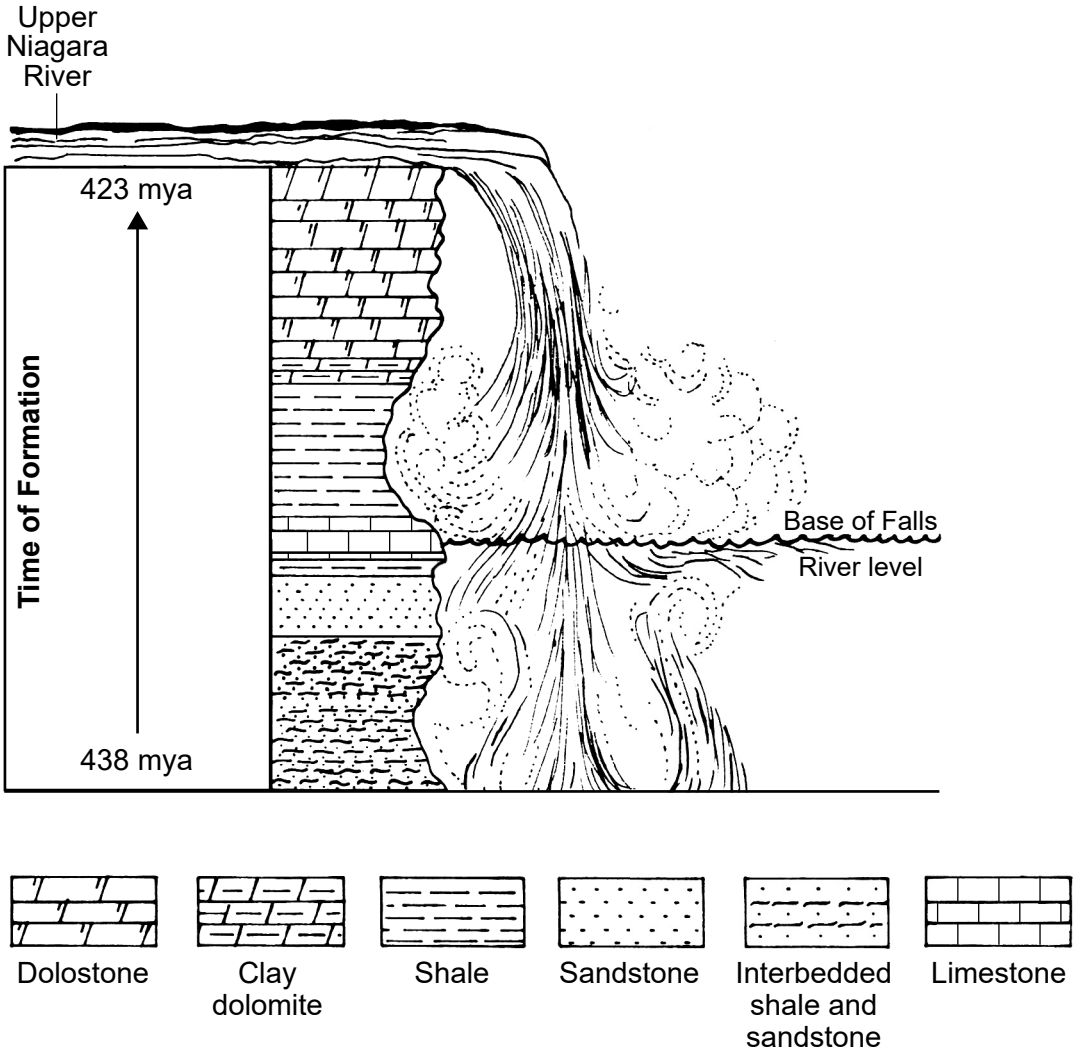
1	runoff and snow melt
2	tidal currents causing water to flow to the Atlantic Ocean

D

An escarpment is a landform made of rock layers that ends in a steep drop-off (cliff). The model below shows information about some rock layers that formed the Niagara escarpment. The approximate ages of the rock layers are in million years ago (mya).

Model 2

Some Rock Formations of the Niagara Escarpment



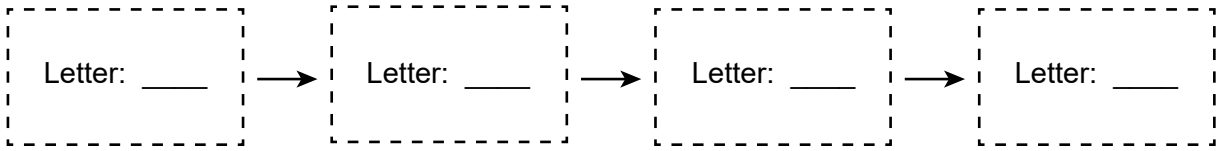
GO ON

11 Place the letters of the processes, from the choices below, in the correct sequence to describe the formation of sandstone in the Niagara escarpment. [1]

Choices:

A	B	C	D
Deposition of particles	Compaction of particles into layers	Weathering of land formations	Transport of particles driven by gravity

Process of Sandstone Formation



12 Based on *Model 2*, which statement correctly describes how the motion of water of the Niagara River has changed the Niagara escarpment on a spatial scale?

A Layers of sandstone have eroded more than the layers of interbedded shale and sandstone.

B Clay dolomite is more resistant to erosion than sandstone.

C Dolostone is more resistant to weathering than shale.

D Layers of limestone have weathered more than the layers of shale.

13 Which statement provides evidence for the scale of geologic time needed to form the rock layers of the escarpment shown in *Model 2*?

A It took 438 million years of weathering to form the layers of rock in the escarpment.

B The youngest rock layers are located on the bottom, while the oldest rock layers are on the top of the escarpment.

C Each rock layer of the escarpment formed at the same time.

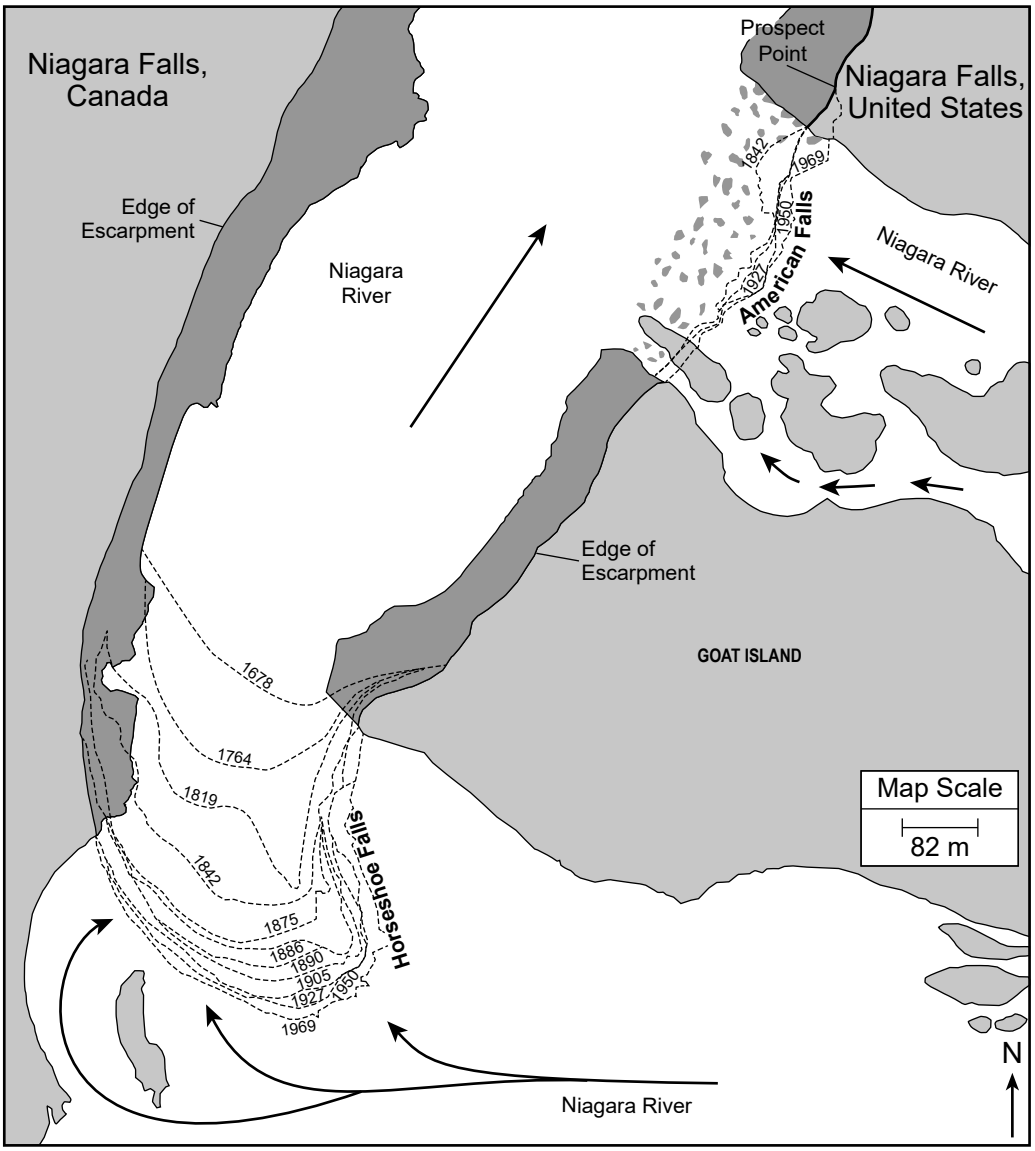
D Deposition of particles occurred over a time span of approximately 15 million years.

The Niagara River flows around Goat Island, forming two waterfalls, Horseshoe Falls and American Falls. This region is commonly referred to as Niagara Falls.

In the early 1900s, some water from the Niagara River was redirected for hydroelectric power. In 1950, the United States and Canada signed a treaty to regulate the Niagara Falls water flow. Before 1950, Horseshoe Falls had a water depth of about ten feet and had a flow rate of 202,000 cubic feet per second. After the treaty, both sides of the falls were reshaped, creating paths for redirected water to power stations and reservoirs in each country. Today, water flows over Horseshoe Falls at an average depth of two feet and a rate between 50,000 to 100,000 cubic feet per second.

The model below shows some information about the location of both falls over time. Arrows indicate direction of water flow. Dashed lines on the map represent locations of the edge of the falls at different years.

Model 3
American and Horseshoe Falls at the Niagara Escarpment



GO ON

14 A relationship exists between the use of natural resources and its impact on Earth's systems. Which statement correctly identifies how human activity, encouraged by the 1950 treaty, has affected Niagara Falls?

A The changes to the Niagara River channel have caused an increase in the rate at which Niagara Falls erodes.

B The redirection of water from the Niagara River has decreased the rate at which Niagara Falls changes shape.

C The production of hydroelectric power has increased the flow of water over Niagara Falls.

D The storage of water in reservoirs has caused an increase in the evaporation of water and increased weathering of Niagara Falls.

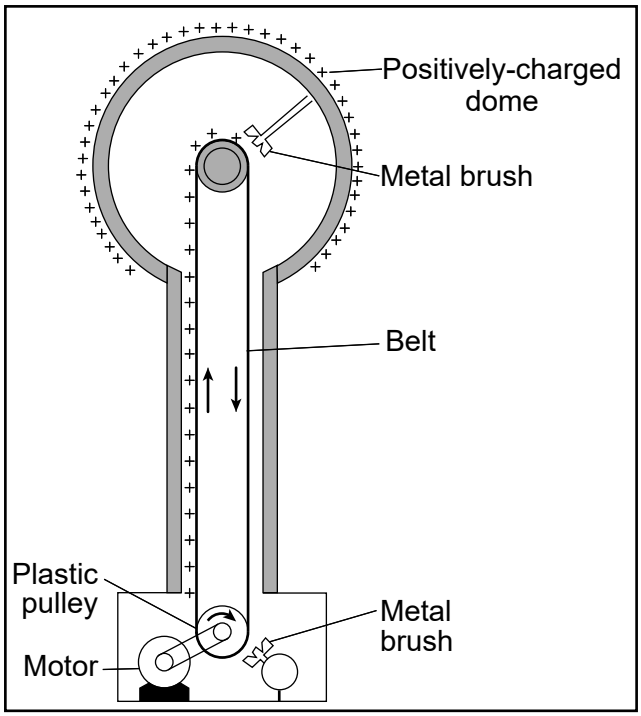
Base your answers to questions 15 through 19 on the information provided and on your knowledge of science.

Forces and Fields

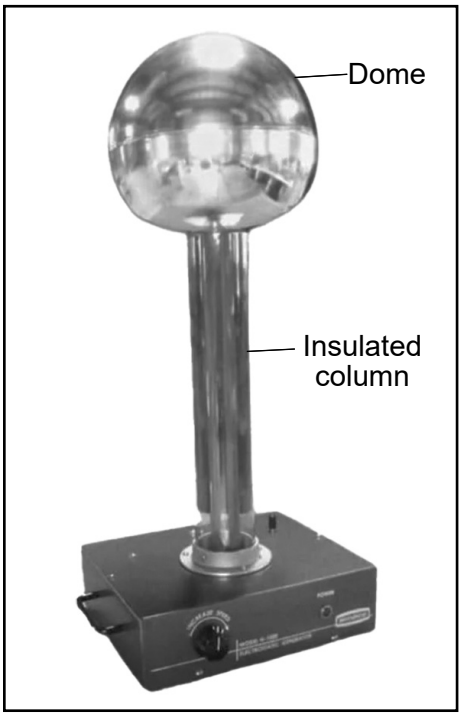
The Van de Graaff generator was invented by American physicist Robert J. Van de Graaff in 1929. When powered on, a moving belt within the generator removes negatively-charged particles from a hollow metal dome on the top of an insulated column. This causes the dome to have a large positive electric charge that builds up over time.

A model and photograph of a Van de Graaff generator are shown below.

Model of Van de Graaff Generator

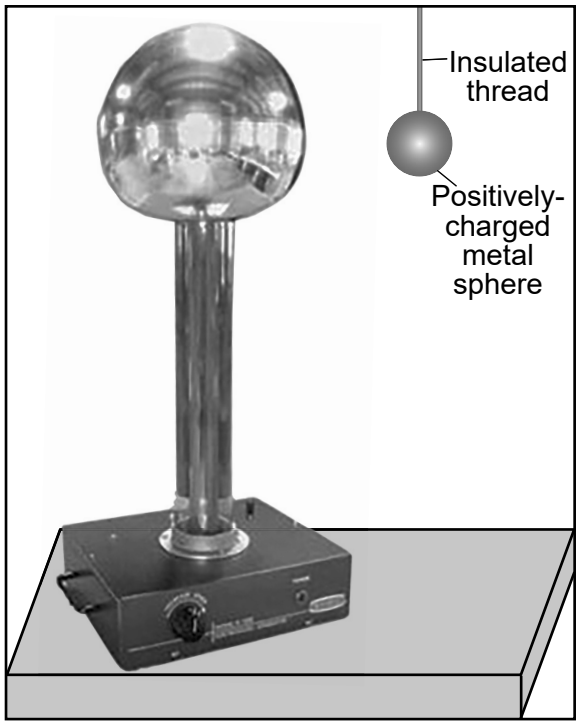


Photograph of Van de Graaff Generator

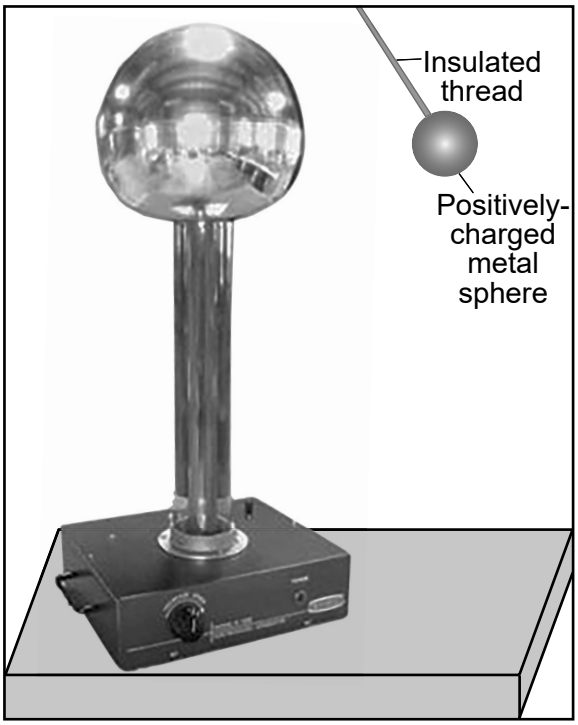


A student performed a series of investigations using the Van de Graaff generator. In the first investigation, the student suspended a positively-charged metal sphere from an insulated thread near the generator. The student observed the behavior of the metal sphere when the generator was off and again when it was powered on.

Generator Off



Generator On



15 Which statement provides evidence for the existence of an electric field between the Van de Graaff generator and the metal sphere when the generator was powered on?

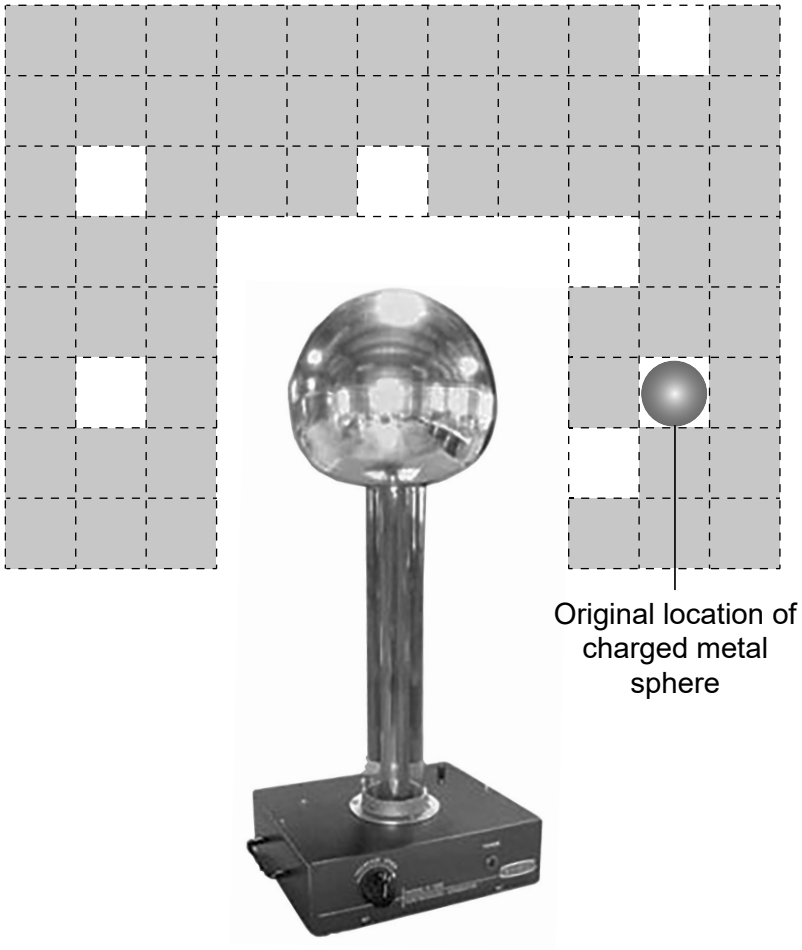
A Even though the metal sphere and the generator are not in contact, the sphere was repelled from the operating generator.

B Even though the metal sphere and the generator are not in contact, the sphere was attracted to the operating generator.

C Particles of the same charge were exchanged between the metal sphere and the operating generator.

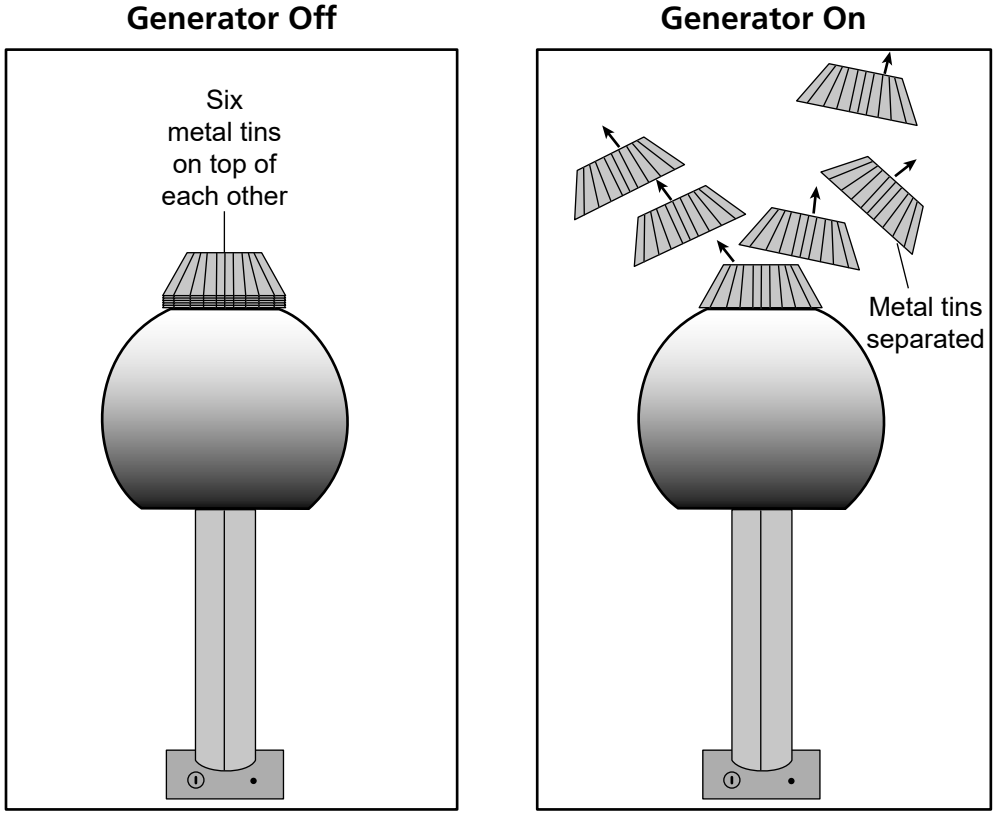
D Oppositely-charged particles were exchanged between the metal sphere and the operating generator.

16 The Van de Graaff generator and the metal sphere can be considered a system of objects. When the generator is powered on, electric potential energy is stored in the generator-sphere system. In the model below, place an X in **one** non-shaded box to indicate a new location for the charged sphere that would result in the ***decrease*** of the electric potential energy of the system. [1]



In another investigation, the student stacked six metal tins on top of the dome of the uncharged Van de Graaff generator. The student then powered the generator on. After a few seconds, the metal tins separated from each other and traveled upward and away from the generator.

The model below represents the initial position of the tins and the reaction of the tins after the generator was powered on.



17 The student makes the claim that the change in the motion of the metal tins at the time the generator was turned on depends on the sum of the gravitational and electric forces acting on the tins.

Support the student's claim by selecting **one** statement from the table that describes the relative amounts of the gravitational and electric forces acting on the tins. Then, provide the evidence from the model that supports your choice. [1]

Gravitational force is stronger than the electric force.	
Gravitational force has the same strength as the electric force.	
Gravitational force is weaker than the electric force.	

Evidence: _____

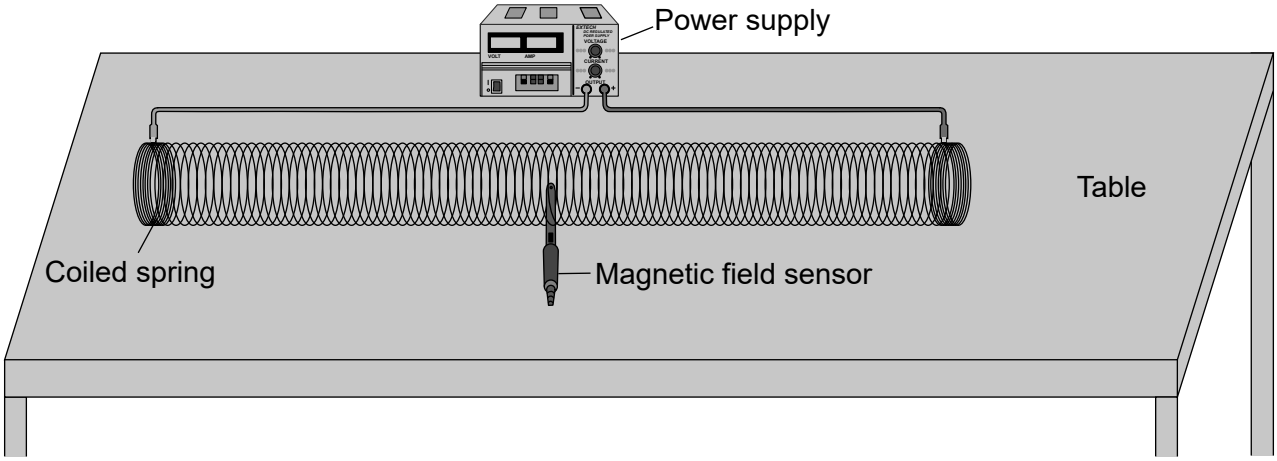
_____

_____

GO ON

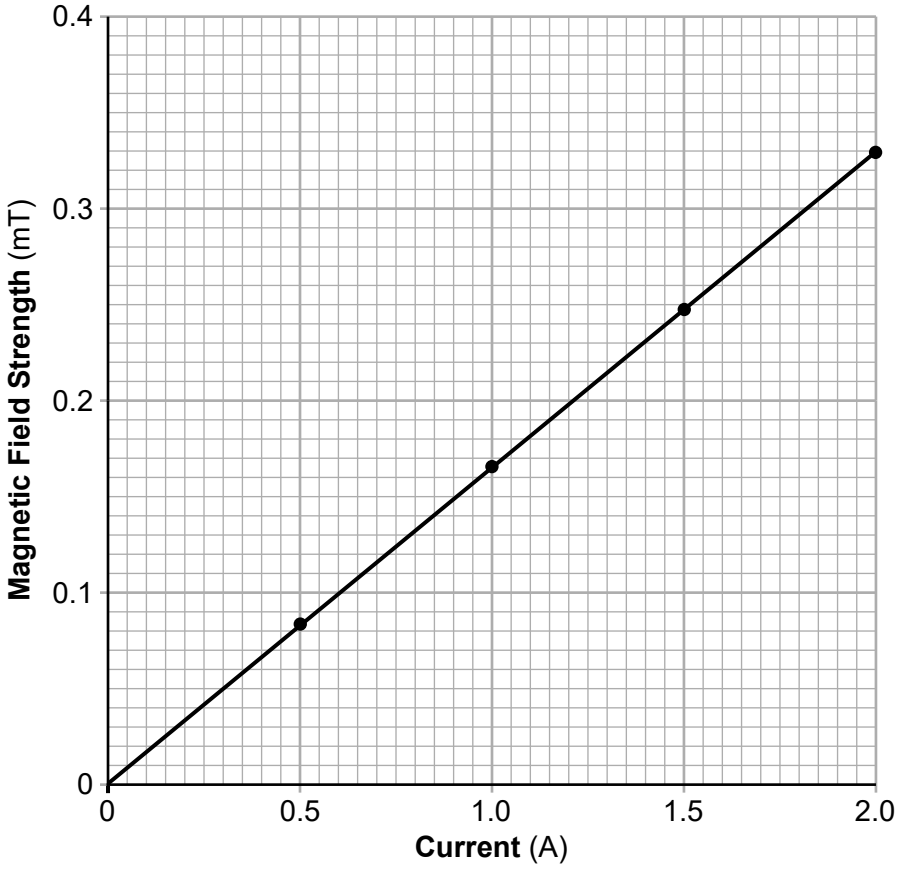
Finally, the student wanted to investigate magnetic fields. An investigation was performed using a stretched metal spring connected to a power supply, represented in the diagram below. The power supply controlled the amount of current, in amperes (A), flowing through the spring. A magnetic field sensor was used to measure the strength of the magnetic field, in milliteslas (mT), inside the coiled spring.

Metal Spring Connected to a Power Supply



The graph below shows the results.

Relationship Between Current and Magnetic Field Strength



GO ON

18 Which question was the student investigating in order to determine whether a factor affects the strength of a magnetic field and the resulting magnetic force on objects?

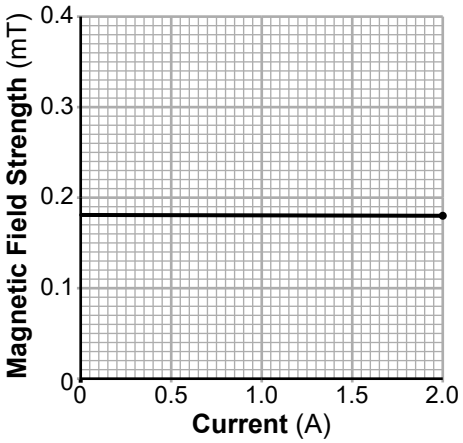
A How does changing the magnetic field acting on an electromagnet affect the current through the electromagnet and the magnetic force on an object?

B How does changing the current through an electromagnet affect the magnetic field strength and magnetic forces on objects?

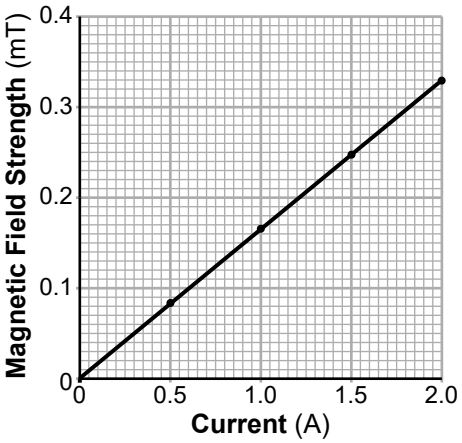
C How does changing the magnetic force acting on an object affect the magnetic field produced by the current in the electromagnet?

D How does changing the current and magnetic force on an object at the same time affect the magnetic field produced by the electromagnet?

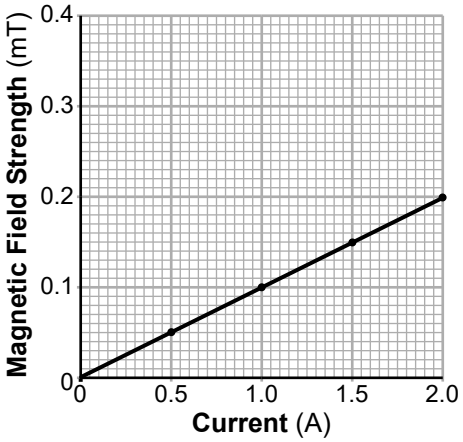
19 The student wanted to repeat this investigation using a metal spring that had the same length and more coils. They predicted that adding coils would increase the strength of the magnetic field. Which graph shows the results that the student expected to see in this new investigation?



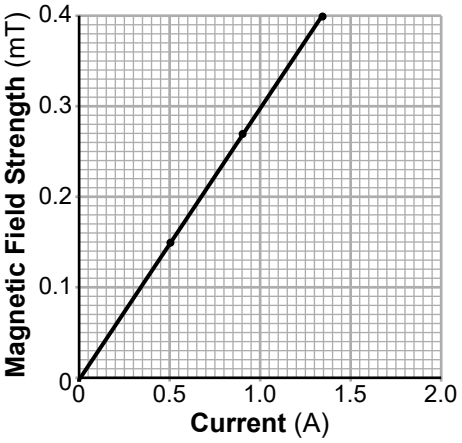
A



C



B



D

GO ON

Base your answers to questions 20 through 24 on the information below and on your knowledge of science.

Quaking Aspen

The quaking aspen is a species of tree that is abundant in the north central and northeastern United States. It is named for its leaves that tremble in light breezes. During the winter months, after leaves have fallen off the tree, photosynthesis can still occur. The thin bark of the quaking aspen allows sunlight to pass through to cells that can perform photosynthesis. The quaking aspen grow more rapidly than many other tree species, averaging between two and three feet per year. They thrive in cool, moist, and sunny environments.

Quaking Aspen

20 Which statement provides evidence for how a genetic factor influences the growth of quaking aspen?

A The quaking aspen can produce sugars that are needed for growth year round.

B The limited sunlight in winter causes the quaking aspen to produce less energy, preventing growth.

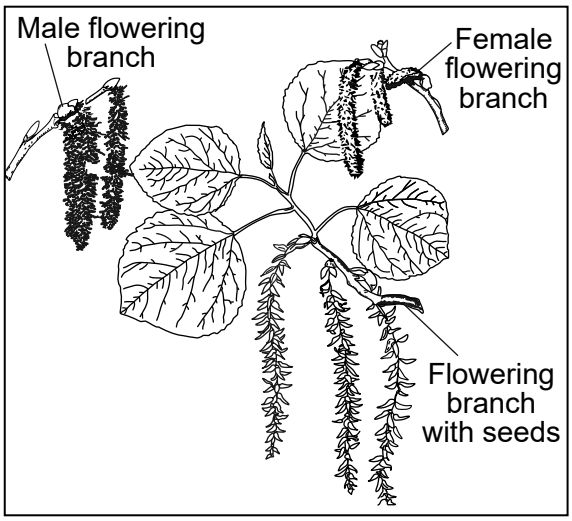
C The trembling of the leaves of the quaking aspen in light breezes creates a cool environment.

D The availability of water during a drought would decrease the height of a quaking aspen.

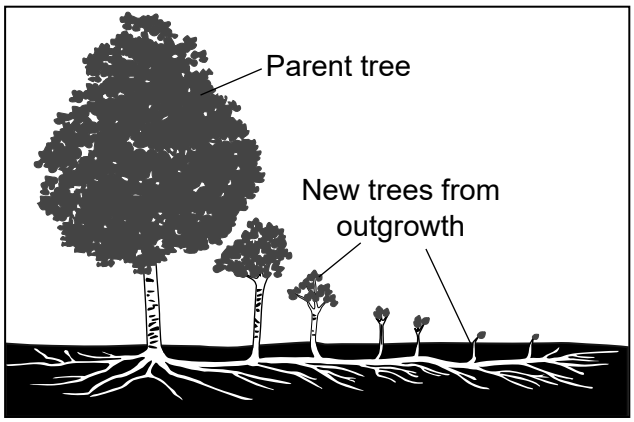
The quaking aspen is capable of reproducing both sexually and asexually. In early spring, the quaking aspen produces small strings of flowers. Some are male, producing pollen, while others are female, producing eggs. After pollination, a cell within the seed of a quaking aspen has 38 chromosomes.

A quaking aspen can also reproduce using a shared root system. Stems of new trees can sprout from outgrowths on roots that grow away from the parent plant.

Flowers of Quaking Aspen



Root Outgrowths of Quaking Aspen



21 The outgrowth from roots produced by quaking aspen increases the probability of successful reproduction by increasing

A the amount of resources required by each quaking aspen

B the number of offspring that quaking aspen can produce

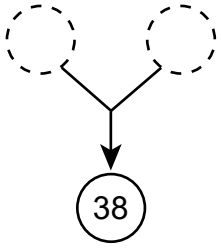
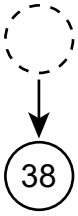
C the number of seeds a quaking aspen needs to produce during reproduction

D the need for animals to distribute the seeds that are produced by quaking aspen

22 Complete the models below by placing the correct number of chromosomes, from the choices provided, to show each reproduction method exhibited by the quaking aspen. Choices for number of chromosomes may be used more than once.

Choices for Number of Chromosomes:

19 38 76

Reproduction Method Used by Quaking Aspen	Model
Seed produced by pollination	
Outgrowth from root system	

Explain why sexual reproduction results in offspring with more genetic variation compared to asexual reproduction. [1]

In some areas of New York State, the quaking aspen is considered an invasive species. In areas where vegetation has been removed, such as land cleared for houses or by a wildfire, the quaking aspen is quick to grow. It often outcompetes other tree species for resources.

One technique used to protect the stability of habitats from the quaking aspen is girdling. Girdling involves the removal of an entire circumference of bark from a section of the tree trunk, including the tissue that transports natural resources within the tree.

Quaking Aspen with Girdling

23 Select the **two** statements that help to explain why girdling prevents the quaking aspen from directly using photosynthesis to cycle matter and energy. [1]

- ☐ Dissolved minerals from the soil cannot enter the roots.
- ☐ Sunlight cannot be absorbed by the leaves.
- ☐ Water from the roots cannot travel to the leaves.
- ☐ Carbon dioxide from the air cannot enter the leaves.
- ☐ Sugars cannot move to all of the cells in the tree.

In addition to girdling, there are other design solutions used to control the spread or eliminate quaking aspen in environments where this tree is considered an invasive species. The table below identifies some of these techniques and describes their impacts.

Technique	Description
control burn	intentionally set fire to a small area of land in order to clear the area of all plants
inject herbicide	chemical applied to only the roots of quaking aspen that destroys plant tissue and eventually destroys the plant
introduction of invasive insect	insect intentionally brought into environment to limit the growth of a variety of trees and shrubs
relocation of grazing animals	cattle and sheep brought to eat grasses, seeds, and the new growth of trees in an area

24 Which technique would *best* maintain biodiversity while controlling the quaking aspen?

A control burn

B inject herbicide

C introduction of invasive insect

D relocation of grazing animals

Base your answers to questions 25 through 28 on the information below and on your knowledge of science.

Ammonia and the Nitrogen Cycle

Molecules containing nitrogen are essential for building tissues in organisms. Nitrogen is continuously cycled between the living and nonliving environment. The formation of ammonia (NH_3) is an important step in the nitrogen cycle. In one portion of this cycle, bacteria combine nitrogen (N_2) with hydrogen (H_2) to form ammonia (NH_3).

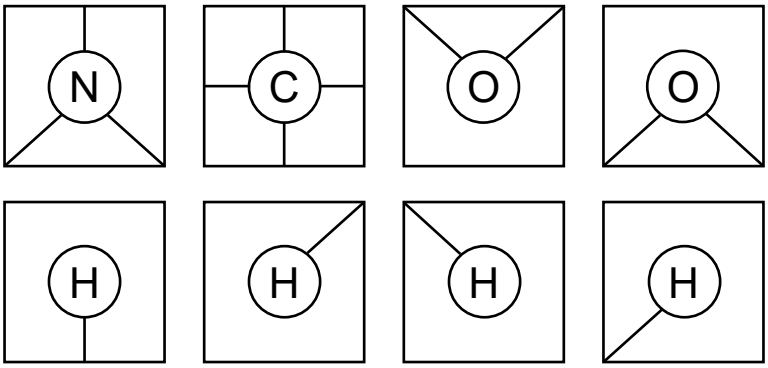
Formation of Ammonia

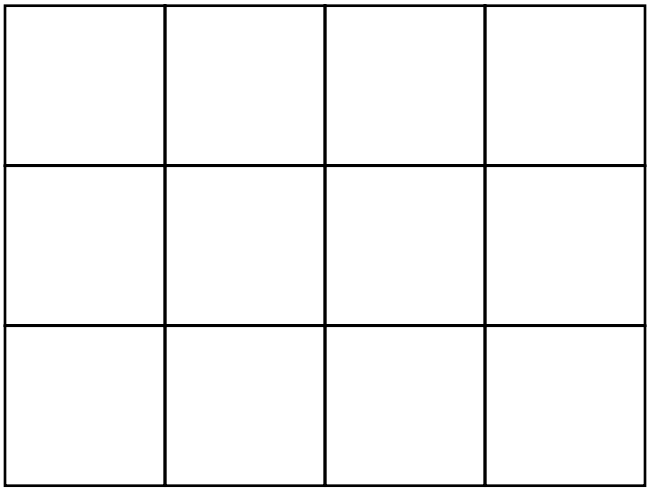
1 molecule N_2 + 3 molecules H_2 $\longrightarrow$ 2 molecules NH_3

$$N_2 \text{ (gas)} + 3H_2 \text{ (gas)} \longrightarrow 2NH_3 \text{ (gas)}$$

25 Place the correct chemical and bond symbols from the choices provided below into the spaces in the grid to construct a ball and stick model of **one** molecule of ammonia showing the correct orientation and arrangement of the individual atoms and bonds. [1]

Choices:





GO ON

26 Which statement correctly describes how matter is conserved during the formation of ammonia?

A The kinetic energies of the nitrogen and hydrogen molecules do not change when ammonia is formed.

B The number of hydrogen and nitrogen atoms before the formation of ammonia is the same as after the formation of ammonia.

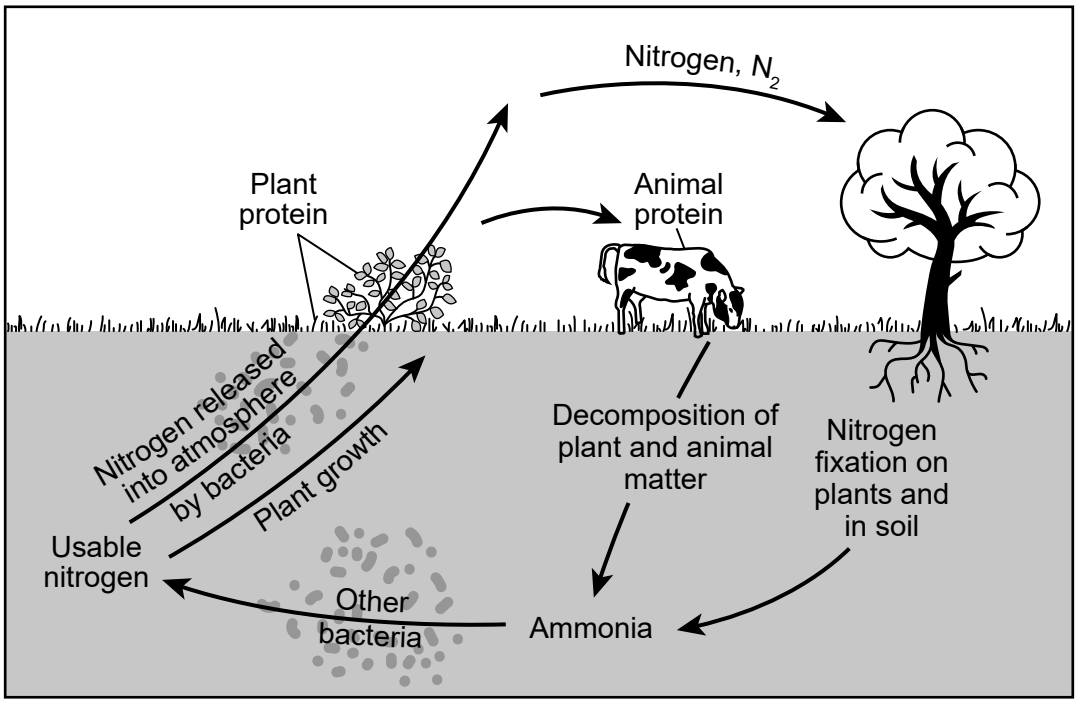
C Matter is cycled to the atmosphere as ammonia gas molecules are released from the soil where they are formed.

D A new substance with similar physical and chemical properties as nitrogen and hydrogen is formed.

Ammonia is produced in soil by nitrogen-fixing bacteria. These bacteria convert nitrogen gas in the atmosphere to ammonia. Alder trees and other plants have nodules on their roots that often contain nitrogen-fixing bacteria. During the next step in the nitrogen cycle, a different type of bacteria change ammonia into molecules containing nitrogen that plants can use. Plants then use these molecules in the production of their body tissues and seeds. Other bacteria in soil release nitrogen gas into the atmosphere.

The use of antibiotics in cattle can impact the amounts of usable nitrogen in the cycle. These antibiotics can negatively affect the ability of bacteria to produce usable nitrogen.

Partial Model of the Nitrogen Cycle



27 Which argument describes why the introduction of antibiotics to cattle disrupts the nitrogen cycle in an ecosystem?

A Adding antibiotics benefits the bacteria, causing an increase in the population of the nitrogen-fixing bacteria.

B Healthier cattle will cause an increase in their population, adding less nitrogen to the soil through decomposition.

C Adding antibiotics could reduce the population of nitrogen-fixing bacteria in the soil, lowering nitrogen levels.

D Healthier cattle may produce excess greenhouse gases, such as methane, and prevent nitrogen from entering the soil.

GO ON

The photo below shows the location of nitrogen-fixing bacteria nodules on alder tree roots. Bacteria within these nodules benefit from being located on tree roots.

Alder Tree Roots with Nitrogen-Fixing Bacteria Nodules

28 Which statement best describes the interaction between an alder tree and nitrogen-fixing bacteria?

A The bacteria parasitize the roots of the alder tree, absorbing the tree's nutrients and lowering the tree's chances of survival.

B The bacteria decrease the competition between the alder trees and other tree species by poisoning the soil with excess nitrogen.

C The tree roots form nodules around the bacteria, preventing the bacteria from cycling nitrogen within the soil.

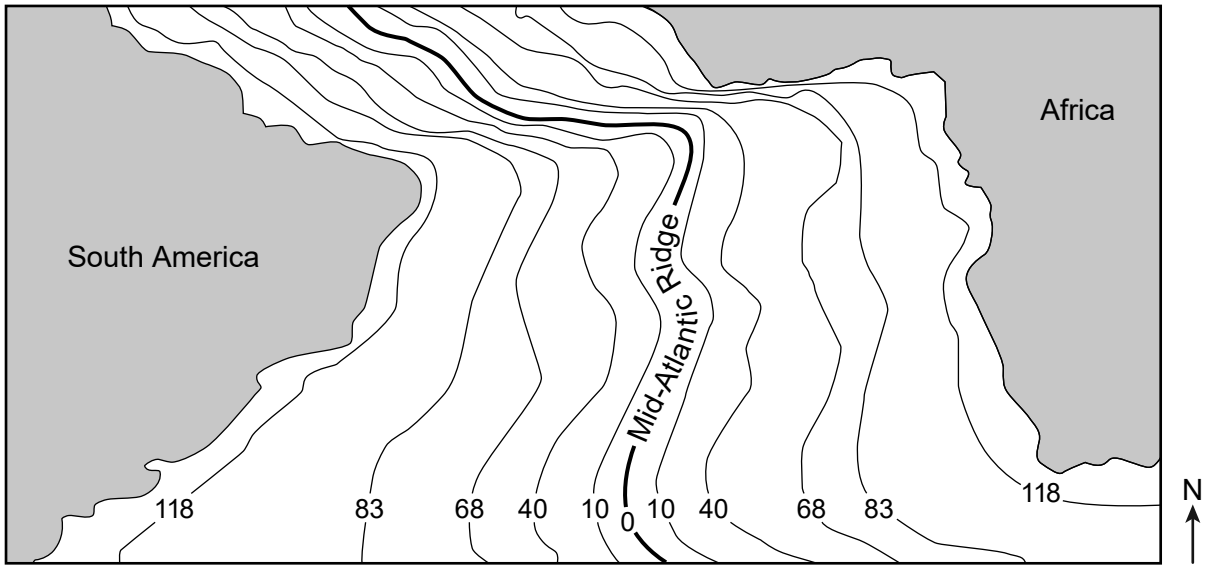
D The alder tree provides food for the bacteria, while the bacteria helps produce usable nitrogen that is necessary for plant growth.

Base your answers to questions 34 through 38 on the information below and on your knowledge of science.

Plate Tectonics

The model below shows a portion of the Atlantic Ocean seafloor located between South America and Africa. The distance between these two continents is approximately 1600 miles at the closest point. The approximate ages, in millions of years, of the ocean seafloor rocks are indicated by lines on either side of the Mid-Atlantic Ridge.

Model of Mid-Atlantic Ridge



34 Based on the evidence in the model, the entire Mid-Atlantic Ridge is an area where

A two tectonic plates are colliding

B two tectonic plates are spreading apart

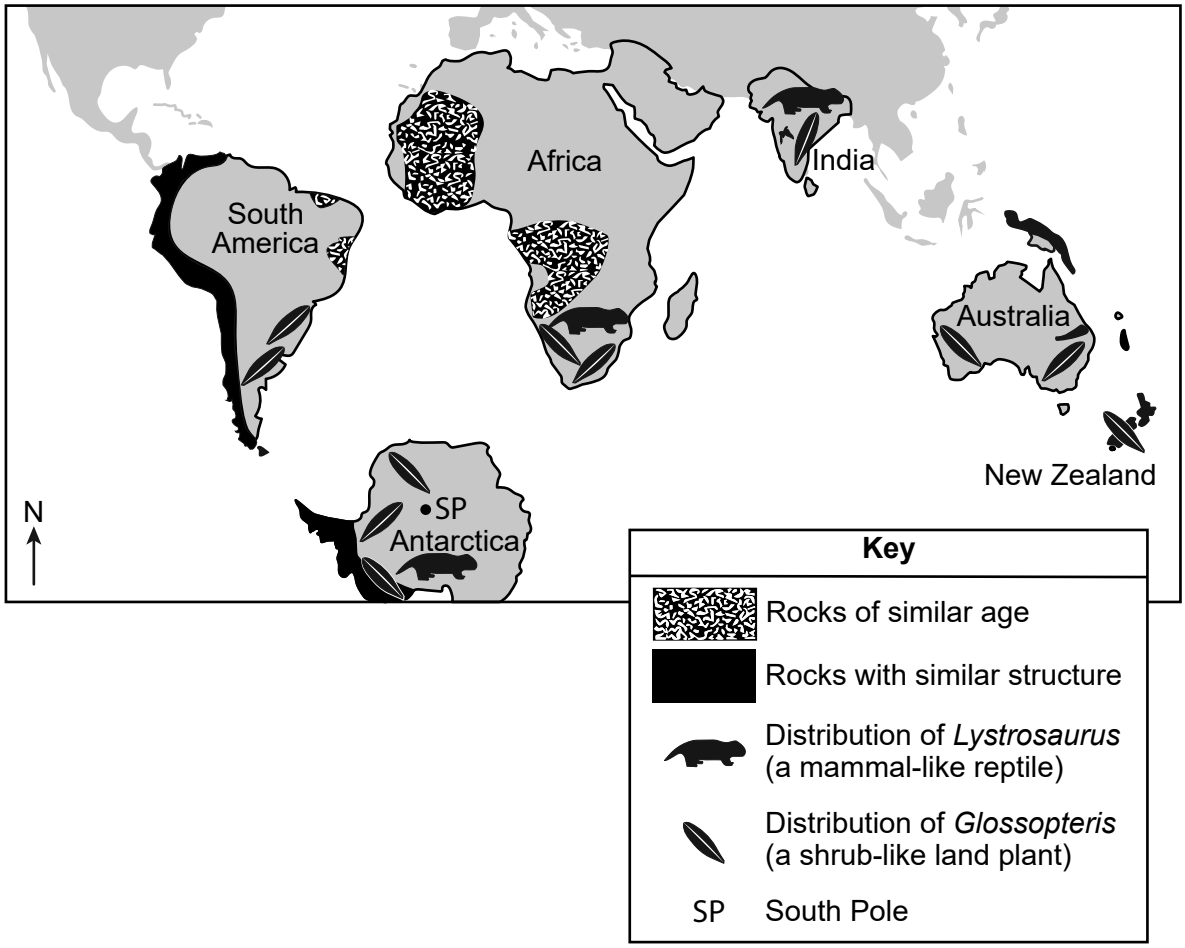
C one tectonic plate is moving faster than the other tectonic plate

D one tectonic plate is moving north and one tectonic plate is moving south

35 Describe the evidence that supports the claim that patterns in the ages of rocks on the seafloor indicate past plate motions between South America and Africa. [1]

The map below shows the positions of some continents in relationship to each other in the present day. Additional information about these land masses is found in the key.

Relative Positions of Present-Day Land Masses



36 The *Glossopteris* was a shrub-like land plant with leaves that grew on many continents 350–320 million years ago. Today, fossils of this plant are also found on Antarctica. Which claim is most likely correct about Antarctica 350–320 million years ago?

A Antarctica was covered by a large ocean.

B Antarctica was located in a cold, dry climate zone near the South Pole.

C Antarctica was located in a warmer climate zone closer to the equator.

D Antarctica has not moved in its geologic past.

GO ON

37 Which pieces of evidence from fossils and rock strata accurately support the claim that the two land masses listed were once joined together?

A

Land Masses	Evidence
Antarctica and Africa	• same plant and animal fossils • rocks with similar structure

B

Land Masses	Evidence
Antarctica and Australia	• same plant and animal fossils • rocks with similar structure

C

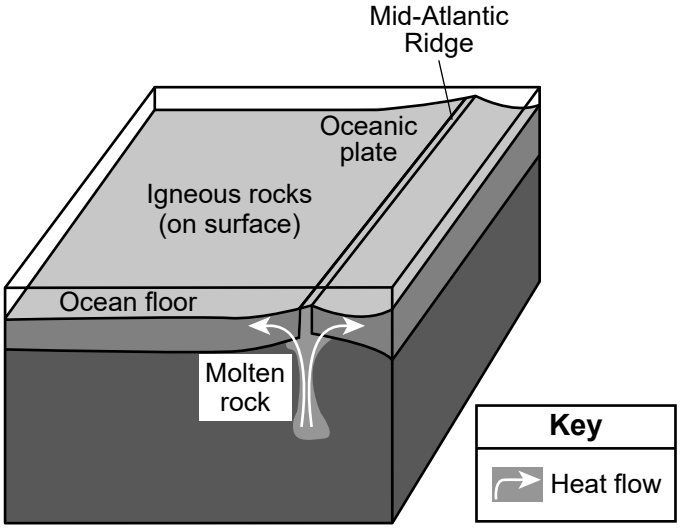
Land Masses	Evidence
India and Australia	• same animal fossils • rocks of similar age

D

Land Masses	Evidence
South America and Antarctica	• same plant fossils • rocks of similar structure

The model below represents some information about processes occurring at the Mid-Atlantic Ridge.

Model of Energy Flow and Cycling of Earth Materials



38 Use the model to describe a process that cycles Earth materials that creates the rocks of the ocean floor at the Mid-Atlantic Ridge. [1]

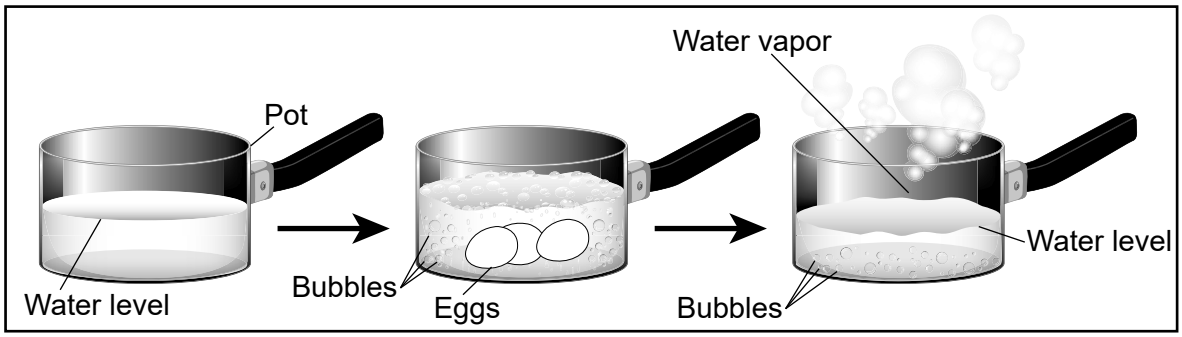
Base your answers to questions 39 through 43 on the information below and on your knowledge of science.

Hard-Boiled Eggs

A student wanted to enter the New York State Fair 4-H Egg Preparation Demonstration Contest. The student researched the best way to prepare hard-boiled eggs. The student practiced various ways of hard-boiling eggs in the time limit allowed during the contest.

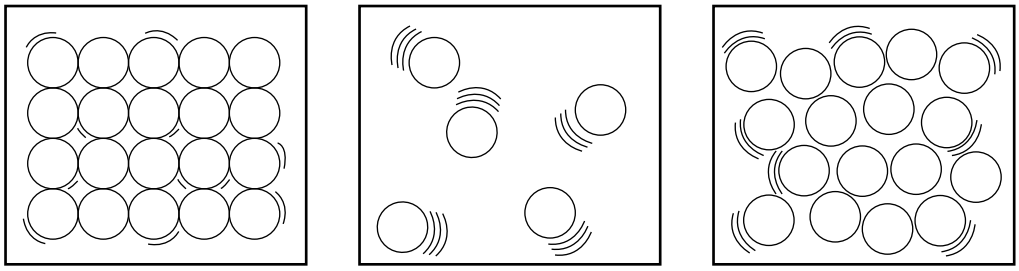
The student used four uncooked eggs, but dropped and cracked one on the kitchen counter while putting the other three eggs in a pot of room temperature water. The student used a stove to boil the water and cook the eggs. After cooking the three eggs, the eggs were taken out of the pot, allowed to cool, and the shells were removed. The eggs were then cut in half.

Model of Boiling Water and Eggs



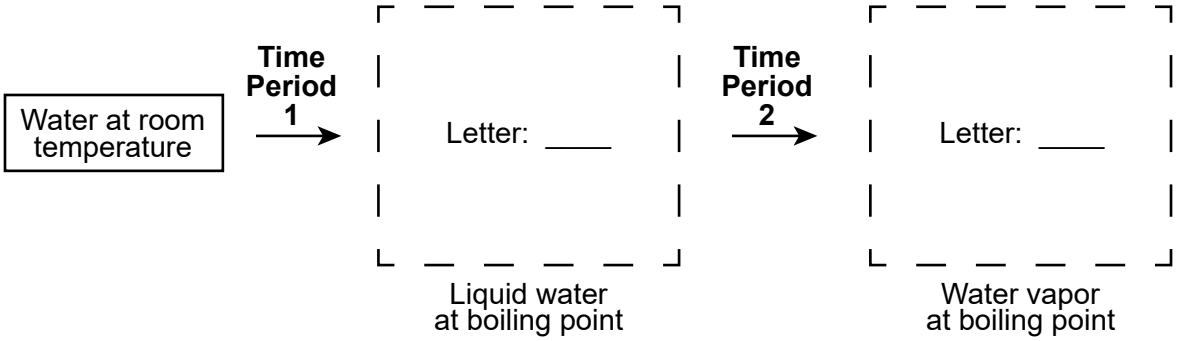
39 The diagrams below represent the position and movement of particles of water in three different phases. Place the letters of the correct particle phase diagrams, from the choices below, into the correct boxes to complete the model of heating water used to hard-boil the eggs. The numbers *1* and *2* indicate different periods of time during which the water is heated.

Phase Diagram Choices for Water Particles:



A **B** **C**

Model of Heating Water Sequence



Select *either* Time Period 1 or Time Period 2 to indicate when *each* change in water took place. [1]

Changes in Water	Time Period 1	Time Period 2
Temperature increased		
Phase changed		

The table below shows some observations made by the student of both the egg that was dropped before boiling and the hard-boiled eggs.

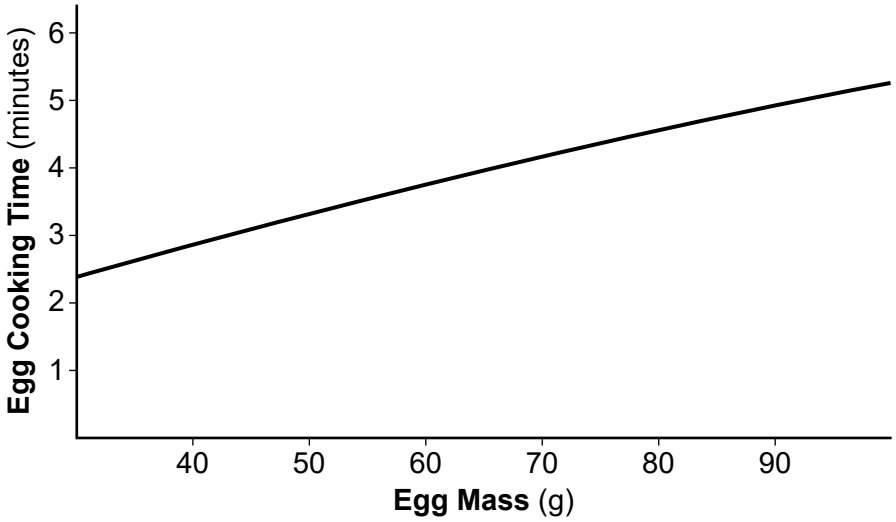
Observations of Eggs

Object/Substance Observed	Observations
uncooked egg	–clear, thick, cool liquid –round, cool, yellow liquid –broken, cool egg shell
hard-boiled eggs	–warm, white solid –warm, yellow solid –broken, warm egg shell

40 The student made a claim that a chemical change occurred while the eggs were boiled. Analyze the given information and identify the evidence that supports this claim. [1]

The cooking time for an egg (time required to raise the temperature from 21°C to 65°C in boiling water) depends on the properties of the egg. The graph below shows the effect of one property of an egg on this cooking time.

Relationship between Egg Cooking Time and Egg Mass



41 Which statement is supported by evidence in the graph?

A A greater amount of time is needed to transfer more energy to cook an egg with more mass.

B Eggs with more mass require less time and less energy to be transferred in order to be cooked.

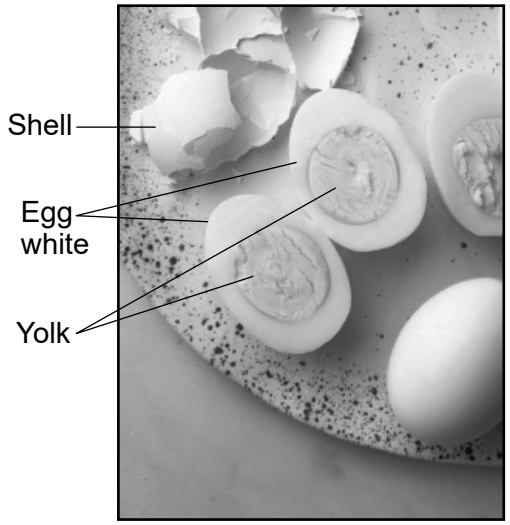
C The phase of the egg affects the egg's mass and the amount of cooking time and energy transferred to the egg.

D Time needed increases for eggs with more mass because less energy needs to be transferred to cook the egg.

The data table below shows some information about the eggs that the student hard-boiled.

	Mass (g)			
	Uncooked Egg (Before Boiling)	Hard-Boiled Egg (After Boiling)		
Egg Number	Whole Egg	Shell	Egg White	Yolk
1	56.8	4.7	34.5	17.6
2	56.6	4.5	34.5	17.6
3	56.3	4.7	34.1	17.5

Parts of a Hard-Boiled Egg



42 Which claim is supported by the evidence in the table?

A As the egg is hard-boiled, the mass of the egg white increases as the mass of the egg shell decreases.

B The mass of the egg is conserved as the egg is hard-boiled because the mass of the yolk increases as the mass of the egg white decreases.

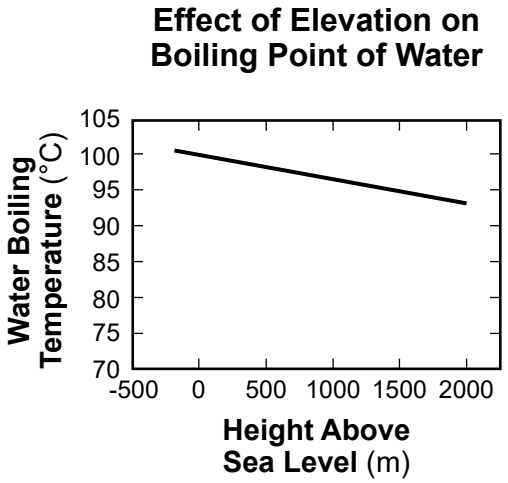
C The total mass of the egg increases as the egg boils because water gets trapped in the egg shell.

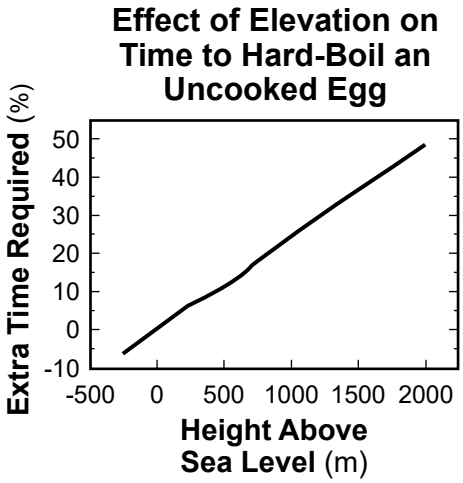
D The total mass of the egg is conserved when the egg is cooked and becomes hard-boiled.

The environment can also affect the time needed to hard-boil an egg. The student practiced for the competition at their home in Caroga Lake, New York. The New York State Fair takes place near Onondaga Lake.

Location	Elevation Above Sea Level (m)
Caroga Lake	450
Onondaga Lake	110

The graphs below represent some information about the temperature of boiling water and extra time required to hard-boil an uncooked egg at different elevations.





43 Which table contains the terms that correctly complete the statement below?

The boiling point of water at Caroga Lake is __1__ than the boiling point of water at the location of the New York State Fair near Onondaga Lake. In order to transfer enough energy to the egg at Caroga Lake, __2__ time is needed to __3__ the temperature of the egg.

1	greater
2	more
3	increase

A

1	less
2	more
3	increase

B

1	greater
2	less
3	decrease

C

1	less
2	less
3	decrease

D

Base your answers to questions 44 through 48 on the information below and on your knowledge of science.

Giraffe Adaptations and Population Changes

Giraffes are native to the savannas of Africa and have ancestors that were about nine feet tall and looked like modern antelope. Presently, they are the world's tallest mammals, measuring up to 18 feet due to their towering legs and long necks. An adult giraffe's legs alone are about six feet tall.

Giraffes are able to eat leaves and buds in trees that few other animals can reach. Leaves from Acacia trees are a favorite. A giraffe eats hundreds of pounds of leaves each week and must travel miles to find enough food. The photograph below shows giraffes in a common feeding position, extending their necks, heads, and tongues to reach food on an Acacia tree.

44 Modern-day giraffes have traits with frequencies that have increased or decreased over time due to

A natural selection

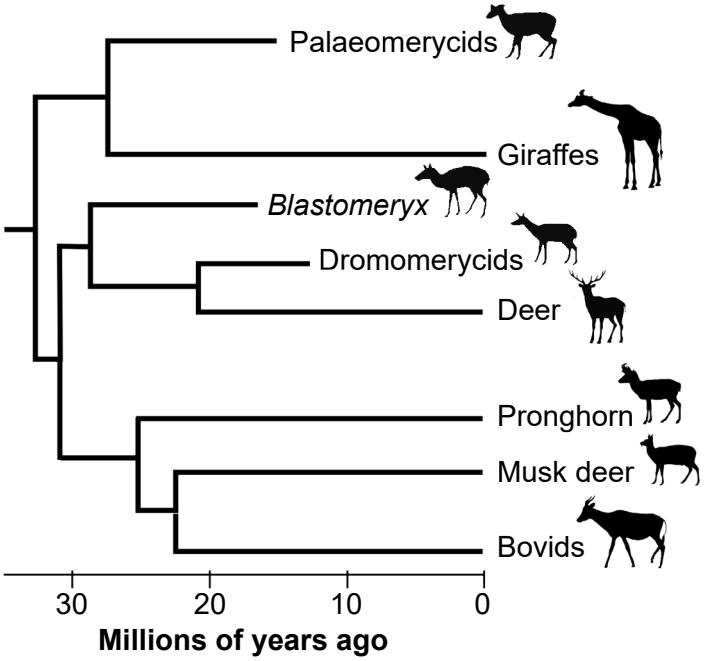
B extinction

C selective breeding

D fossil evidence

The diagram below represents the evolutionary relationship between giraffes and other closely related mammals over the last 30 million years.

Evolutionary Relationships Between Giraffes and Related Mammals



45 Which explanation is supported by a pattern shown in this diagram?

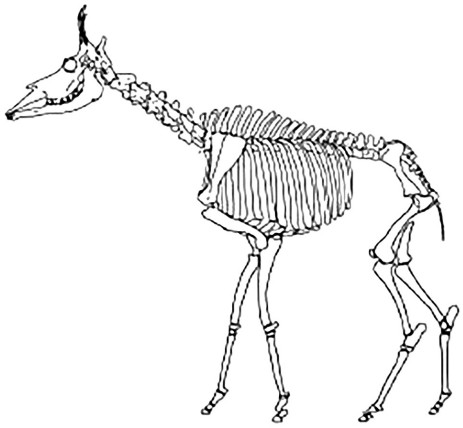
A Giraffes and closely related modern-day mammals existed 30 million years ago.

B All species have common ancestors that survived to the present time.

C Some species did not have genetic variations needed to survive to the present time.

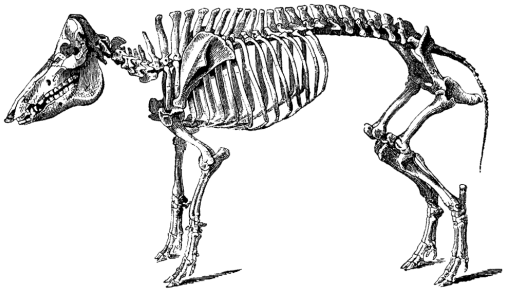
D The diversity of these mammals has decreased consistently over the last 30 million years.

The diagrams below show the fossilized skeleton of *Decennatherium rex* and the skeletons of a modern-day giraffe and a modern-day boar (wild pig). Approximate heights in meters (m) are indicated in parentheses.



Decennatherium rex
(2.7 m)

Modern-day giraffe
(5.5 m)



Modern-day boar
(1.0 m)

46 Scientists claim that *Decennatherium rex* is an extinct ancestor of the modern-day giraffe and ***not*** the modern-day boar. Identify **one** difference and **one** similarity between pairs of skeletons that can be used as evidence to support this claim. [1]

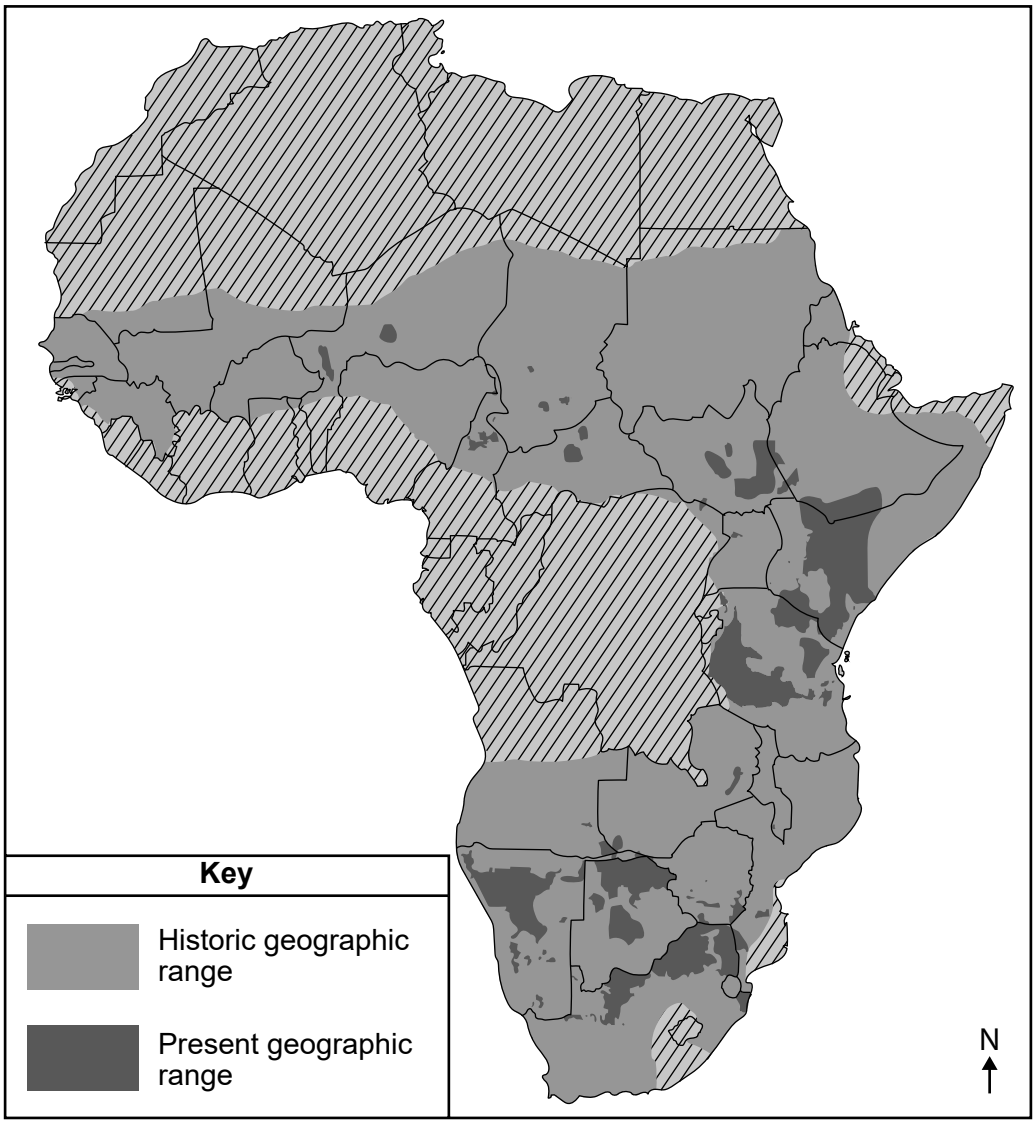
Difference between *Decennatherium rex* and modern-day boar:

Similarity between *Decennatherium rex* and modern-day giraffe:

GO ON

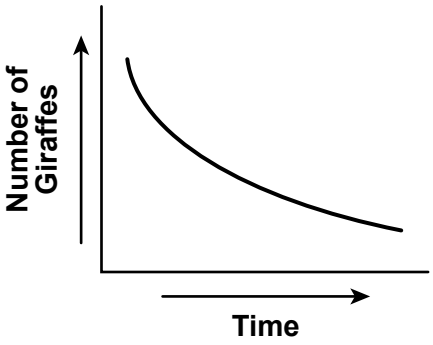
The modern-day giraffe population has been influenced by human activities. These activities include loss of habitat, disease, climate change, and wildlife hunting. The map below shows the locations in Africa where giraffes presently live and where giraffes lived approximately 300 years ago.

Map of Giraffe Ranges

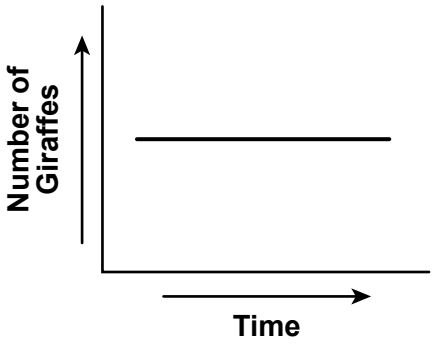


GO ON

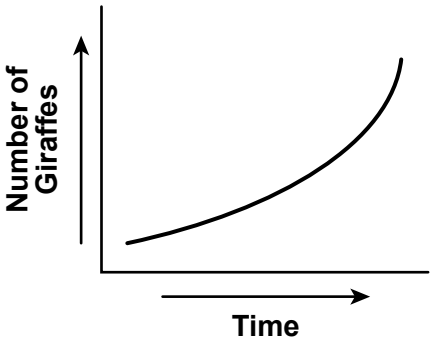
47 Based on evidence from the map, which graph would represent the general relationship between the number of giraffes living in Africa and time?



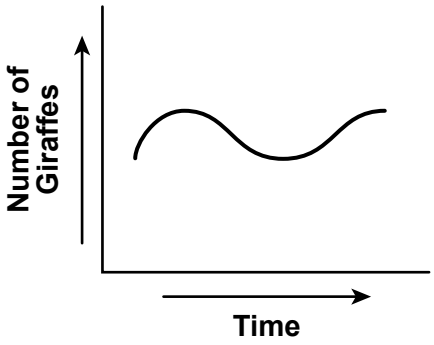
A



C



B



D

Conservationists would like to protect the giraffe from the further negative influence of human activity. However, this protection must not adversely affect existing ecosystems. One method used by conservationists is to replant Acacia trees in areas where these trees originally grew to restore historical habitats.

48 Describe how reforestation of Acacia trees protects the stability of giraffe populations in African savanna ecosystems. [1]

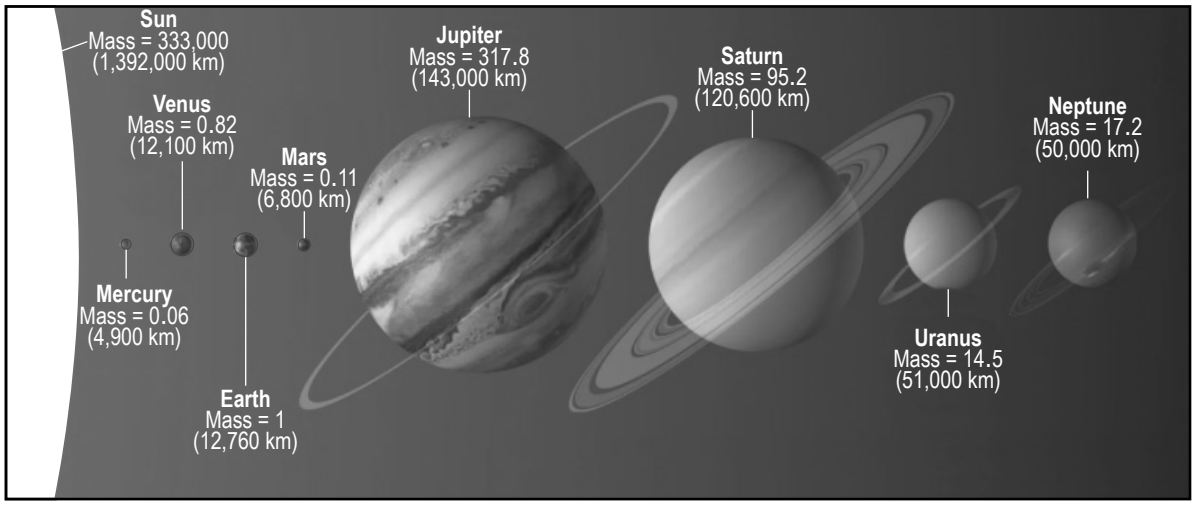
Base your answers to questions 49 through 52 on the information below and on your knowledge of science.

Scale Properties in Our Solar System

The eight planets of our solar system travel in nearly circular orbits around the Sun. As the distance from the Sun increases, a planet's orbit becomes larger and the planet travels slower. The planets' speeds keep the planets in stable orbits around the Sun.

The model below represents the mass (relative to Earth's mass = 1) and equatorial diameter of the Sun and the eight planets. The equatorial diameters are drawn to scale and indicated in parentheses. The distances between solar system objects are not drawn to scale.

Solar System Model



49 Which claim correctly describes the orbital motion of a planet in our solar system?

A Mercury travels the fastest because it experiences the strongest gravitational field exerted by the Sun.

B Mars travels the fastest because it is affected the most by the gravitational forces exerted by both the Sun and Jupiter.

C Jupiter travels the slowest because it has the greatest mass of all the planets.

D Neptune travels the slowest because it has the shortest orbital path around the Sun.

50 Select **one** phrase from each table to correctly complete the argument below. [1]

Considering all the celestial bodies in our solar system, the greatest force of attraction is between the Sun and Jupiter. This is evidence that the gravitational force exerted by the Sun on a planet depends on the ___1___ and the ___2___ .

Choices for 1

mass of only the Sun	
mass of only the planet	
mass of the Sun and the planet	

Choices for 2

composition of the planet	
distance between the Sun and the planet	
angle of the planet's tilt	
rate of the planet's rotation	

51 Scientists analyze and interpret data to determine different scaled properties of these objects. Based on the data in the model, approximately how many times larger is the equatorial diameter of the Sun compared to Earth's equatorial diameter?

A 3

B 26

C 109

D 330,000

Models of the universe are created using information observed from space probes and satellites. Three celestial objects observed in the universe are listed below.

- the Sun
- the Milky Way Galaxy
- our solar system

52 Which sequence correctly lists these celestial objects found in the universe in order from **smallest** in size to **largest** in size?

A the Sun → the Milky Way Galaxy → our solar system → the universe

B the Sun → our solar system → the Milky Way Galaxy → the universe

C the Milky Way Galaxy → our solar system → the Sun → the universe

D the Milky Way Galaxy → the Sun → our solar system → the universe

STOP

Grade 8
Intermediate-level
Science Test

Spring 2026

INTERMEDIATE-LEVEL SCIENCE TEST

THE STATE EDUCATION DEPARTMENT

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

2026 Intermediate-level Science Test Map to the Standards

Grade 8 Released Questions

Question	Type	Key	Points	Performance Expectation	Subscore	Percentage of Students Who Answered Correctly (P-Value)
1	Multiple Choice	C	1	MS-LS2-2	LS	
2	Multiple Choice	C	1	MS-LS2-2	LS	
3	Constructed Response		1	MS-LS2-3	LS	
4	Constructed Response		1	MS-LS2-1	LS	
5	Multiple Choice	D	1	MS-LS2-2	LS	
6	Multiple Choice	D	1	MS-PS4-2	PS	
7	Constructed Response		1	MS-PS4-1	PS	
8	Multiple Choice	B	1	MS-PS1-7	PS	
9	Constructed Response		1	MS-PS4-2	PS	
10	Multiple Choice	A	1	MS-ESS2-4	ESS	
11	Constructed Response		1	MS-ESS2-1	ESS	
12	Multiple Choice	C	1	MS-ESS2-2	ESS	
13	Multiple Choice	D	1	MS-ESS2-2	ESS	
14	Multiple Choice	B	1	MS-ESS3-4	ESS	
15	Multiple Choice	A	1	MS-PS2-5	PS	
16	Constructed Response		1	MS-PS3-2	PS	
17	Constructed Response		1	MS-PS2-2	PS	
18	Multiple Choice	B	1	MS-PS2-3	PS	
19	Multiple Choice	D	1	MS-PS2-3	PS	
20	Multiple Choice	A	1	MS-LS1-5	LS	
21	Multiple Choice	B	1	MS-LS1-4	LS	
22	Constructed Response		1	MS-LS3-2	LS	
23	Constructed Response		1	MS-LS1-6	LS	
24	Multiple Choice	B	1	MS-ETS1-2		
25	Constructed Response		1	MS-PS1-1	PS	
26	Multiple Choice	B	1	MS-PS1-5	PS	
27	Multiple Choice	C	1	MS-LS2-2	LS	
28	Multiple Choice	D	1	MS-LS2-4	LS	
34	Multiple Choice	B	1	MS-ESS2-3	ESS	
35	Constructed Response		1	MS-ESS2-3	ESS	
36	Multiple Choice	C	1	MS-ESS2-3	ESS	
37	Multiple Choice	D	1	MS-ESS2-3	ESS	
38	Constructed Response		1	MS-ESS2-1	ESS	
39	Constructed Response		1	MS-PS1-4	PS	
40	Constructed Response		1	MS-PS1-2	PS	
41	Multiple Choice	A	1	MS-PS3-4	PS	
42	Multiple Choice	D	1	MS-PS1-5	PS	
43	Multiple Choice	B	1	MS-PS3-4	PS	
44	Multiple Choice	A	1	MS-LS4-4	LS	
45	Multiple Choice	C	1	MS-LS4-2	LS	
46	Constructed Response		1	MS-LS4-2	LS	
47	Multiple Choice	A	1	MS-LS2-4	LS	
48	Constructed Response		1	MS-LS2-5	LS	

49	Multiple Choice	A	1	MS-ESS1-2	ESS	
50	Constructed Response		1	MS-PS2-4	PS	
51	Multiple Choice	C	1	MS-ESS1-3	ESS	
52	Multiple Choice	B	1	MS-ESS1-3	ESS	

* This item map 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).