

GRADE 8
Science

Administered May 2016

RELEASED

STAAR GRADE 8 SCIENCE REFERENCE MATERIALS



FORMULAS

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$D = \frac{m}{V}$$

$$\text{Average speed} = \frac{\text{total distance}}{\text{total time}}$$

$$s = \frac{d}{t}$$

$$\text{Net force} = (\text{mass})(\text{acceleration})$$

$$F = ma$$

$$\text{Work} = (\text{force})(\text{distance})$$

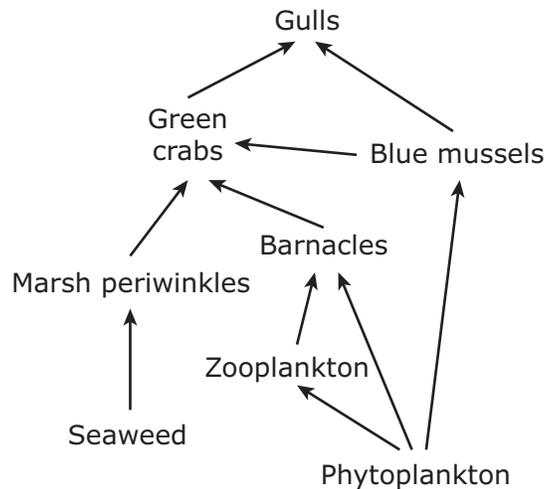
$$W = Fd$$

SCIENCE

DIRECTIONS

Read each question carefully. For a multiple-choice question, determine the best answer to the question from the four answer choices provided. For a griddable question, determine the best answer to the question. Then fill in the answer on your answer document.

- 1 A partial marine food web is shown.



Green crabs carry a parasitic worm that can infect organisms that prey on the crabs. Which organism is most likely to be infected by this parasite?

- A Gulls
- B Barnacles
- C Marsh periwinkles
- D Blue mussels

- 2 With the use of the Hubble Space Telescope, scientists recently discovered a giant runaway star. It is 90 times larger than the sun and is very hot and blue-white in color. Why does the sun appear to be brighter than this runaway star when viewed from Earth?
- F The sun is a different color than the runaway star.
 - G The sun is older than the runaway star.
 - H The sun is closer to Earth than the runaway star.
 - J The sun is made of different elements than the runaway star.
-

- 3 Some students are using samples of different substances for a lab investigation. They plan to observe the physical properties of each substance and record their observations in a table like the one below.

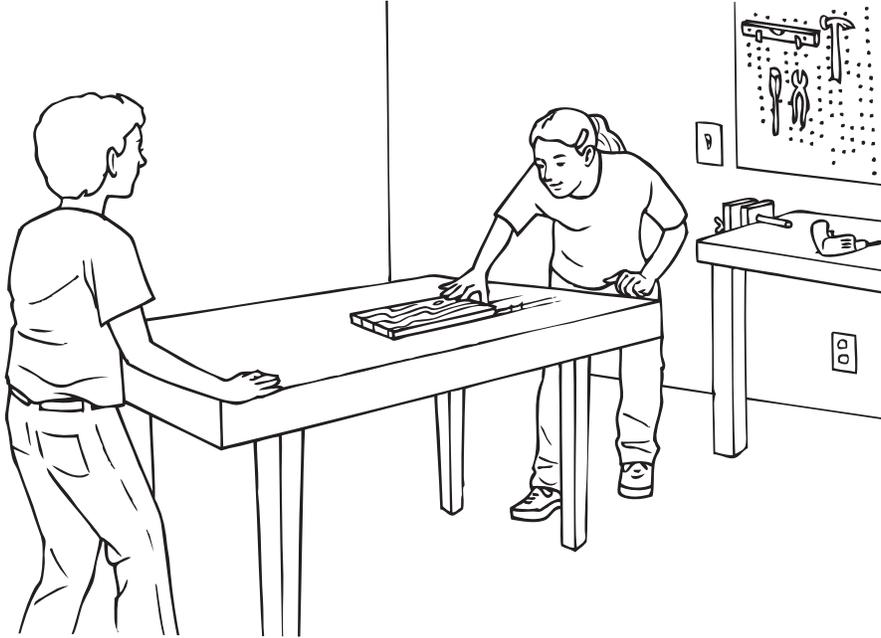
Data Table

Sample	Substance	Observations
1	S	
2	N ₂ O ₄	
3	Fe	
4	O ₂	
5	LiF	
6	Sr	
7	Al	

Which of the substances observed are elements?

- A S, Fe, O₂, Sr, and Al
- B S, O₂, and LiF
- C N₂O₄, O₂, and LiF
- D N₂O₄, Fe, Sr, and Al

- 4 Two students are working together to build a birdhouse. Student 1 applies a force of 10 N to a wooden board in order to slide it across the table to Student 2.

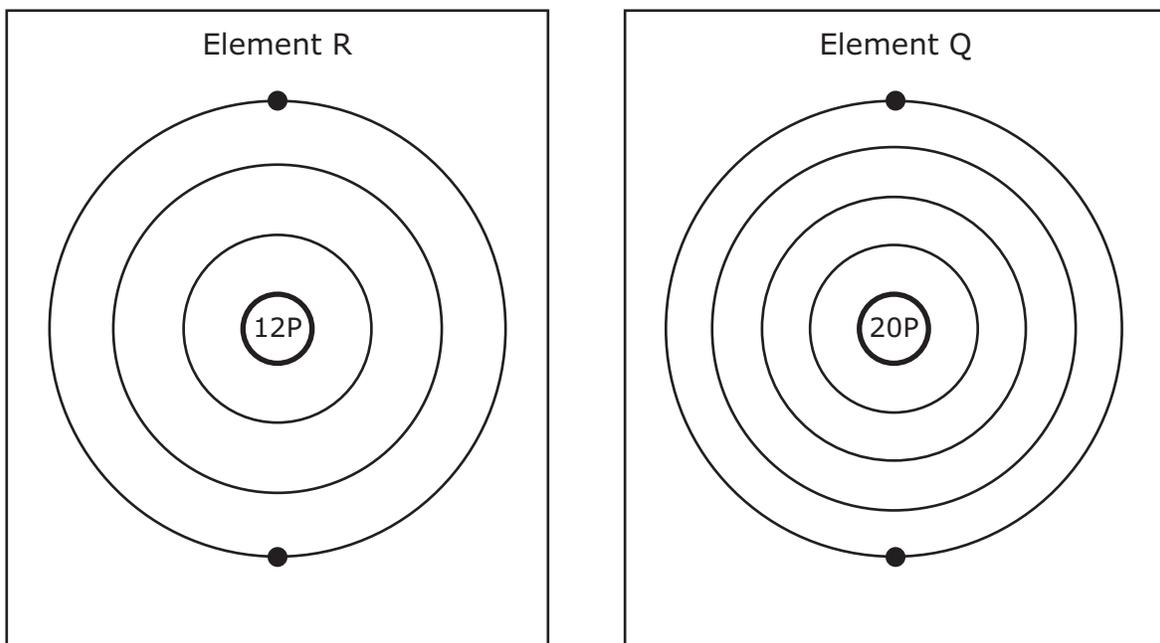


If the force of friction resisting the student's push is 4 N, what is the net force acting on the board?

- F 4 N
- G 6 N
- H 10 N
- J 14 N

-
- 5 Both primary and secondary succession begin with pioneer species that —
- A change the area and make it safer from predatory organisms
 - B invade the area so that new organisms cannot be established
 - C modify the area and allow larger and more complex organisms to appear
 - D use up all the existing resources and prevent establishment of non-native organisms

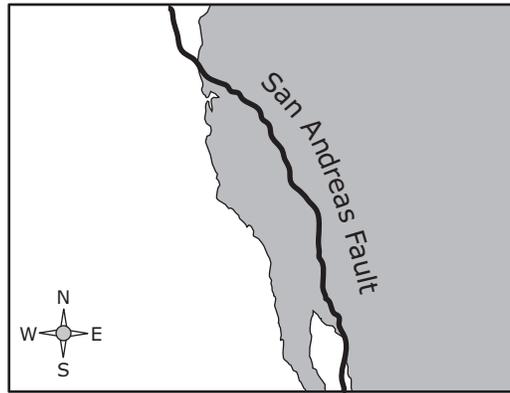
- 6 Element R and Element Q have the same number of valence electrons. These elements both have similar chemical behavior, but Element R has fewer energy levels than Element Q.



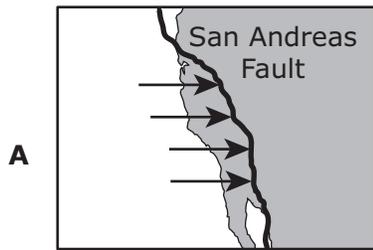
Which statement best describes the positions of the two elements in the periodic table?

- F The two elements are in the same period, with Element R the first element in the period and Element Q the last element.
- G The two elements are side by side in the same period, with Element Q to the left of Element R.
- H The two elements are in the same group, with Element R just above Element Q.
- J The two elements are in the same group, with Element Q at the top of the group and Element R at the bottom.

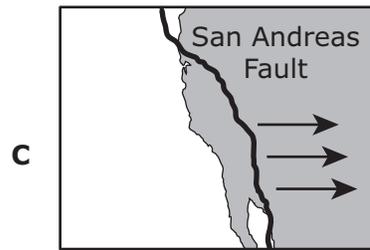
- 7 The San Andreas fault is a transform fault. The map below shows a student's approximation of where the fault line crosses through the United States. Students were asked to make maps predicting which way land would most likely move over thousands of years.



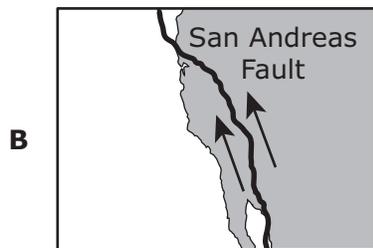
Which map best predicts the likely movement of land along the fault line over thousands of years?



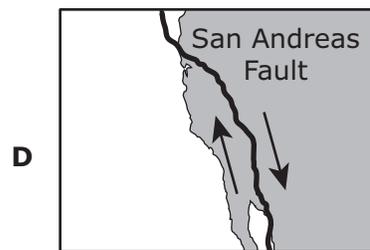
Movement toward the east



Spreading along the fault line



Mountain building



Movement along the fault line

- 8** The white-tailed ptarmigan lives at high elevations on mountains that receive a lot of snow in the winter. During the summer, the ptarmigans' feathers are mottled brown. The birds lose the brown feathers and grow a new set of white feathers during the winter. Scientists are concerned that rising global temperatures will affect the white-tailed ptarmigan.

White-Tailed Ptarmigan in Summer



White-Tailed Ptarmigan in Winter

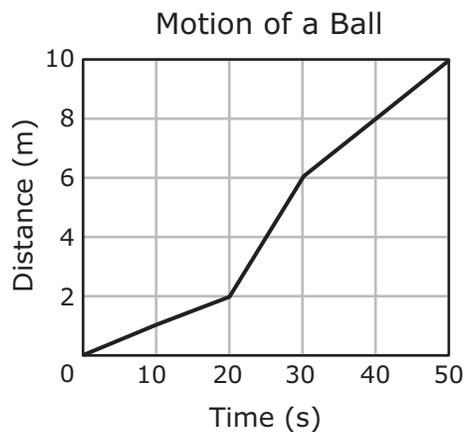


If global climate change leads to the elimination of snow in the habitat of white-tailed ptarmigans, which adaptation is most likely to occur over many generations?

- F** Birds with white feathers in areas without winter snow will be easier for predators to find. Over time this could lead to white-tailed ptarmigans that have brown feathers throughout the year.
- G** Birds with brown feathers in areas without winter snow will be easier for predators to find. Over time this could lead to white-tailed ptarmigans that have white feathers throughout the year.
- H** Birds with white feathers will be easier to see on the ground in the summer. Over time this could lead to white-tailed ptarmigans that have white feathers throughout the year.
- J** Birds with brown feathers will be easier to see on the ground in the winter. Over time this could lead to white-tailed ptarmigans that have brown feathers throughout the year.

- 9 Which of these changes would likely occur if the rate of Earth's rotation on its axis increased?
- A The length of the seasons would be shorter.
 - B The length of the seasons would be longer.
 - C The length of a day would be shorter.
 - D The length of a day would be longer.
-

- 10 The graph below shows the motion of a ball rolling on a straight track.

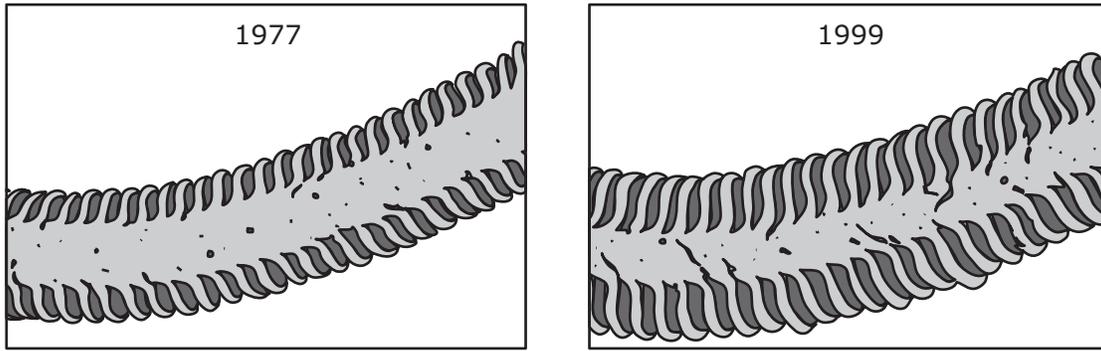


What was the ball's average speed during the time represented in the graph?

- F 0.2 m/s
- G 0.5 m/s
- H 5.0 m/s
- J 10.0 m/s

- 11** Lake Victoria in East Africa is home to many species of fish called cichlids. In 1954 the predatory Nile perch was introduced to Lake Victoria. The Nile perch became the dominant fish species in the lake by the mid-1980s. The number of cichlid species in the lake decreased as the Nile perch population increased. The perch preyed heavily on cichlid species that fed on algae and debris on the bottom of the lake. Algae in the lake increased, and oxygen levels decreased. The surface area of the gills of some cichlid species has increased in just over 20 years.

Increase in Gill Surface Area in Some Lake Victoria Cichlids



Which statement explains the increase in gill surface area seen in some of Lake Victoria's cichlids?

- A** Increased gill surface area has allowed the cichlids to change their diet and avoid competing with the Nile perch.
- B** Increased gill surface area has allowed the cichlids to be camouflaged and avoid being eaten by the Nile perch.
- C** Increased gill surface area has allowed the cichlids to leave Lake Victoria and establish populations in nearby bodies of water.
- D** Increased gill surface area has allowed the cichlids to better absorb the limited oxygen in the water.

- 12** A student obtains two strips of magnesium, Mg, ribbon that are each 3 cm long. One strip of magnesium is placed in a test tube containing 5 mL of water, and the other strip is placed in a test tube containing 5 mL of hydrochloric acid, HCl. Both liquids are at room temperature. The student's observations are recorded in the table.

Test Tube 1 Magnesium in Water	Test Tube 2 Magnesium in HCl
No observable activity takes place.	Bubbling occurs on the surface of the magnesium.
The temperature of the water remains constant.	The temperature of the liquid increases.
A lit match placed near the mouth of the test tube continues to burn.	A lit match placed near the mouth of the test tube makes a popping sound and goes out.
The appearance of the metal does not change.	The metal strip gradually becomes smaller until nothing is left except for a clear liquid.

Which statement is **not** supported by the student's observations?

- F** A chemical reaction takes place between magnesium and hydrochloric acid.
- G** A gas is released in Test Tube 2.
- H** The substances in both test tubes are reactive only at high temperatures.
- J** Energy is released in the reaction involving hydrochloric acid.
-
- 13** In July 1994 the comet Shoemaker-Levy 9 collided with the planet Jupiter, as scientists had predicted. To be able to accurately predict when a comet will collide with a planet, it is essential to understand —
- A** the composition of a planet's atmosphere
- B** the gravitational attraction that exists between all bodies
- C** the attraction of opposite poles of a magnet to each other
- D** the formation of comets

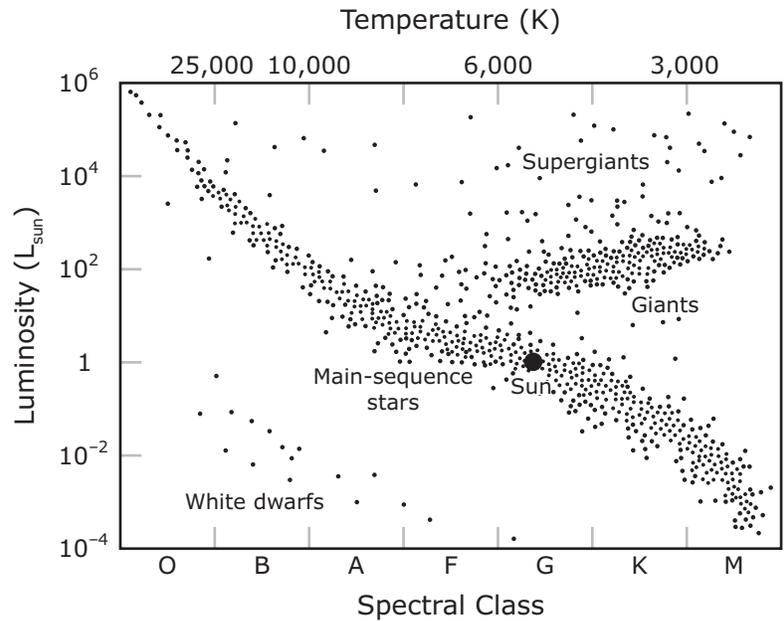
- 14** A group of students prepared a table listing the types of reproduction that occur in several organisms.

Organism	Type of Reproduction
Amoebas	Asexual reproduction
Yeasts	Both sexual and asexual reproduction
Cats	Sexual reproduction
Hydras	Both sexual and asexual reproduction
Frogs	Sexual reproduction
Ferns	Both sexual and asexual reproduction

Based on this information, which of the organisms can produce offspring that are genetically identical to the parent organism?

- F** Ferns only
- G** Amoebas and yeasts only
- H** Cats, hydras, frogs, and ferns only
- J** Amoebas, yeasts, hydras, and ferns only

15 The Hertzsprung-Russell diagram shows how the sun is classified among the stars.



Source: NASA

A star that is several thousand times brighter than the sun with a temperature lower than 4,000 K would be classified as —

- A a main-sequence star in spectral class B
- B a supergiant in spectral class K
- C a main-sequence star in spectral class K or M
- D a white dwarf in spectral class B

16 The list includes six situations.

- A book sliding across a table at a constant speed
- A ball sitting on a shelf
- A can rolling down a ramp
- A swing moving back and forth
- A car traveling at a constant speed of 15 m/s
- A bird landing on a branch

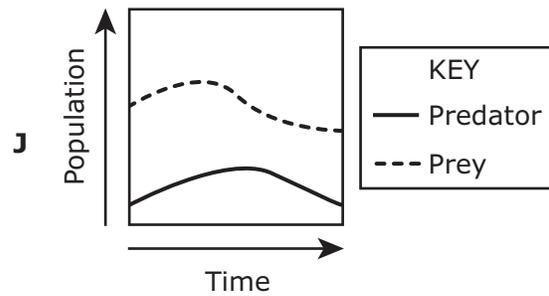
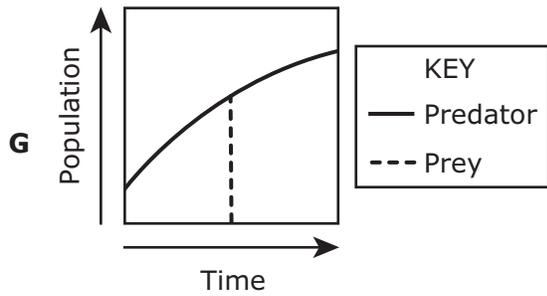
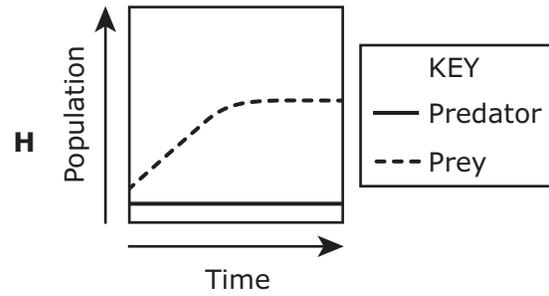
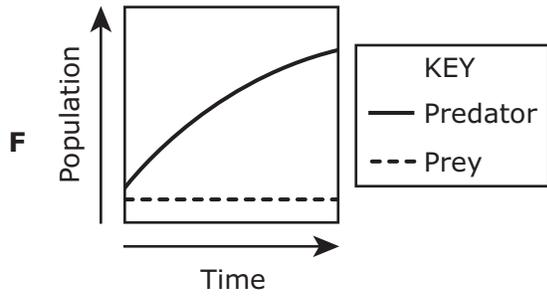
Which objects in the list experience an unbalanced force?

- F** The book, the ball, and the car
- G** The ball, the car, and the bird
- H** The can, the swing, and the bird
- J** The book, the ball, the can, and the swing

17 What is the difference between the number of electrons in an atom of selenium, Se, and the number of electrons in an atom of aluminum, Al?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

- 18 Four students were asked to create a graph representing a typical predator–prey relationship. Which graph shows a situation in which the number of predators in a population depends on the number of prey?



- 19 *Deep Space 1* was a spacecraft powered by an engine that gave off xenon particles to change velocity. It had a mass of 500 kg. Which expression can be used to find the spacecraft's acceleration if its engine created a net force of 0.10 N?

- A $\frac{0.10 \text{ N}}{500 \text{ kg}}$
 B $500 \text{ kg} \cdot 0.10 \text{ N}$
 C $\frac{500 \text{ kg}}{0.10 \text{ N}}$
 D $500 \text{ kg} + 0.10 \text{ N}$

20 Four students were given a list of compounds and asked to identify which ones are organic.

Formula	Student K	Student L	Student M	Student N
CaO	Organic			Organic
C ₂ H ₄ (OH) ₂	Organic	Organic	Organic	
Ca(OH) ₂	Organic		Organic	Organic
CH ₄		Organic	Organic	
NaCl				Organic
C ₃ H ₈		Organic		

Which student correctly identified the organic compounds in the list?

- F Student K
- G Student L
- H Student M
- J Student N

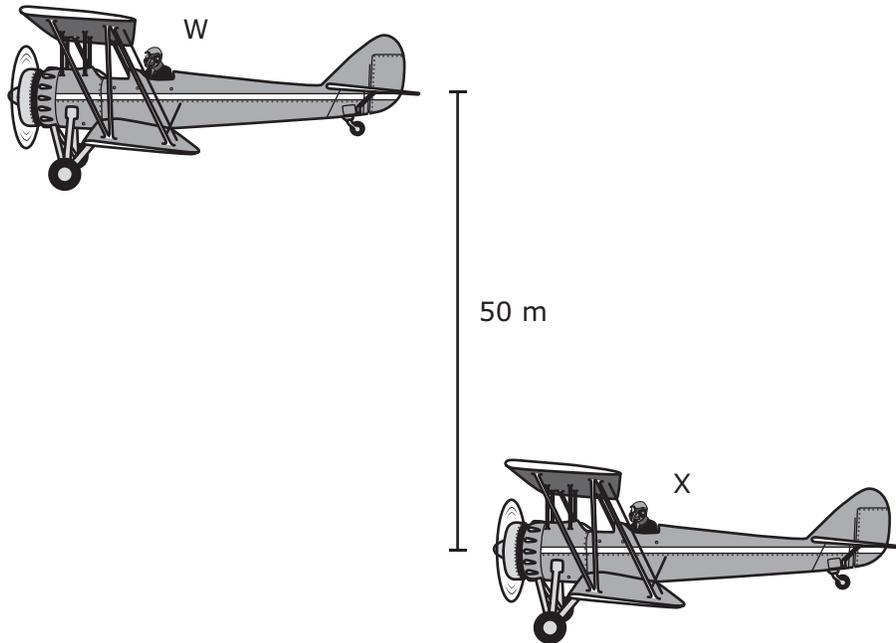
21 A student must complete the column of the table that lists the dates of the full moons.

Dates of New Moons	Dates of Full Moons
February 10	
March 11	
April 10	
May 9	

What are the most likely dates of the full moons?

- A February 5, March 7, April 5, May 4
- B February 15, March 17, April 15, May 14
- C February 25, March 27, April 25, May 24
- D February 29, March 31, April 29, May 28

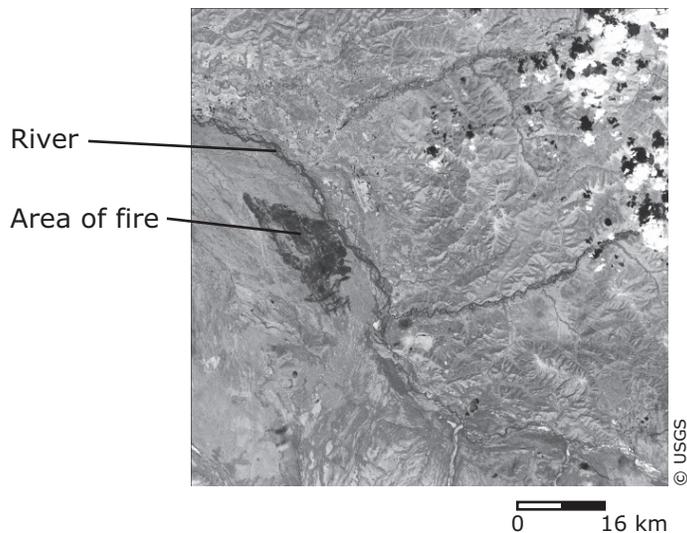
- 22** The drawing shows two identical airplanes at an air show. The airplanes are flying at the same speed. Airplane W is flying 50 m higher than Airplane X.



Which statement best describes the energy of the two airplanes?

- F** Airplane W has a greater kinetic energy than Airplane X.
- G** The two airplanes have the same gravitational potential energy but different kinetic energies.
- H** Airplane X has more gravitational potential energy than Airplane W.
- J** The two airplanes have the same kinetic energy but different gravitational potential energies.

23 This satellite photograph shows an area in Alaska after a fire occurred.



Which statement best describes the most likely effect the fire had on the river in the 12 months after it occurred?

- A** Less sediment flowed into the river because the fire heated up the soil and made it drier.
- B** The amount of vegetation increased and less sediment flowed into the river because the fire produced ash that mixed with the soil.
- C** More sediment flowed into the river because the fire destroyed most of the vegetation holding the sediment in place.
- D** More sediment flowed into the river because the fire disrupted animal habitats and caused animals to leave the area.

- 24** Four students were asked to name the parts of an atom that determine the atom's identity and chemical properties. The students' responses are shown in the table below.

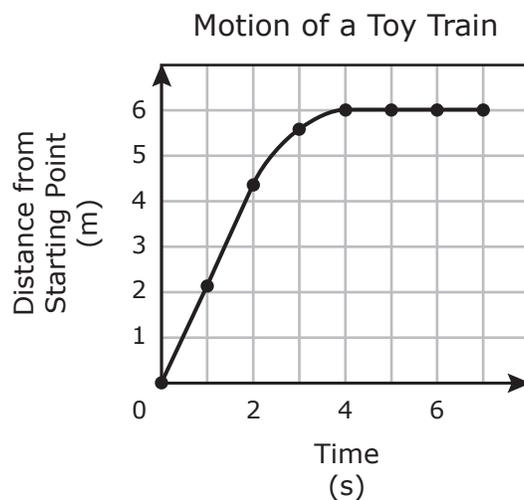
Student Responses

Student	Part of Atom That Determines Identity	Part of Atom That Determines Chemical Properties
1	Neutrons	Electron cloud
2	Protons	Valence electrons
3	Valence electrons	Protons
4	Electron cloud	Neutrons

Which student's responses are correct?

- F** Student 1
- G** Student 2
- H** Student 3
- J** Student 4

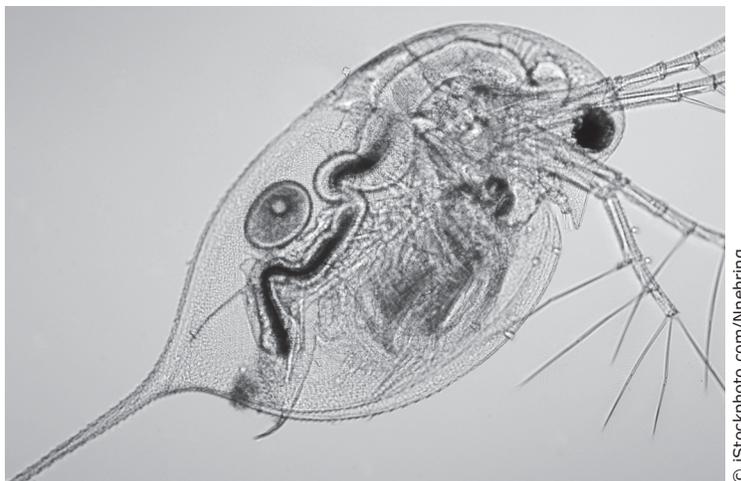
- 25 A hobbyist collected data about the motion of a toy train on a straight track and then recorded the data in the graph below.



Which of these accurately describes the motion of the toy train?

- A The toy train speeds up while going forward and then slows down.
- B The toy train slows down while going forward and then moves backward.
- C The toy train moves forward at a constant speed, slows down, and then stops.
- D The toy train moves forward at an increasing speed, stops, and then moves forward.

- 26** The organism in the photo is a daphnia, or water flea. Daphnia are tiny aquatic organisms that live in most freshwater habitats. Adults range from less than 1 to 5 mm in length. They are good swimmers and eat mostly algae. Daphnia become mature at 5 to 10 days, and an adult female can produce up to 100 eggs every 3 or 4 days during its 2-month life span. When harmful algae rapidly increase in the daphnia's environment, daphnia can develop adaptations to tolerate the negative effects of the algae within 10 years.

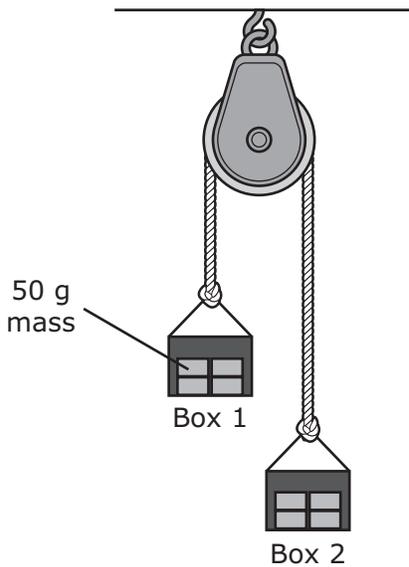


What characteristic of the daphnia allows the population to adapt to environmental change?

- F** Its small size
 - G** Its short generation time
 - H** Its freshwater environment
 - J** Its herbivorous diet
-
- 27** Strontium phosphate, $\text{Sr}_3(\text{PO}_4)_2$, is a crystalline substance used in medicine and industry. How many phosphorus atoms are represented in the formula for $\text{Sr}_3(\text{PO}_4)_2$?

- A** 2
- B** 3
- C** 4
- D** 8

- 28** During a lab investigation, students added four 50 g masses to two boxes and arranged the boxes so that they were motionless on a pulley, as shown in the diagram. The students then followed the procedure described in the box. The students recorded their observations after each procedure and reset the pulley system to the original conditions.



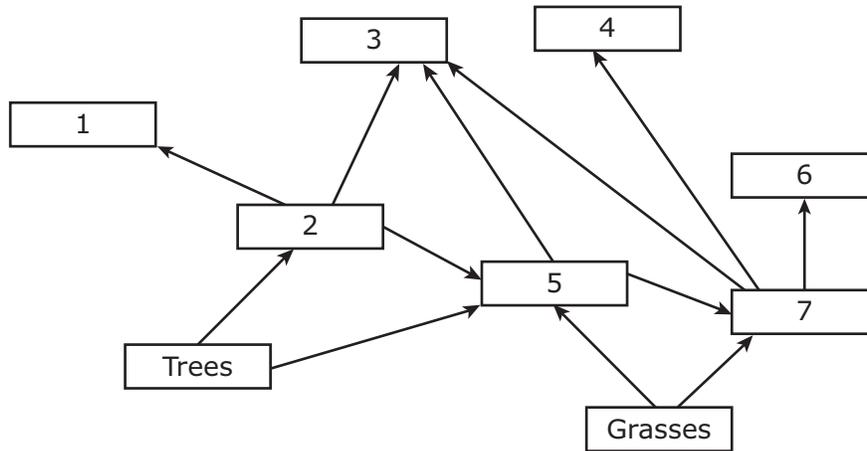
Procedures

1. Push Box 1 downward. Observe. Reset.
2. Add another mass to Box 1. Observe. Reset.
3. Remove one mass from Box 2. Observe. Reset.
4. Add another mass to Box 2. Observe. Reset.
5. Remove two masses from Box 1. Observe. Reset.

During which procedures did students observe an unbalanced upward force on Box 1?

- F** Procedures 1, 2, and 3
- G** Procedures 4 and 5
- H** Procedures 3 and 4
- J** Procedures 1, 3, and 5

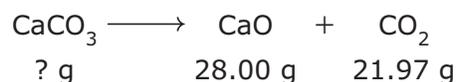
29 A partial food web is shown. The numbers in the boxes represent animals in the food web.



Which organisms have three carnivorous predators and a consumer–producer relationship with at least one organism?

- A The organisms that fit in boxes 2, 3, and 7
- B The organisms that fit in boxes 5 and 7
- C The organisms that fit in boxes 4 and 6
- D The organisms that fit in boxes 2 and 7 only

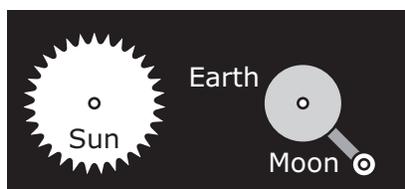
- 30** A chemical reaction in which calcium carbonate, CaCO_3 , is decomposed results in the production of two simpler compounds.



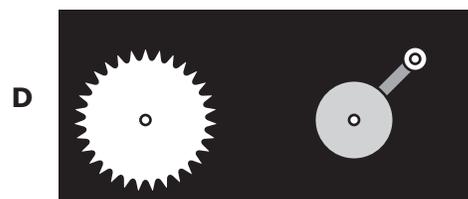
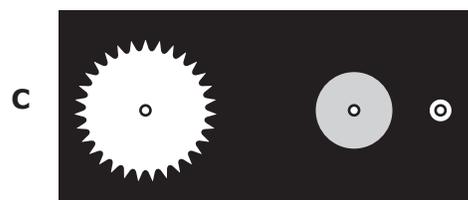
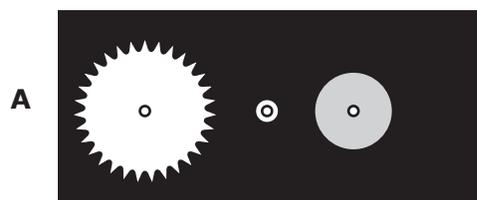
What mass of calcium carbonate, to the nearest hundredth of a gram, is decomposed in this reaction?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

- 31** A student uses paper and fasteners to create a model of Earth, the sun, and the moon. The sun and Earth are attached to the paper background, while the moon is free to revolve around Earth.



Which diagram shows the objects arranged so that a new moon would be visible from Earth?



33 A clerk at a hardware store performed the activities in the list.

Activities

1. Pushed a 300 N box for 5 m across a floor using 110 N of force
2. Lifted a 490 N box of tools from the floor to a shelf 1.5 m high
3. Held a 50 N clay pot for 4 minutes for a customer while the customer did more shopping

Which statement best describes the amount of work performed for the three activities?

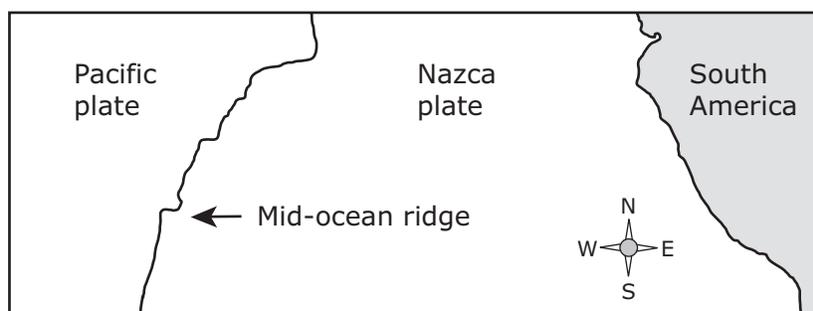
- A** Activity 3 required more work than Activity 1, but Activity 3 did not require more work than Activity 2.
 - B** Activity 1 required the same amount of work as Activity 3.
 - C** Activity 2 required the most work.
 - D** Activity 1 was the only activity that required work.
-

34 The universe has many different components. Which list places four components of the universe in the most likely order from smallest to largest?

- F** Planets, stars, galaxies, nebulae
- G** Nebulae, stars, planets, galaxies
- H** Galaxies, stars, planets, nebulae
- J** Planets, stars, nebulae, galaxies

- 35** A teacher rubbed a match against a piece of sandpaper. The match started to burn. Which statement best describes the energy changes that occurred?
- A** The chemical energy stored in the match changed to thermal energy and light energy.
 - B** The thermal energy stored in the match changed to light energy and chemical energy.
 - C** The light energy and thermal energy stored in the match changed to mechanical energy.
 - D** The light energy and thermal energy stored in the match changed to chemical energy.
-

- 36** A mid-ocean ridge separates the Pacific plate and the Nazca plate off the western coast of South America.

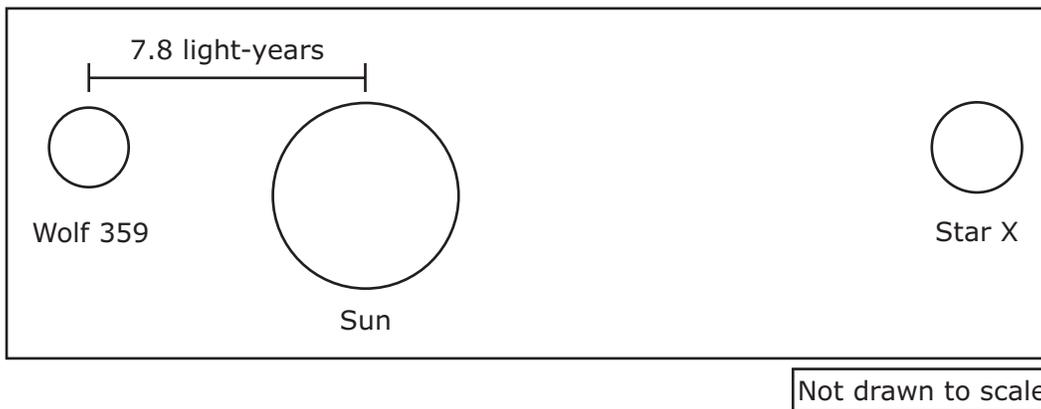


Which statement best describes the relative motions of the Pacific and Nazca plates?

- F** The Pacific and Nazca plates are both moving to the east.
- G** The Pacific and Nazca plates are both moving to the west.
- H** The Pacific plate is moving to the west, and the Nazca plate is moving to the east.
- J** The Pacific plate is moving to the east, and the Nazca plate is moving to the west.

- 37** Black walnut trees produce a nontoxic chemical that becomes highly toxic when it is exposed to air or soil. How does this chemical help black walnut trees compete with plants growing nearby?
- A** By attracting herbivores to the other plants
 - B** By suppressing the growth of the other plants
 - C** By increasing the photosynthesis rates in the other plants
 - D** By limiting the amount of water available to the other plants
-

- 38** The model shows the star Wolf 359, the sun, and Star X. It takes 7.8 years for light produced on Wolf 359 to reach the sun.



If Star X is 50 times as far from the sun as Wolf 359 is, how far is Star X from the sun, to the nearest light-year?

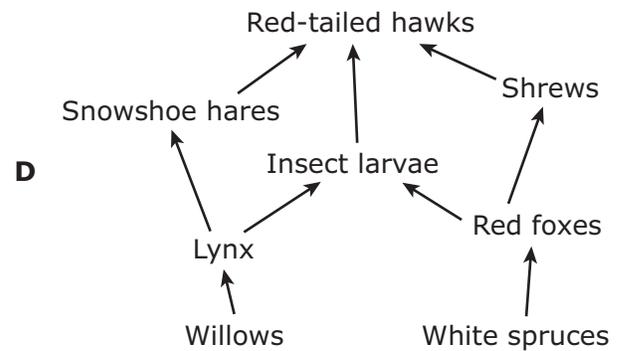
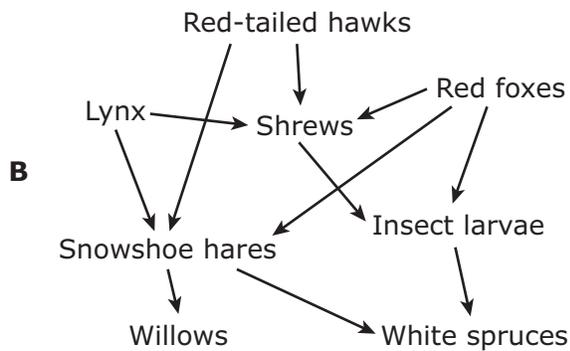
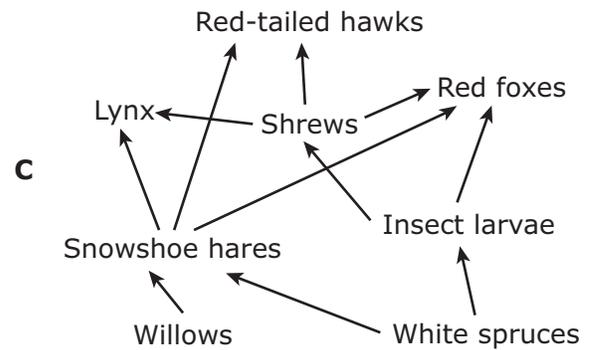
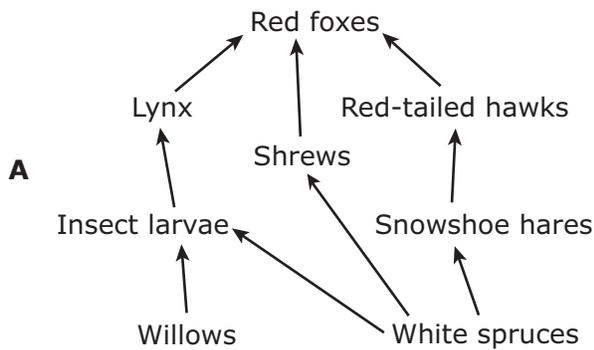
Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

39 A student researching a northern forest ecosystem learns the following information about feeding relationships in the ecosystem.

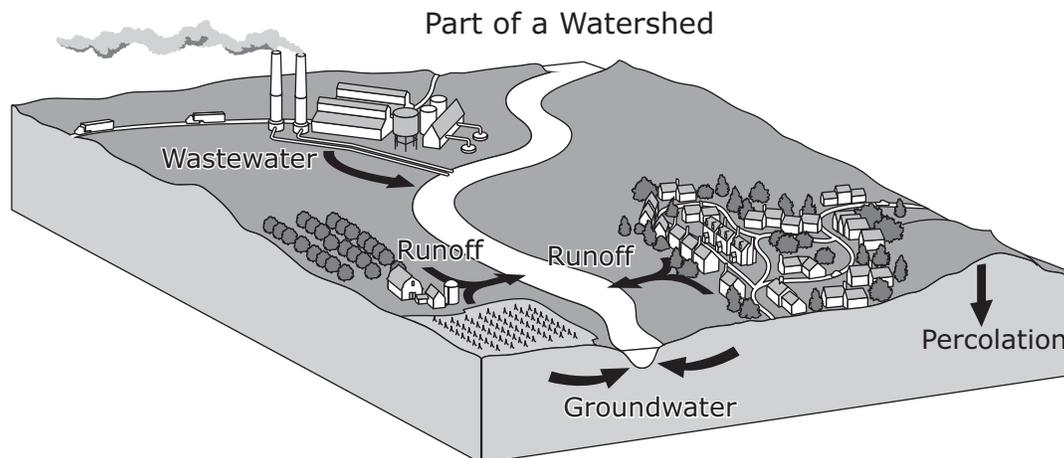
Northern Forest Ecosystem

- Insect larvae feed on white spruces.
- Shrews and snowshoe hares are prey for lynx, red-tailed hawks, and red foxes.
- Snowshoe hares eat both willows and white spruces.
- Shrews eat insect larvae.
- Red foxes sometimes eat insect larvae.

Which food web best represents the flow of energy in these feeding relationships?



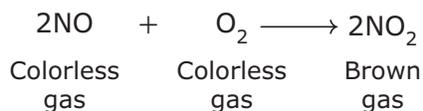
- 40 A student drew the model below to represent a part of a watershed and some human activities that affect the watershed.



How do the industrial, agricultural, and residential activities of humans most likely affect the groundwater in the area?

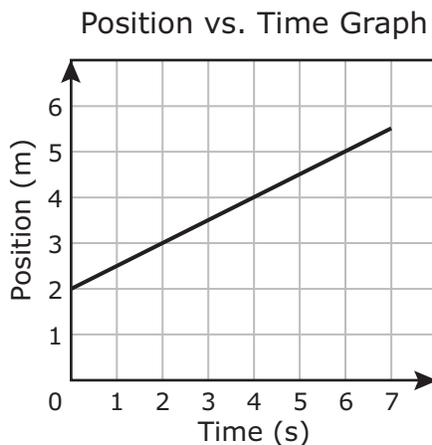
- F The activities prevent most of the water from evaporating into the atmosphere.
- G Pollutants from the activities percolate through the soil and enter the water table.
- H The activities replace the groundwater used.
- J All of the above

- 41** Nitrogen dioxide is a gas that can be generated by emissions from vehicles and factories. It can also be generated by natural sources, such as forest fires, lightning, and microbial activity in soil. The equation for producing nitrogen dioxide is shown below.



Which of these provides evidence that a chemical reaction occurs?

- A** A gas is present.
 - B** The total number of atoms remains unchanged.
 - C** The state of matter remains the same.
 - D** A brown gas is produced.
-
- 42** A student graphed the position of a cart during a 7-second time interval.



Which statement best describes the cart?

- F** The cart was stationary with a velocity of 0 m/s for the entire 7 seconds.
- G** The cart was stationary except for a short burst of acceleration of 0.5 m/s^2 .
- H** The cart moved at a constant velocity of 0.5 m/s for the entire 7 seconds.
- J** The cart accelerated at a constant rate of approximately 0.8 m/s^2 .

43 Which table best shows some functions of the circulatory, respiratory, digestive, and endocrine systems?

A

Function	Circulatory System	Respiratory System	Digestive System	Endocrine System
Releases hormones	X		X	X
Supplies the body with oxygen	X	X		
Supplies the body with nutrients		X	X	
Removes carbon dioxide		X		X

B

Function	Circulatory System	Respiratory System	Digestive System	Endocrine System
Releases hormones	X	X	X	X
Supplies the body with oxygen		X		X
Supplies the body with nutrients		X		
Removes carbon dioxide			X	X

C

Function	Circulatory System	Respiratory System	Digestive System	Endocrine System
Releases hormones	X		X	X
Supplies the body with oxygen	X	X		
Supplies the body with nutrients			X	
Removes carbon dioxide	X			X

D

Function	Circulatory System	Respiratory System	Digestive System	Endocrine System
Releases hormones			X	X
Supplies the body with oxygen	X	X		
Supplies the body with nutrients	X		X	
Removes carbon dioxide	X	X		

- 44** A golfer hits a golf ball with a club. The mass of the ball is 0.05 kg. The ball accelerates at $2,000 \text{ m/s}^2$.



What is the net force, to the nearest newton, that accelerates the ball?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

-
- 45** How many protons, neutrons, and electrons are present in an atom of hafnium, Hf, with a mass number of 178?
- A** 72 protons, 178 neutrons, 106 electrons
 - B** 72 protons, 106 neutrons, 72 electrons
 - C** 178 protons, 250 neutrons, 72 electrons
 - D** 106 protons, 72 neutrons, 106 electrons

46 Which table correctly describes the functions of the cell structures listed?

F

Cell Structure	Function
Vacuole	Stores water
Chloroplast	Removes waste
Mitochondrion	Produces sugar
Cell membrane	Regulates cell contents

H

Cell Structure	Function
Vacuole	Stores water
Chloroplast	Produces sugar
Mitochondrion	Converts energy
Cell membrane	Regulates cell contents

G

Cell Structure	Function
Vacuole	Regulates cell contents
Chloroplast	Produces sugar
Mitochondrion	Stores water
Cell membrane	Converts energy

J

Cell Structure	Function
Vacuole	Removes waste
Chloroplast	Converts energy
Mitochondrion	Produces sugar
Cell membrane	Regulates cell contents

47 The table shows the chemical formulas for four substances.

Substance	Chemical Formula
1	C_2H_6O
2	C_8H_{18}
3	CH_3CH_2Br
4	$C_4H_{10}O$

Which substances have the same number of carbon atoms?

- A Substances 1 and 2
- B Substances 2, 3, and 4
- C Substances 2 and 3 only
- D Substances 1 and 3

- 48** NASA's space shuttle program was active from 1981 until 2011. The photograph shows rockets carrying a space shuttle off the launchpad.

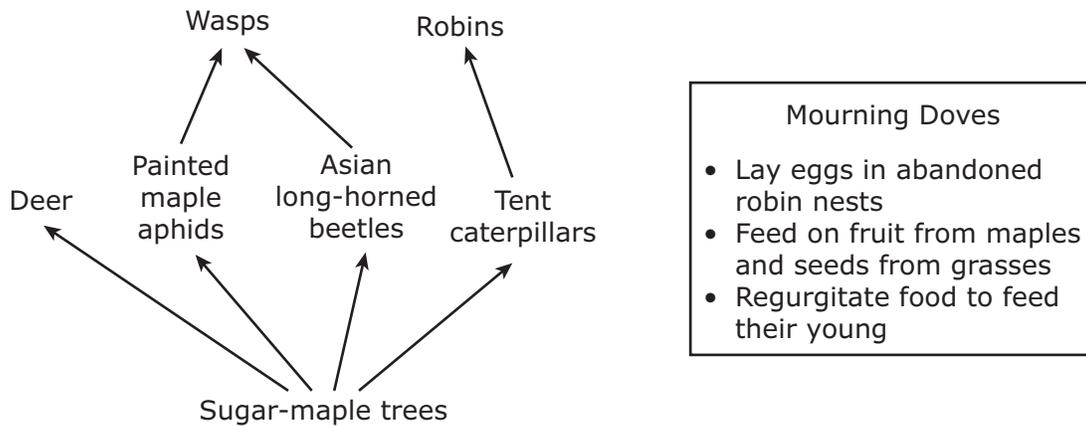
Launch of a Space Shuttle



How can Newton's law of action–reaction best be applied to explain the movement of a rocket?

- F** As the fuel burns, gases push against the rocket, moving it upward.
- G** As the fuel burns, gases move out of the rocket and reduce air resistance.
- H** As the fuel burns, the mass of the rocket decreases.
- J** As the fuel burns, the rocket moves faster.

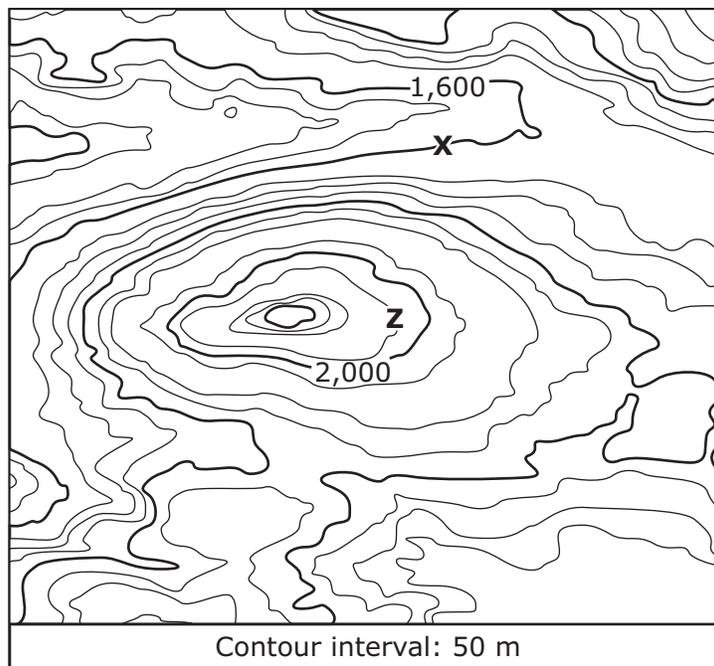
49 A partial food web is shown. The mourning dove is a bird that is often part of this food web.



Which of these describes the mourning dove when it is part of the food web shown?

- A** It has a parasite–host relationship with the robin because it uses the robin’s nest.
- B** It has a predator–prey relationship with tent caterpillars because they both use the same resources from the sugar-maple tree.
- C** It has a producer–consumer relationship with sugar-maple trees because it gets food from the trees.
- D** It has a producer–consumer relationship with its young because it feeds its young regurgitated food.

- 50 The topographic map shows the location of a park ranger at Point X when a message is received that an injured hiker needs help at Point Z.



Which of these is closest to the difference in elevation between the locations of the ranger and the injured hiker?

- F 2,050 m
- G 450 m
- H 910 m
- J 3,650 m

- 51** After researching the diets of several birds inhabiting a nearby pond, a student goes on a field investigation to observe the feeding habits of the birds. The student records information from research and observations in the table.

Bird	Feeding Habits	Diet
Great blue heron	Usually stands still in the water near the edge of the pond, striking quickly at prey with its sharp beak	Fish, amphibians, reptiles, insects, small mammals, small birds
Mallard	Tips upside down to feed on underwater plants and seeds; picks up small prey and bits of food near the edge of the pond	Plants, insect larvae, seeds, earthworms, snails, freshwater shrimp
Pied-billed grebe	Dives in open water to find food on the bottom of the pond	Fish, crayfish, insects
Great egret	Wades or stands still in the water near the edge of the pond to hunt	Aquatic invertebrates, small fish, insects, amphibians, reptiles

The student observes a great blue heron catching fish near the edge of the pond. Based on the information the student collected, which bird will compete with the great blue heron for the same hunting spots and similar prey?

- A** The mallard, because it hunts for fish while wading near the edge of the pond
- B** The pied-billed grebe, because it dives in open water to get crayfish on the bottom of the pond
- C** The great egret, because it hunts in water near the edge of the pond for fish and other prey
- D** None of these

-
- 52** Tin, Sn, is a soft white metal. It has a low melting point compared with other metals. Tin is widely used as a coating for cans of food. Which statement accurately describes atoms of tin?

- F** Tin atoms have 50 protons.
- G** Tin atoms have five valence electrons.
- H** Tin atoms have 119 neutrons.
- J** Tin atoms have 68 electrons.

- 53** In the 1800s two scientists, Theodor Schwann and Matthias Schleiden, studied different types of organisms. After many years of studying a great variety of organisms, they drew similar but independent conclusions about their observations.

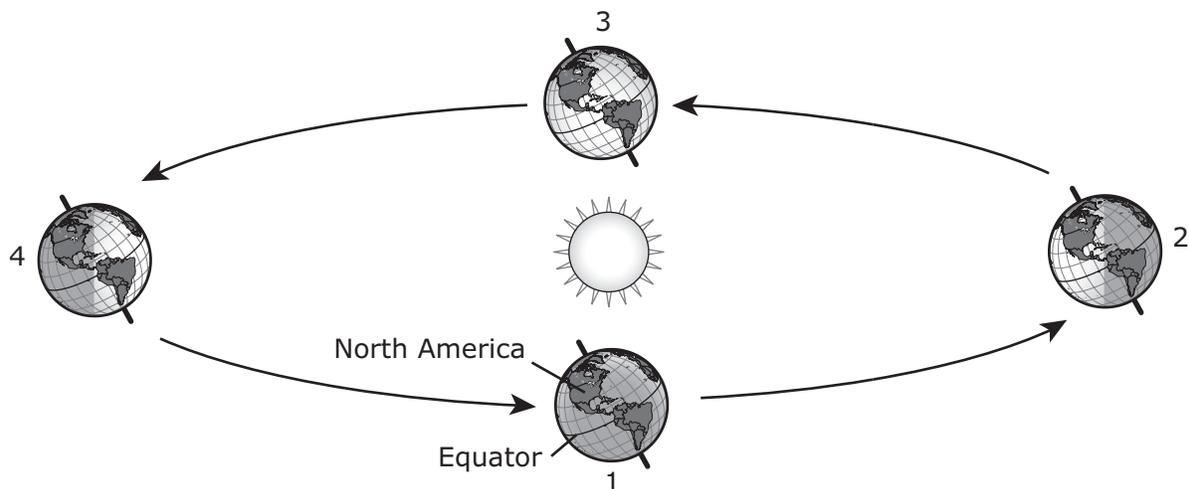
Schwann studied animals and concluded that all animals are made of cells.

Schleiden studied plants and concluded that all plants are made of cells.

What statement was developed most directly from these conclusions and is part of the modern cell theory?

- A** The functions of living things occur in cells.
- B** Cells exist only in multicellular organisms.
- C** Living things are composed of cells.
- D** Cells contain hereditary information.

54 The model shows Earth in several positions relative to the sun.



In which position is it winter in North America?

- F** Position 1, because North America receives the most direct sun
- G** Position 2, because North America is tilted toward the sun
- H** Position 3, because North America is parallel to the sun
- J** Position 4, because North America is tilted away from the sun

**STAAR
GRADE 8
Science
May 2016**

