

Student Name: \_\_\_\_\_

# Grade 5 Science FSSA Sample Test Questions Student Journal

# Nature of Science

1. In science class, students will complete the activities listed in the chart below to learn about birds

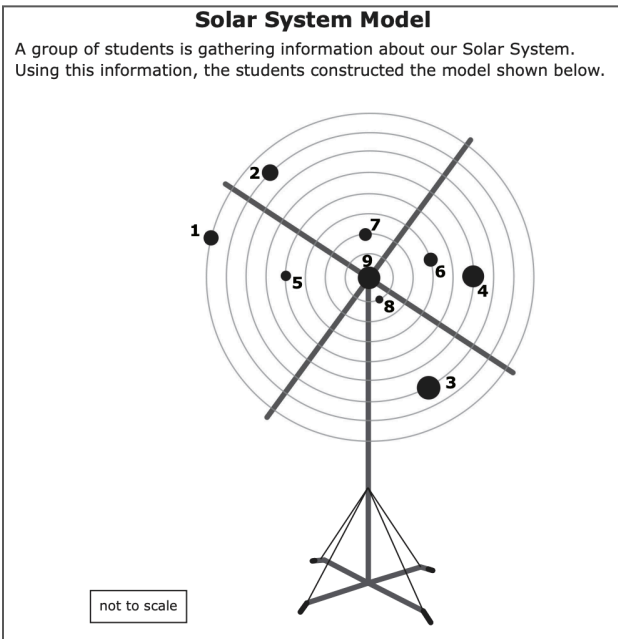
## STUDENT ACTIVITIES

Activity 1	Keep a list of birds observed in the schoolyard.
Activity 2	Make models of the different types of bird beaks.
Activity 3	Use the Internet to find information about birds native to Florida.
Activity 4	Find out whether birds in the schoolyard prefer cracked corn or sunflower seeds.

Which student activity can be completed using scientific experimentation

- a. Activity 1
- b. Activity 2
- c. Activity 3
- d. Activity 4

2. To answer this question, refer to the “Solar System Model” passage and illustration.



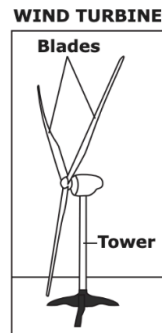
Based on the students’ model, which statement is an inference rather than an observation?

- a. Object 7 is closer to object 9 than object 3 is.
- b. Object 8 is smaller compared to all the other objects.
- c. Object 5 has a higher surface temperature than object 3 has.
- d. Object 1 has a longer orbit compared to all the other objects.

3. Students in Mr. Traylor's class wanted to determine whether the number of blades on a turbine affects the amount of energy it generates. To do this, they use the following devices:

- Device 1 - measures voltage, in volts (V), which is directly related to the amount of energy generated by the wind turbine
- Device 2 - measures revolutions per minute (RPM), which is the number of times the turbine blades turn in one minute

A diagram of a wind turbine and the students' data are shown below.



**EFFECT OF NUMBER OF TURBINE BLADES ON ENERGY (V) GENERATED**

Trial	Three Blades		Six Blades	
	Voltage (V)	RPM	Voltage (V)	RPM
1	2.00	595	1.62	532
2	2.00	594	1.36	490
3	2.40	658	1.30	480
4	1.96	587	1.50	512
5	2.22	626	1.54	519

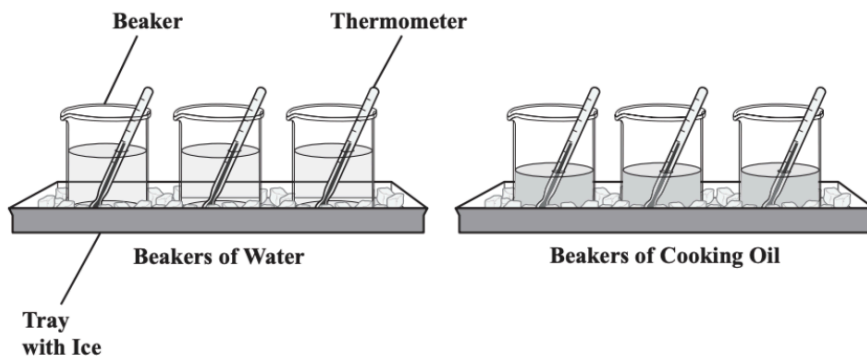
Based on the data, which statement **best** describes the relationship between the number of blades and the amount of energy generated?

- The turbine with six blades pushed with a greater force and generated more energy.
- The turbine with three blades pushed with a lesser force and generated less energy.
- The turbine with three blades moved more slowly and generated more energy.
- The turbine with six blades moves more slowly and generated less energy.

4. Joseph mixes cooking oil and vinegar in a beaker. He records his observation and his inferences about the mixture. Which of the following statements is an observation about this mixture rather than an inference?

- The liquids form two separate layers.
- The cooking oil will never completely mix with the vinegar.
- The cooking oil floats because it has less mass than vinegar.
- The liquids will take the shape of any container into which they are poured.

5. To determine which liquid cools faster, Albert placed three beakers of water and three beakers of cooking oil in a tray of ice. He measured the temperature of each beaker every 3 minutes for 15 minutes. His setup is shown below.



How can Alber improve his procedure?

- By adding ice to all the beakers
- By using a smaller beaker for the water
- By using the same amount of liquid in each beaker
- By placing larger thermometers in the beakers of oil

6. Bill conducts an investigation to observe how far paper airplanes can fly. After the investigation, Bill claims that adding mass to the paper airplanes causes them to fly farther. Which of the following does Bill need to support his claim?

- A list of questions about mass and distance to be answered by an investigation
- A description of materials used to measure mass and distance in an investigation
- Observations of the distance the airplanes of different masses fly during an investigation
- Predictions of the distances the airplanes of different masses will fly during an investigation.

7.

Chinara and Shawn are investigating how plants respond to light. They each develop a procedure, as shown in the chart below.

**PROCEDURE**

Chinara	Shawn
1. Gather two small containers filled with soil, ten mint plant seeds, a shoebox, water, and a ruler.	1. Gather two small containers filled with soil, ten mint plant seeds, a shoebox, water, and a ruler.
2. Label the containers Container J and Container K.	2. Label the containers Container J and Container K.
3. Plant five seeds in each of the two small containers.	3. Plant five seeds in each of the two small containers.
4. Set the containers on a windowsill.	4. Set the containers on a windowsill.
5. Water the seeds with 25 milliliters (mL) of water twice a day.	5. Water the seeds with 50 milliliters (mL) of water twice a day.
6. Cover Container J with a box for 20 hours a day. Remove the box from 9:00 a.m. to 1:00 p.m.	6. Cover Container J with a box for 12 hours a day. Remove the box from 8:00 a.m. to 8:00 p.m.
7. Measure and record the growth of the plants, in centimeters, once a week for 4 weeks.	7. Measure and record the growth of the plants, in centimeters, once a week for 4 weeks.

Which of the following conclusions **best** predicts the results of Chinara's and Shawn's procedure ?

- The results will be different because Chinara and Shawn will write down their data at different times of the day.
- Chinara and Shawn will have the same results because their procedures have similar steps in the same order.
- The results will be similar because Chinara and Shawn use the same materials in each of their procedures.
- Chinara and Shawn will have different results because their procedures have steps that are not identical.

8.

A teacher performs a demonstration to show how different temperatures affect a magnet.

Before class, the teacher performs the following procedure to prepare for the demonstration.

1. Gather nine identical magnets, gloves, tongs, three large bowls, and 186 grams (g) of iron powder.
2. Fill each of the large bowls with one-third of the iron powder.
3. Using gloves, place three magnets in the freezer for two hours.
4. Place three magnets on the counter to keep the magnets at room temperature.

During class, the teacher uses the following procedure for the demonstration.

1. Put on a pair of safety gloves.
2. Using tongs, place three magnets in boiling water for five minutes.
3. Using tongs, carefully remove the hot magnets from the boiling water and place them on a paper towel.
4. Using another paper towel, carefully dry the hot magnets.
5. Place the hot magnets in one bowl of iron powder for five seconds.
6. Repeat step 5 with the cold magnets in the second bowl of iron powder and then repeat with the room-temperature magnets in the third bowl of iron powder.
7. Lift each magnet out of the bowl of iron powder and measure the mass of the magnet and the iron powder. Record the mass,

The teacher's results are shown below.

**EFFECT OF TEMPERATURE ON MAGNETISM**

Magnet Temperature	Magnet and Iron Powder Mass (g)		
	Trial 1	Trial 2	Trial 3
Cold	85	88	87
Room temperature	81	83	88
Hot	68	75	70

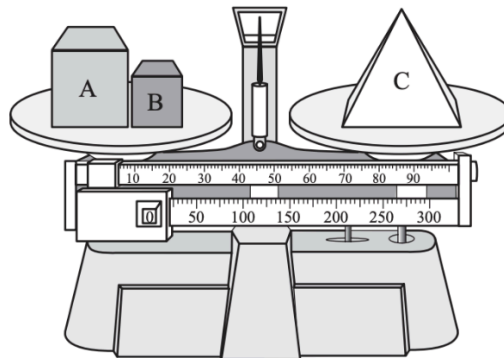
Which statement is **best** supported by the evidence?

- (A) Cold magnets are as magnetic as hot magnets.
- (B) Hot magnets are less magnetic than cold magnets.
- (C) Room-temperature magnets are less magnetic than hot magnets.
- (D) Hot and cold magnets are more magnetic than room-temperature magnets.

# Properties of Matter

9. A balance compares the mass of different objects. Students place objects on the balance pans, as shown in the diagram below.

Comparing Masses



Which of the following statements **best** compares the masses of the objects?

- Object B must have a mass that is half that of object A.
- Object A must have a mass that is greater than that of object B.
- Objects A and B have a combined mass with a total equal to that of object C.
- Objects A and B have equal masses that total to the same mass as that of object C.

10. Adalia collected data on physical properties of four samples of matter. She measured mass, in grams (g), and volume, in cubic centimeters (cm<sup>3</sup>), and recorded these data in the chart below.

**PHYSICAL PROPERTIES OF SAMPLES**

Sample	Color	Mass (g)	Volume (cm <sup>3</sup> )	Shape
1	Colorless	0.5	Expanded to fill the container	Took the shape of the container
2	White	200.0	206.0	Took the shape of the container
3	Blue	180.0	216.0	Cubic
4	Green	400.0	185.0	Small box-shaped crystals

Which sample is **most likely** a liquid?

- a. 1
- b. 2
- c. 3
- d. 4

11. A student read that pennies made in the year 1982 and after were different from pennies from before 1982. She investigated the physical properties of pennies. She identified 30 pennies that were made before 1982 and 30 pennies that were made after 1982. The student then separated each set of 30 pennies into three groups of 10 pennies each. She measured the mass, in grams (g), and the volume, in milliliters (mL). Her data are shown below.

**PENNIES MADE BEFORE 1982**

Group	Average Mass per Penny (g)	Average Volume per Penny (mL)	Texture	Color
1	3.1	0.35	Bumpy and smooth	Orange-brown
2	3.1	0.35	Bumpy and smooth	Orange-brown
3	3.1	0.35	Bumpy and smooth	Orange-brown

**PENNIES MADE AFTER 1982**

Group	Average Mass per Penny (g)	Average Volume per Penny (mL)	Texture	Color
1	2.5	0.35	Bumpy and smooth	Orange-brown
2	2.5	0.35	Bumpy and smooth	Orange-brown
3	2.5	0.34	Bumpy and smooth	Orange-brown

Which of the following properties of the pennies could be used to separate them into pennies made before 1982 and pennies made after 1982?

- a. Mass
- b. Volume
- c. Texture
- d. Color

12. A student wants to know how to make salt dissolve quickly in water. The student places a large piece of salt in a cup of warm water. The student measures how much time it takes for the salt to dissolve. Which of the following actions would **best** help the piece of salt dissolve faster?
- Crush the salt.
  - Add more water to the cup.
  - Add the salt to the cup first.
  - Decrease the temperature of the water.

## Water Cycle/Weather & Climate

13. The chart below shows the sky conditions and temperatures, in degrees Celsius (°C) and degrees Fahrenheit (°F), for four cities on the same day in January.

### WEATHER DATA FOR FOUR CITIES

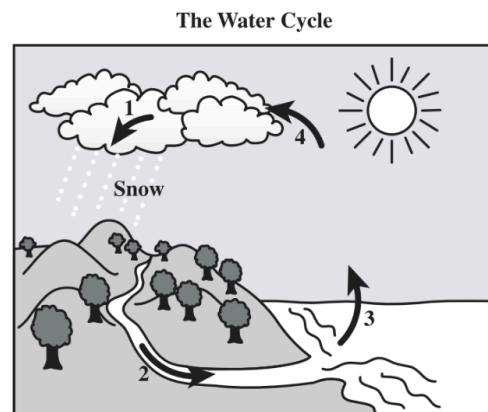
City	Sky Condition	Temperature (°C/°F)
Boise	Cloudy	9/48
Boston	Cloudy	0/32
Flagstaff	Clear	5/41
St. Louis	Clear	0/32

- Which of the following predictions **most likely** describes the weather in two of these cities?
- It is raining in Boise and snowing in Boston.
  - It is raining in Boise and snowing in St. Louis.
  - It is snowing in Boston and raining in Flagstaff.
  - It is snowing in Flagstaff and raining in St. Louis.

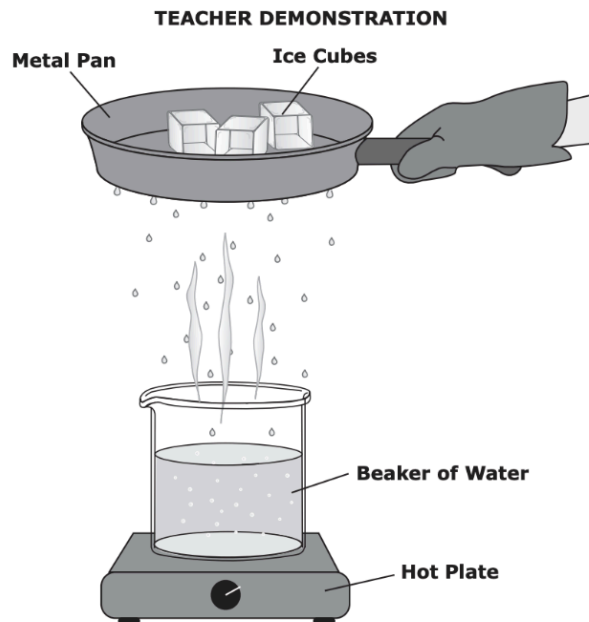
14. Students illustrated the water cycle and numbered the arrows, which represent some of the stages.

Which numbered arrow in the illustration represents a stage of the water cycle where the **least** amount of phase change occurs.

- 1
- 2
- 3
- 4



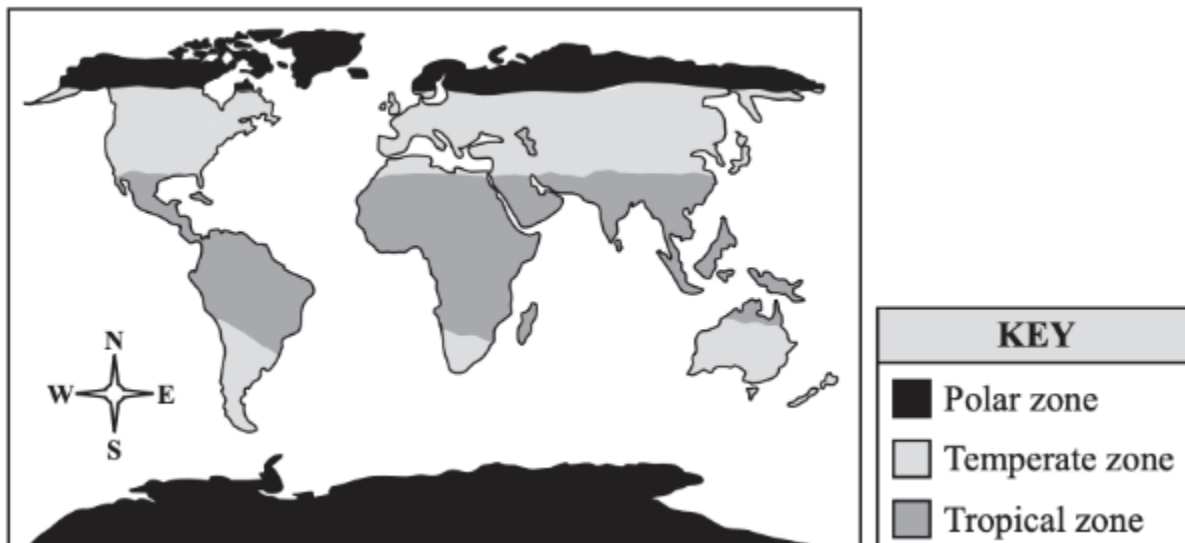
15. A teacher uses the model shown below to demonstrate the water cycle.



Which statement **best** describes how a part of this model is used to represent a water cycle process?

- a. The ice cubes are used to represent runoff.
- b. The beaker of water is used to represent condensation.
- c. The metal pan is used to represent energy that produces precipitation.
- d. The hot plate is used to represent energy from the Sun that causes evaporation.

16. The main climate zones of the world are shown on the map below.



Which of the following statements **best** describes a temperate climate zone?

- a. It receives the most rain because of its altitude.
- b. It has moderate temperatures because of its latitude.
- c. It receives the least precipitation because of its elevation.
- d. It has the warmest temperature because of its lakes and seas.

## Unit 4 Earth Structures (Q1)

17.

Florida has many different natural resources. Which of the following resources would be **most** useful in the production of energy for homes and businesses?

- (A) limestone
- (B) phosphate
- (C) silica
- (D) wind

18.

Minerals are identified by observing and testing their physical properties. Which of the following statements describes a physical property used to identify a mineral?

- (A) This mineral makes a black streak.
- (B) This mineral has a mass of 16 grams.
- (C) This mineral formed a long time ago.
- (D) This mineral was found at a local rock quarry.

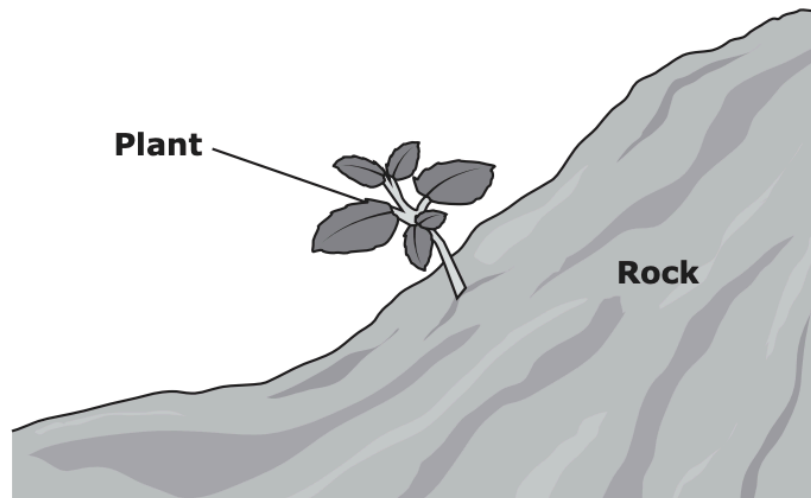
19.

Mrs. Nelson is demonstrating to her class how to use physical properties to identify minerals. She taps a piece of graphite with a hammer, and the graphite splits into thin sheets. Which property is the teacher demonstrating?

- (A) cleavage
- (B) hardness
- (C) streak
- (D) texture

20.

Plants grow in many places, including in rocks like the one shown in the illustration below.



What will happen to the rock as the plant continues to grow?

- (A) The rock will move somewhere else.
- (B) The rock will stay the same.
- (C) The rock will break apart.
- (D) The rock will get bigger.

## Energy

21.

1. Students want to know which material will keep water in a glass bottle the warmest after 30 minutes. Their procedure and data are shown below.

**Procedure:**

Students

- Obtain three identical glass bottles, and remove the lid from each bottle.
- Wrap the first bottle with one layer of thin cotton cloth.
- Wrap the second bottle with one paper towel.
- Leave the third glass bottle unwrapped.

Teacher

- Heat water to 50 degrees Celsius (°C)/122 degrees Fahrenheit (°F).
- Put on oven mitts.
- Pour 150 milliliters (mL) of the heated water into each of the bottles.
- Place a thermometer inside each of the bottles, and seal each bottle with a lid.

Students

- Measure the temperature of the water in each bottle after 30 minutes.

**TEMPERATURE OF WATER IN GLASS BOTTLES**

Material Wrapping Bottle	Final Temperature of Water (°C/°F)
Cotton cloth	31/88
Paper towel	27/81
Unwrapped	24/75

The student claims that the cotton cloth is a better insulator than the paper towel is. Which evidence **best** supports the students' claim?

- a. The cotton cloth is a better insulator than the paper towel because the cotton cloth did not allow any heat to transfer out of the water.
- b. The cotton cloth is a better insulator than the paper towel because the cotton cloth absorbed more heat energy than the paper towel did.
- c. The cotton cloth is a better insulator than the paper towel because the cotton cloth prevented more heat transfer than the paper towel did.
- d. The cotton cloth is a better insulator than the paper towel because the cotton cloth allowed the temperature of the water in the bottle to increase.

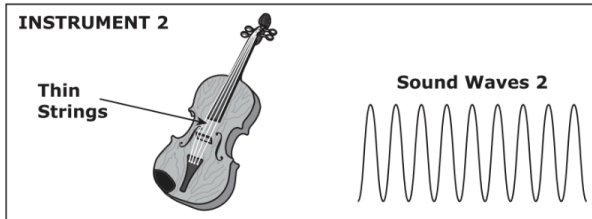
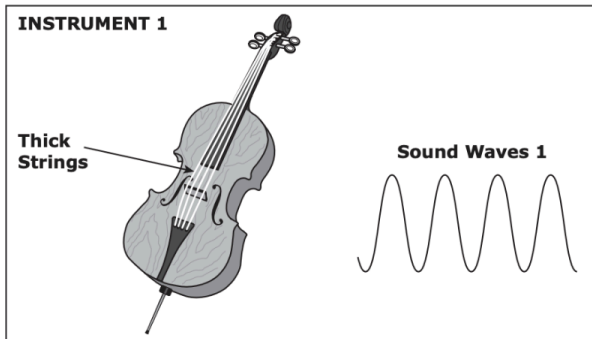
22. A clock displays time with numbers that light up, as shown below.



Which type of energy transformation causes the numbers to appear as shown?

- a. Heat to light
- b. Sound to light
- c. Electrical to light
- d. Mechanical to light

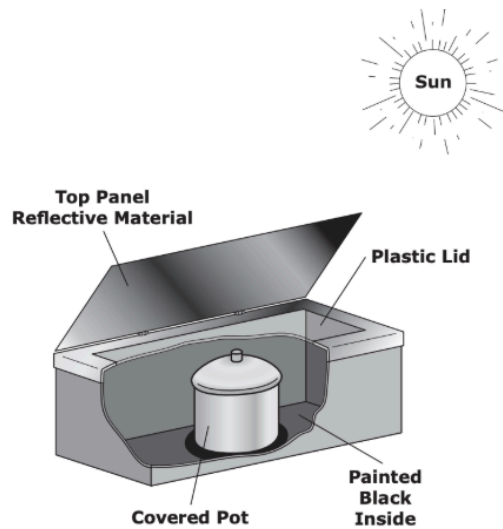
23. Two stringed instruments and the sound waves they produce are represented in the diagrams below.



Which statement **best** compares the sound produced by the instruments

- a. The sound from Instrument 2 is louder than the sound from Instrument 1 is.
- b. The sound from Instrument 2 has a higher pitch than the sound from Instrument 1 has.
- c. The sound from Instrument 2 has a lower frequency than the sound from Instrument 1 has.
- d. The sound from Instrument 2 lasts for a longer amount of time than the sound from Instrument 1 does.

24. A student uses a solar cooker, a device that uses energy from the Sun to cook food. The student places a covered pot containing the food inside the cooker. An illustration of the solar cooker is shown below.



Which statement **best** explains why the inside of the solar cooker is painted black?

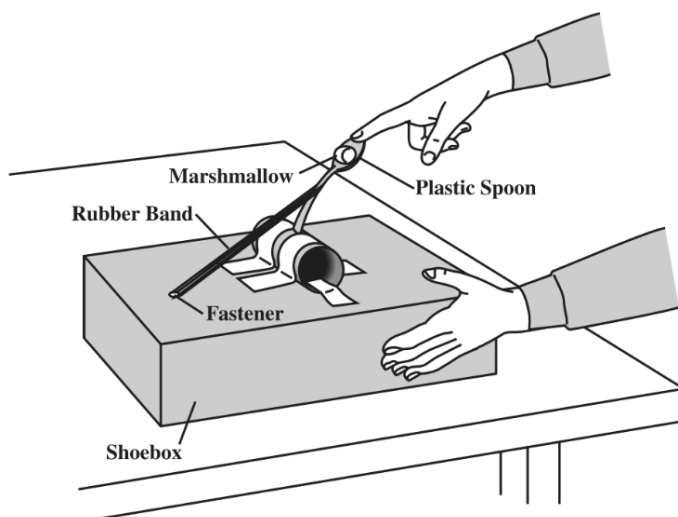
- The black paint causes light to pass through the solar cooker.
- The black paint causes sunlight to bounce onto the top panel.
- The black paint absorbs the light reflected from the top panel.
- The black paint reflects most of the sunlight into the solar cooker.

## Force & Motion

25. A student observes a light fixture hanging from a long chain that is attached to the ceiling. The student claims that there are balanced forces acting on the light fixture. Which of the following statements **best** supports the student's claim?

- The light fixture pulls on the chain.
- The light fixture is attracted to gravity.
- The light fixture remains in one position.
- The light fixture is connected to the ceiling.

26. The diagram below shows a device used to throw small, soft objects like marshmallows.



Cindy places a marshmallow in the spoon and pushes down on the spoon. She then releases the spoon and observes the marshmallow.

Which of the following **best** describes what Cindy observes?

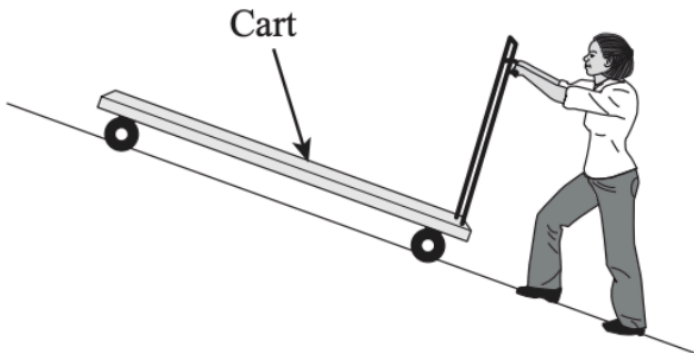
- Some properties of materials can be changed to cause an object to move.
- The greater the pull of gravity, the faster an object will move.
- Some forces can make objects move without any contact.
- Energy added to a device can cause an object to move.

27. A student is shopping with her father and observes that it is harder to push the shopping cart as more items are placed into the cart. Which of the following statements gives the **most likely** reason for her observation?

- a. As more items are loaded into the cart, the air resistance increases.
- b. As more items are loaded into the cart, the balanced force increases.
- c. As more items are placed into the cart, the mass of the load increases.
- d. As more items are placed into the cart, the height of the load increases.

28. Lilly moves a cart up a hill and stops, as shown.

**Cart on Hill**



Which of the following descriptions best explains why the cart is NOT moving?

- a. Lilly applies a force so that the forces are balanced.
- b. Lilly applies a force that changes the direction of the forces.
- c. Lilly applies a force that is less than the forces pulling on the cart.
- d. Lilly applies a force that decreases the other forces pulling on the cart.

29. Players run from one place to another while participating in some team sports. The illustration below shows a field hockey player in motion.



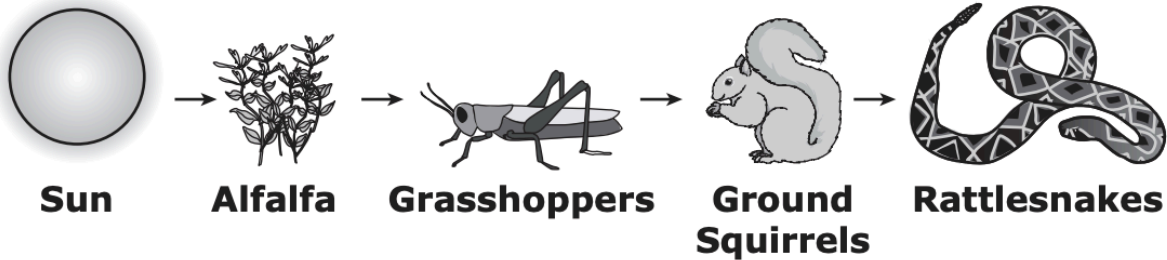
Which of the following forces moves the player forward?

- A. The force of friction pulling on the player
- B. The pushing force of the wind against the player
- C. The pushing force between the player and the ground
- D. The force of gravity pulling the player toward the ground

# Interdependence

30.

A partial food chain in a meadow ecosystem is shown in the illustration.



Based on the food chain, which phrase describes the energy flow from a consumer to another consumer?

- (A) from the grasshoppers to the alfalfa
- (B) from the alfalfa to the grasshoppers
- (C) from the ground squirrels to the rattlesnakes
- (D) from the ground squirrels to the grasshoppers

31.

A scientist is observing behavioral adaptations of a North American porcupine. The porcupine is a mammal that climbs trees and has hardened fur called quills on its back and tail. Which of the porcupine's adaptations is **best** described as a learned behavior rather than an inherited behavior?

- (A) using its quills to defend against predators
- (B) returning to the same tree for protection
- (C) staying in a den during the winter
- (D) searching for food at night

32.

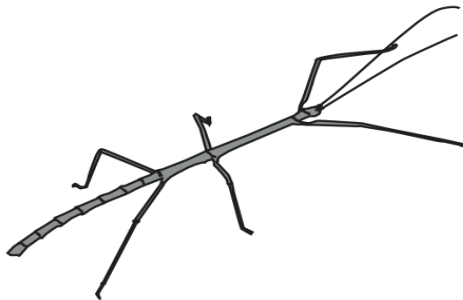
In the 1850s, the European green crab was accidentally transported on ships to the north Atlantic coast of the United States. There, this crab's population grew rapidly. The crabs ate several kinds of snails, including the smooth periwinkle. Today, smooth periwinkle snails have thicker shells. Which of the following statements **best** describes this change in the smooth periwinkle snail?

- (A) Snail shells changed when stronger and faster snails avoided the predators.
- (B) A greater population of crabs forced the snails to move to a different area.
- (C) Snails born with thicker shells more often survived predator attacks.
- (D) Snails formed thicker shells as each individual became older.

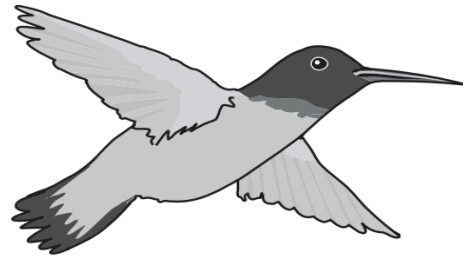
33.

Some organisms are able to make their own food. Which of the following organisms, commonly found in deserts, is able to make its own food? The answer options are not to scale.

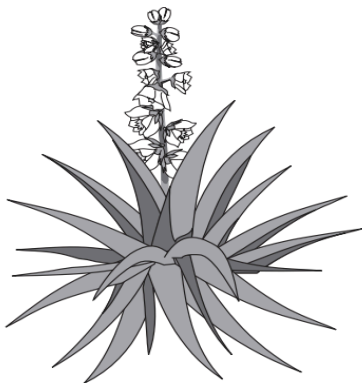
(A)



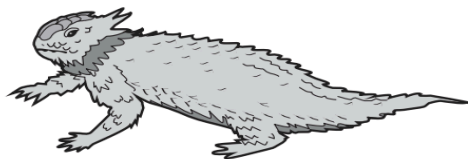
(C)



(B)



(D)



34.

Part of a desert food chain is shown below.

Sun → Cactus → ? → Snake → Fox

A food chain traces the flow of energy from the Sun through several organisms. Which type of organism should be included to complete the flow of energy in this food chain?

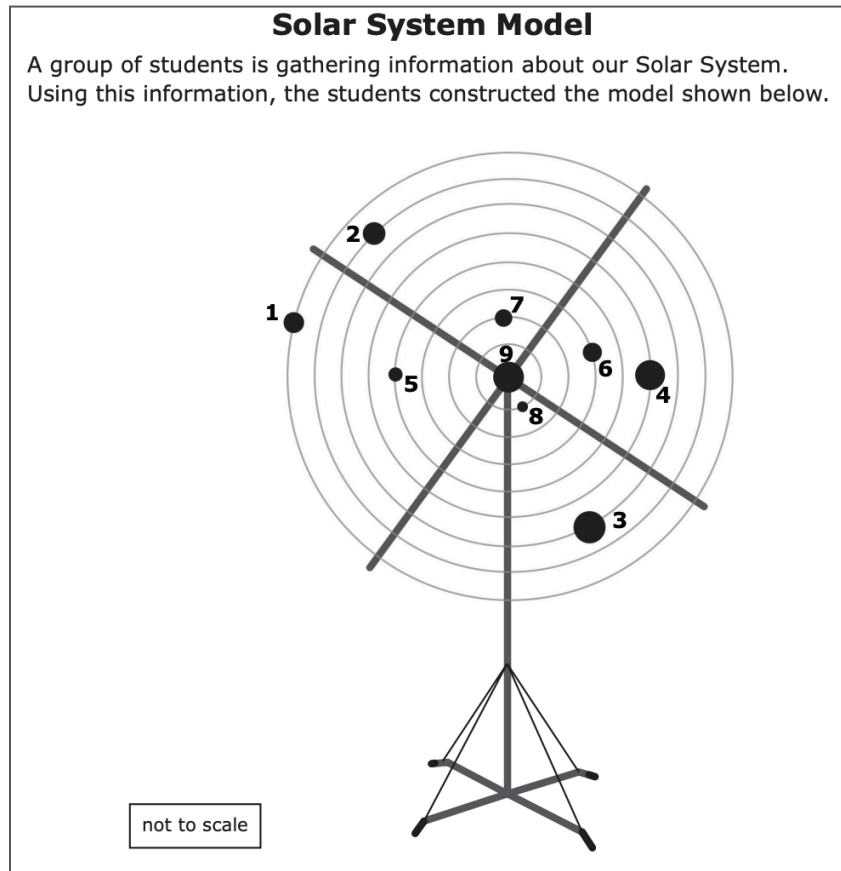
- Ⓐ producer
- Ⓑ predator
- Ⓒ herbivore
- Ⓓ carnivore

35.

The Florida Keys are a group of small islands. Human activities can have positive or negative effects on this ecosystem. Which of the following human activities would **most likely** have a positive effect on the Florida Keys ecosystem?

- Ⓐ restoring the habitats of native animals
- Ⓑ releasing nonnative animals into the wild
- Ⓒ increasing fertilizer use on grasses and trees
- Ⓓ removing grasses and trees from areas to be developed

# Space



To answer this question, refer to the “Solar System Model: passage and illustration.

36. Which statement **best** describes object 9 in the students’ model?

- Object 9 is the brightest planet, and it appears to be closer to Earth than other planets are.
- Object 9 is the brightest star observed from Earth because it is the largest star in the Milky Way.
- Object 9 is the brightest star in Earth’s sky because it is much closer to Earth than any other star is.
- Object 9 is the brightest planet that releases light, and it is only seen from Earth for 12 hours each day.

To answer this question, refer to the “Solar System Model: passage and illustration.

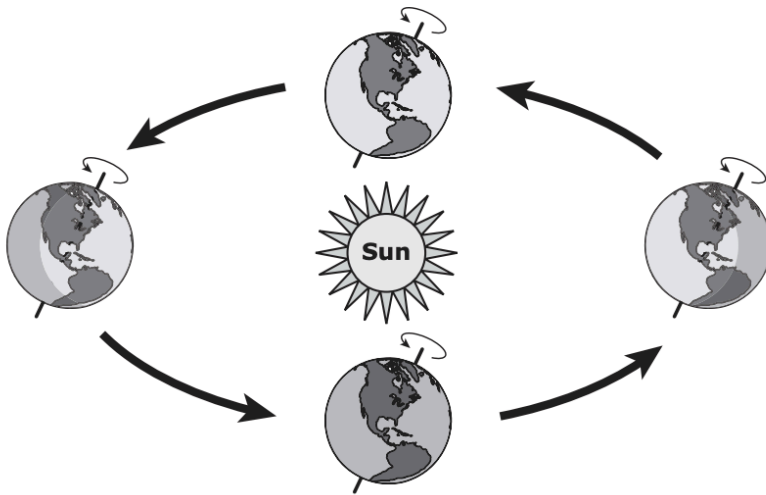
37. Which of the following would occur if Earth’s position were changed from its current position to the position of object 4 in the students’ model?

- A year on Earth would be longer.
- It would take Earth less time to revolve around the Sun.
- The length of a year on Earth would increase and result in a slower rotation.
- The rotation speed of Earth would increase and make the length of a day longer.

38. Gina looks at the stars in the clear night sky. She notices that some stars are brighter than others. Which of the following characteristics do the brighter stars have compared to the other stars?
- a. The brighter stars reflect more light from the Sun.
  - b. The brighter stars give off less energy.
  - c. The brighter stars are closer to Earth.
  - d. The brighter stars have planets.

39.

Sergio and Paola use a computer model to study Earth's movements, as shown in the illustration below.

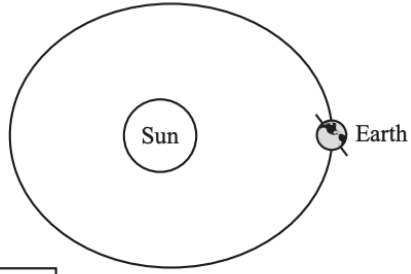


Which of these statements **best** explains a relationship between Earth's movement and the appearance of the Sun as seen from Earth?

- (A) The Sun appears in the sky for longer periods during the summer because Earth rotates on its axis.
- (B) The Sun appears to become larger during the evening because Earth revolves around the Sun.
- (C) The Sun appears to travel across the sky during the day because Earth rotates on its axis.
- (D) The Sun appears to rise and set in the sky because Earth revolves around the Sun.

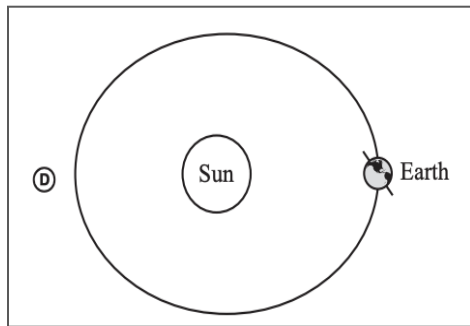
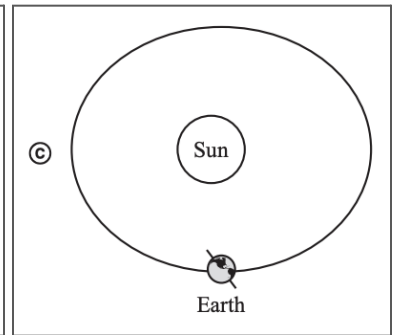
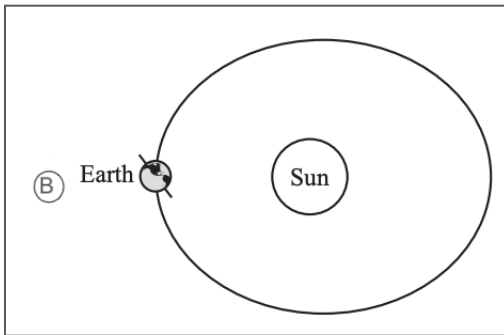
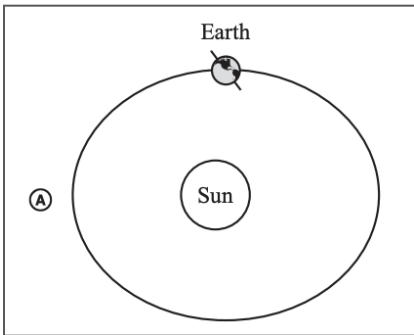
40.

The diagram below shows Earth's orbital path around the Sun.



not to scale

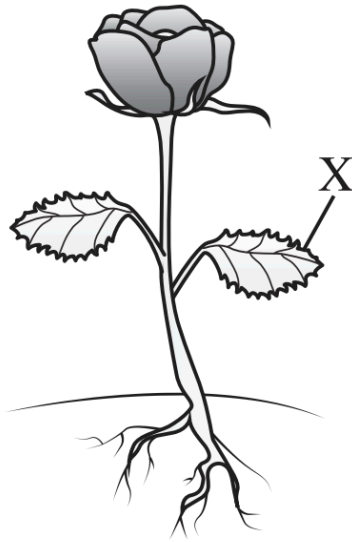
Which diagram shows Earth six months later? The options are not to scale.



# Plants and Animals

41.

The picture below shows a plant with one part labeled X.



Which of the following **best** describes the function of part X?

- (A) structural support
- (B) nutrient transport
- (C) water absorption
- (D) food production

42.

Muscles and the skeleton work together to help keep humans healthy. Which of the following phrases **best** describes the function of the muscles and the bones of the skeleton?

- (A) provide support and protection to the body
- (B) warm the body when the temperature is cold
- (C) control body movement and collect information
- (D) guard the body against harmful viruses and germs

43. Scientists discover a new animal in the Florida Everglades. Some information about the animal is listed below.

- Has a backbone
- Is cold blooded
- Is covered with scales

Which additional information would help the scientists classify this animal as a fish rather than a reptile?

- (A) Lays eggs
- (B) Eats small animals
- (C) Breathes using gills
- (D) Swims in fresh water

44. An outdoor plant container is blown onto its side by the wind, as shown in the image.



Which image **best** shows how the plant will continue to grow if the plant container stays on its side?

