Name: _____

District/School: _____

Missouri Assessment Program

Released Practice Form
Grade 5
Science

Missouri Department of Elementary and Secondary Education

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Session 1

Science

Directions Now you will be taking the Science Practice Form. This test has two sessions that contain different types of questions. Today you will take Session 1. This session includes a combination of standalone questions and sets of questions based on a common task or scenario. Some questions will have answer choices that begin with letters. Circle the letter of each correct answer. Other questions will ask you to circle, write or show your answers. Read each question carefully and follow the directions. Mark all your answers in your test booklet.

1. Students are investigating the different types of freshwater on Earth. The students study the diagram below.

Earth's Freshwater Distribution

ice/glaciers
87%

groundwater
12%

rivers and lakes
1%
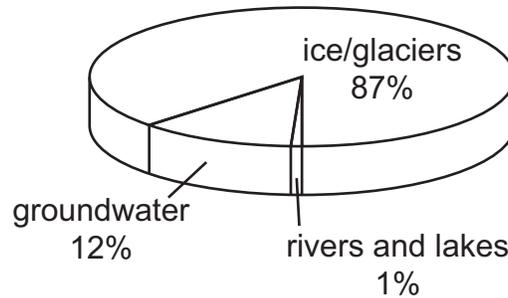
Using data from the diagram, make a bar graph that shows the percentages of the types of freshwater on Earth.

Freshwater on Earth

Percentage

100
90
80
70
60
50
40
30
20
10
0

Ice/Glaciers   Groundwater   Rivers and Lakes

Go on to the next page.
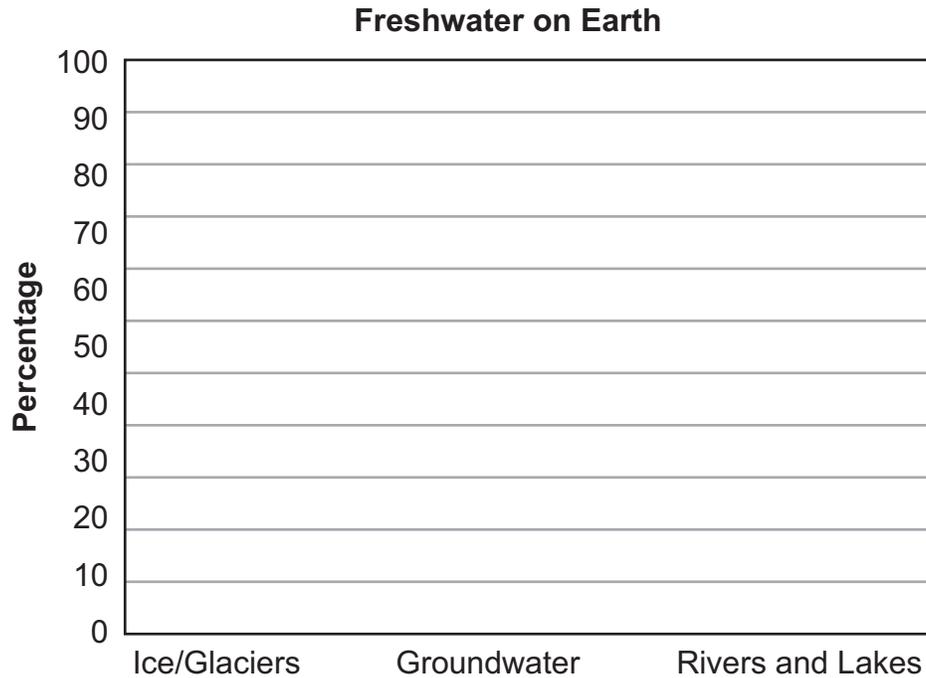
2. A student in Missouri records the average number of daylight hours during four months of the year. The results are shown in the data table below.

Daylight Hour Data

| Month	Average Number of Daylight Hours
February	10 hours, 16 minutes
May	13 hours, 44 minutes
August	14 hours, 9 minutes
November	10 hours, 38 minutes

Which conclusion is **best** supported by the data provided?

A. The sun is larger and brighter in May and August than it is in February and November.

B. Earth rotates slower on its axis in May and August than it does in February and November.

C. Earth is closer to the sun's orbit around the planets in May and August than it is in February and November.

D. The Northern Hemisphere receives more direct sunlight in May and August than it does in February and November.

3. A student takes a picture of the shadow of a house at four different times during one day. The pictures are shown below, but they are not in order according to the time they were taken.

Identify the correct order of the pictures according to the time of day when each picture was taken. Write the number of each picture in one of the boxes to show this order.

Pictures of House Shadow

noon ⟶ sunset

Go on to the next page.
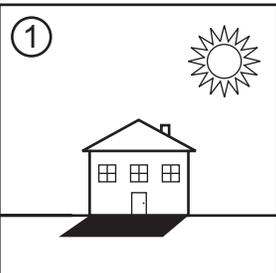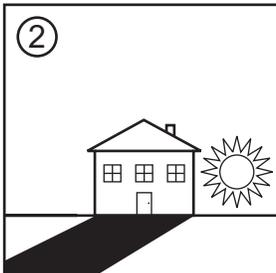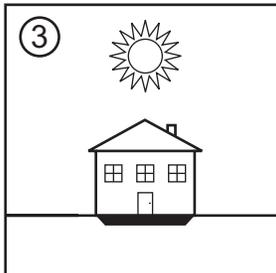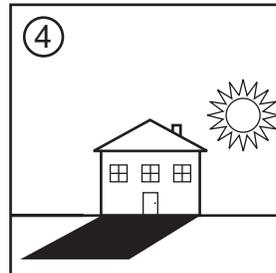
4. A zoo in Missouri wants to build a new enclosure for yellow mud turtles, which are native to parts of the state.

Yellow Mud Turtle
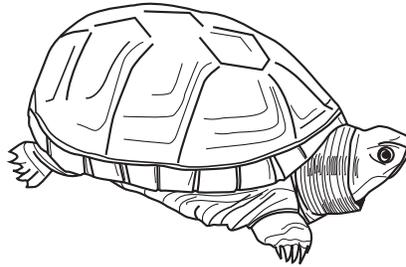
The table below shows some features of yellow mud turtles in the wild and some characteristics of the new zoo enclosure.

Yellow Mud Turtle Features	Zoo Enclosure Characteristics
• feeds on leeches, fish, frogs, snails, crayfish, tadpoles, and insects • spends half of its time in water and half on land near ponds and rivers	• will include short grasses and plants • will be home to several species of insects

Part A: Describe how the turtles will be both positively and negatively affected by the new zoo enclosure.

Positive Effect on Turtles:

_____

_____

_____

Negative Effect on Turtles:

_____

_____

_____

Go on to the next page.

4.   *Continued.* Please refer to the previous page for task explanation.

Part B: Describe one way in which the zoo enclosure could be changed to help the turtles.

_____

_____

_____

Go on to the next page.

5. A student made the following model of the water cycle.
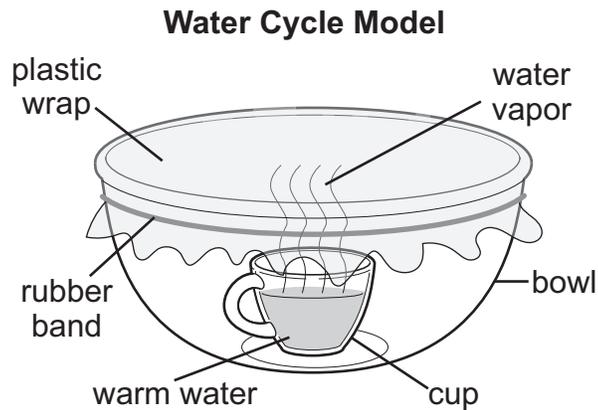
Water Cycle Model

Part A: The student adds a bag of ice on top of the plastic wrap. Describe how this change will affect the water vapor rising from the cup.

_____

_____

_____

Part B: Describe how the model can be changed to increase the rate of water moving through the water cycle.

_____

_____

_____

Part C: Identify the **two** Earth systems that are represented by the cup of water and the bag of ice in the model.

_____

_____

_____

6. A student is investigating how the amount of daylight changes with the time of year in Missouri. The data table shown is used by the student in the investigation.

Changes in the Amount of Daylight during One Year in Missouri

Date	Amount of Daylight
January 21	
February 21	
March 21	
April 21	
May 21	
June 21	
July 21	
August 21	
September 21	
October 21	
November 21	
December 21	

Part A: The student decides to collect data on the twenty-first day of each month. Explain why collecting data on the same day of each month is a good idea.

_____

_____

_____

Part B: The student collects data for one year and notices a pattern. Describe this pattern.

_____

_____

_____

Go on to the next page.

6.   *Continued.* Please refer to the previous page for task explanation.

Part C: Describe the relationship between the pattern in the amount of daylight during a year and the different seasons on Earth.

_____

_____

_____

7. A scientist observes some layers of sedimentary rock on a cliff. The layers of sedimentary rock contain fossils. The scientist makes a drawing of the observations. The scientist's drawing is shown.

layer W

layer X
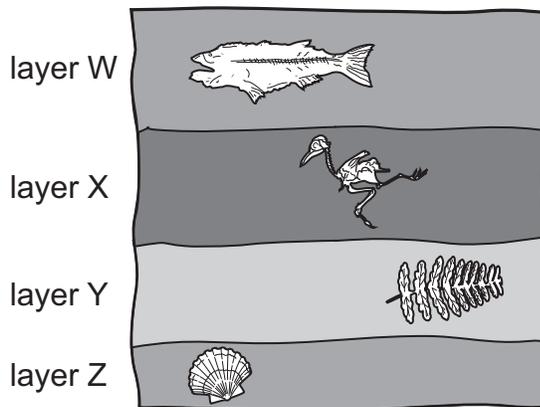
layer Y

layer Z

Part A: Identify the oldest layer of rock on the cliff and use evidence from the drawing to explain your answer.

_____

_____

_____

_____

**Part B:** Explain how the environment in the area observed by the scientist changed over time. Be sure to include **two** different examples, with evidence, from the drawing.

_____

_____

_____

_____

_____

Planting a Native Lawn

Students decide to replace part of a school's grass lawn with native plants. Healthy grass lawns usually need a lot of care to be healthy. Native plants need less care because they are adapted to grow well in local conditions. The students decide to use buffalo grass, which is native to the school area. Buffalo grass needs less water and fertilizer than other types of grass and can live through periods without rain. Like other types of grass, buffalo grass spreads out to cover the ground. Aboveground stems, called stolons, grow outward from existing grass plants. New leaves and roots grow from the stolons, forming new plants. Buffalo grass only grows 8–10 inches high and the leaves tend to topple over and look short, so it requires less mowing as well.

Buffalo Grass
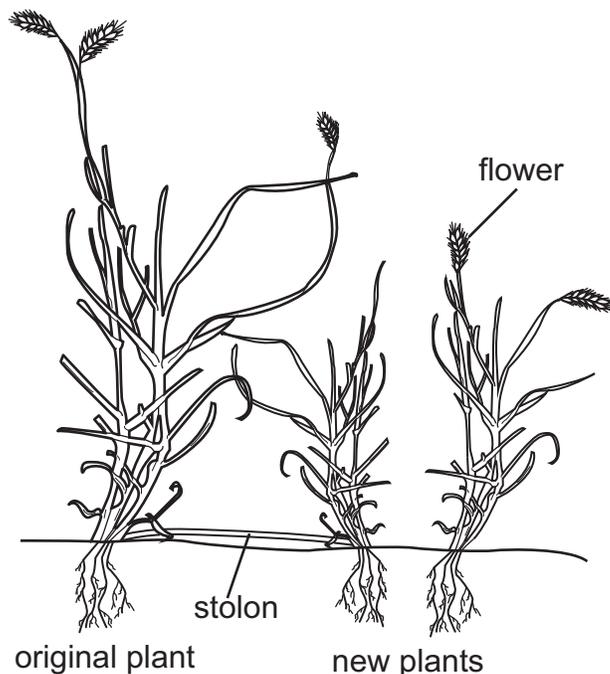
Native plants are also more likely to attract native wildlife and pollinators. Pollinators can be birds, such as hummingbirds, or insects, such as bees and butterflies. Flowering plants produce pollen and nectar. These food sources attract pollinators. As the pollinators move from flower to flower collecting food, they transfer pollen from one plant to the next. The pollen transfer or "pollination" is a necessary step in the production of seeds that grow into new plants. The students choose plants based on how well they will grow in local conditions and the kinds of pollinators they will attract.

Many pollinators also benefit from a source of water, such as a birdbath, for drinking and washing. A human-made pond can even attract frogs to a garden.

Go on to the next page.

8. A student wants to investigate the role of stolons in buffalo grass reproduction. The student performs the following steps in an investigation.

Buffalo Grass Investigation Steps

- Plant buffalo grass in two plots of land.
- Care for buffalo grass until it spreads over a large area in both plots.
- Separate the buffalo grass by cutting the stolons between plants.

Which result would provide the **best** evidence that stolons help the plant reproduce?

A. The number of plants decreased.

B. The soil around the plants becomes dry.

C. The separated plants continue to grow.

D. The separated plants' leaves change color.

9. The drawings show a red buckeye flower and a hummingbird.
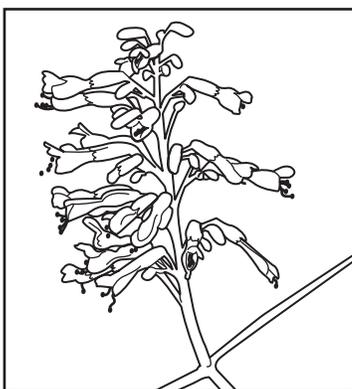
Red Buckeye Flower   **Hummingbird**
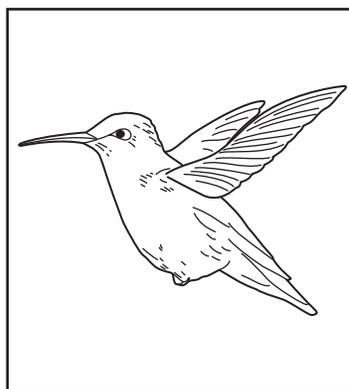
A student observes a hummingbird using its long beak to get nectar from a red buckeye flower.

Circle the phrase in each set of options to complete the statement about the student's observation.

(Only the red buckeye has / Only the hummingbird has / Both the red buckeye and

the hummingbird have) external structures that aid in survival. These structures

also help the organism(s) (grow and reproduce / fight off predators).

Go on to the next page.

10. Students would expect to see more frogs near the school with an increase in native plants. Frogs have sticky tongues that they use to catch insects.

   Select the **two** statements that describe how a frog's tongue helps it survive.

    A.   A frog's tongue can perform the function of any other structure in a frog.

    B.   A frog's tongue has a specific function in how a frog grows and develops.

    C.   A frog's tongue works separately from other structures in the frog to help it survive.

    D.   A frog's tongue is the only structure that helps to break food down into smaller parts.

    E.   A frog's tongue is one of many structures that work together to support growth and reproduction.

11. Butterflies are often observed in grassy areas with many flowering plants. They have a long, thin structure called a proboscis, which is used to collect nectar from flowers. Which statement **best** describes how butterflies would survive in a new area with some tall trees and very few flowering plants?

    A.   Butterflies would survive well in the new area because they rely on other butterflies for food.

    B.   Butterflies would survive well in the new area because trees provide shade for the butterflies.

    C.   Butterflies would not survive well in the new area because they eat food produced by the flowering plants.

    D.   Butterflies would not survive well in the new area because the trees would block the sunlight they need to produce energy.

Go on to the next page.

12. Students at a school are considering mixing rough bluegrass into the school's lawn of buffalo grass. Rough bluegrass is not native to Missouri. It grows best in wet and shady areas. It stays green throughout the winter but will turn brown without enough rainfall or if too many people walk on it. Like buffalo grass, rough bluegrass also reproduces through the use of stolons.

Explain whether the students should use rough bluegrass in the school lawn in addition to buffalo grass. Be sure to include at least **two** reasons supporting your explanation.

Go on to the next page.

13. A student began to develop the simple life cycle model shown below.

Simple Life Cycle Model

1. | birth |

2. | growth |

3. | reproduction |

4. | |
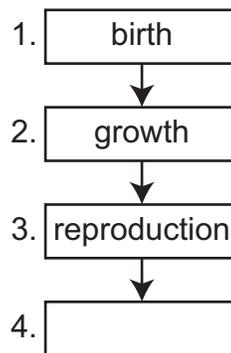
Which changes should the student make to the model to **best** represent the life cycle of buffalo grass?

A. 1. Move step 2 before step 1.
    2. Add the label "death" in step 4.

B. 1. Add the label "survival" in step 4.
    2. Add a step for "pollination" after step 4.

C. 1. Remove step 2.
    2. Add the label "growth" in the new step 3.

D. 1. Add the label "death" in step 4.
    2. Add a step for "pollination" between steps 2 and 3.

Go on to the next page.

Magnets and Gravity

A student performed two investigations with paper clips. During the first investigation, the student held a horseshoe magnet at different heights above the paper clip. The data are shown in the table below.

Investigation 1 Data

Magnet Height Above Paper Clip (centimeters)	Paper Clip Response
25	no movement
20	no movement
15	moved slightly in one direction
10	rose up and stuck to magnet

During the second investigation, the student researched data on the Internet about how far a paper clip would fall each second after being dropped from a height of 100 meters. The data are shown in the table below.

Investigation 2 Data

Time (seconds)	Distance Fallen (meters)
1	4.9
2	19.6
3	44.1
4	78.4

Go on to the next page.

14. The student wants to use the results from Investigation 1 to predict whether the paper clip will rise to stick to the magnet in a new investigation.

    Based on the data provided, determine the lowest height at which the paper clip will be unable to rise and stick to the magnet.

    A. 8 cm

    B. 13 cm

    C. 21 cm

    D. 27 cm

15. The student watched an online video of a falling paper clip. When the video was played in slow motion, the paper clip could be observed moving side to side as it fell to the ground.

    The student stated that the force of gravity was responsible for both the paper clip's downward motion and its side-to-side motion. Identify whether the student is correct or incorrect **and** provide an explanation.

16. Which conclusion about why the paper clip only moved during two of the trials is supported by the data from Investigation 1?

    A. The paper clip moved because the magnet was touching the paper clip in two of the trials.

    B. The paper clip moved because the force exerted by the magnet was close enough to the paper clip to move it.

    C. The paper clip moved because the magnet was able to transfer energy to the paper clip during two of the trials.

    D. The paper clip moved because the magnet was more powerful when it was closer to the paper clip.

17. Which statement accurately compares the observations made in both investigations?

    A. The experiments showed that both gravity and magnetism act only on metals.

    B. The experiments showed that both gravity and magnetism can attract an object.

    C. The experiments showed that gravity attracts objects and magnetism repels objects.

    D. The experiments showed that gravity and magnetism always act in opposite directions.

18. Circle a word or phrase in each set of options to complete the statement based on data from Investigation 2.

    If the paper clip had been dropped from a (greater / lesser) height, then the speed of the

    paper clip would have (decreased over time / continued to increase).

19. The student uses the data table from Investigation 2 to make predictions about the behavior of other falling objects dropped from different heights. Which prediction can the student make about the behavior of other falling objects based on these data?

    A. The total distance fallen will increase at a faster rate over time.

    B. The total distance fallen will decrease at a faster rate over time.

    C. The total distance fallen will increase at a constant rate over time.

    D. The total distance fallen will decrease at a constant rate over time.

Go on to the next page.

20. Based on the observations made in Investigation 1, which statement **best** describes the interaction between the horseshoe magnet and the paper clip?

    A. The horseshoe magnet repels the paper clip when the paper clip is farther away.

    B. The horseshoe magnet applies more attractive force on the paper clip from nearby than from farther away.

    C. The paper clip applies more magnetic force on the horseshoe magnet when the horseshoe magnet is farther away.

    D. The paper clip and the horseshoe magnet repel each other at close distances and attract each other when farther apart.

21. The student has developed three options to model Investigation 2.
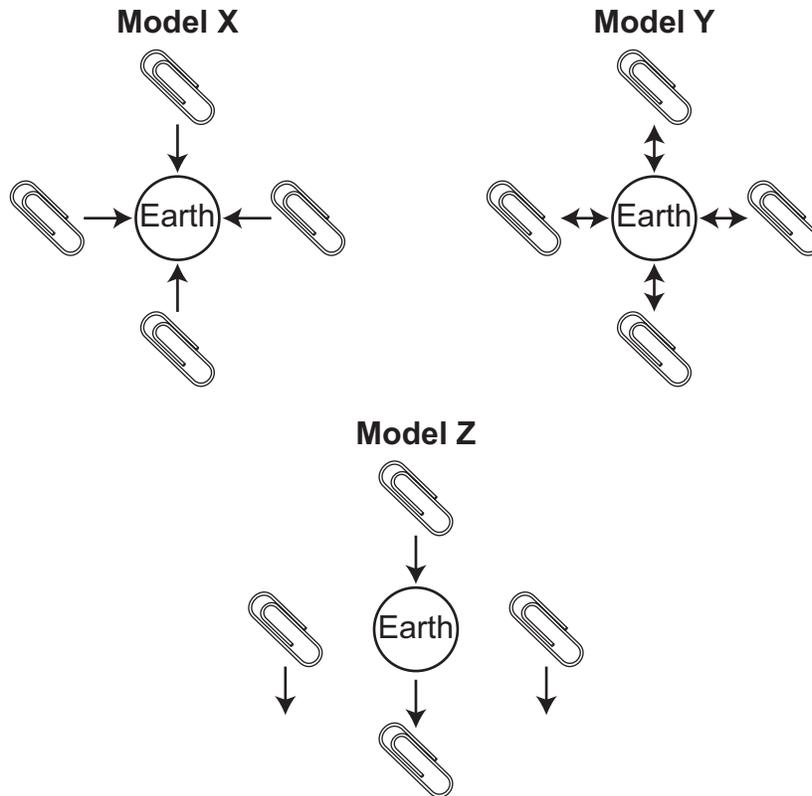
In the table below, circle the model that **best** shows how gravity affected the paper clip as it fell. Next, circle the source of the gravitational force that was acting on the paper clip.

Best Model of Gravity	Source of Gravity
Model X	push from Earth's atmosphere
Model Y	pull from the center of Earth
Model Z	pull from the surface of Earth

STOP.

ATTENTION!

Do NOT go on

**until you are**

told to do so.

Session 2

Science

Directions   Now you will be taking the Science Practice Form. This test has two sessions that contain different types of questions. Today you will take Session 2. This session includes a combination of standalone questions and sets of questions based on a common task or scenario. Some questions will have answer choices that begin with letters. Circle the letter of each correct answer. Other questions will ask you to circle, write or show your answers. Read each question carefully and follow the directions. Mark all your answers in your test booklet.

1. Students are given a mixture of iron filings and sand.

Iron and Sand Mixture

sand   iron filings
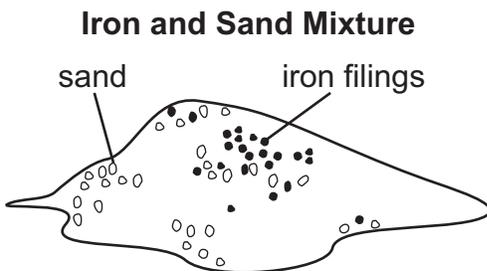
Which method could the students use to separate the mixture into its individual components?

A.   pour the mixture through a filter

B.   cool the mixture in a refrigerator

C.   stir the mixture with a bar magnet

D.   place the mixture in a container of water

2. The drawing below shows a porcupine.
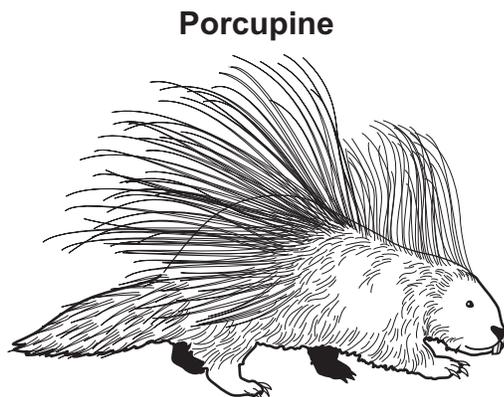
Porcupine

Write the number of each of the characteristics that help a porcupine survive in its environment in the table below.

① has sharp claws

② has many predators

③ has long, strong teeth

④ has short legs and runs slowly

⑤ has pointed spines called quills

Characteristics That Help a Porcupine Survive

Go on to the next page.

3. The list below includes some characteristics of a puppy.

    Puppy Characteristics

    - ears that face forward
    - tip of nose is dark colored
    - short coat (fur length)
    - scar on one of its front paws

    A student states that all of the puppy's characteristics in the list were inherited from its parents. Which statement **best** explains whether the student is correct or incorrect?

    A. The student is correct because the length of the puppy's fur was inherited.

    B. The student is correct because everything on an animal's body is inherited.

    C. The student is incorrect because the scar on the puppy's paw was not inherited.

    D. The student is incorrect because the color of the puppy's nose was not inherited.

4. The table below compares some fish and the water temperatures in which they live.

Fish and Water Temperature

Name of Fish	Ideal Water Temperature (°C)	Warmest Possible Water Temperature (°C)
chum salmon	13	23
rainbow trout	17	26
spotted bass	29	36
yellow perch	15	27

Part A: Identify the fish that is able to live in the warmest habitat.

Part B: A student states that the chum salmon and the spotted bass can be found in the same river. Explain whether the data provided supports the student's statement or not.

Go on to the next page.

5.   A model of an energy pyramid is shown below.

Energy Pyramid
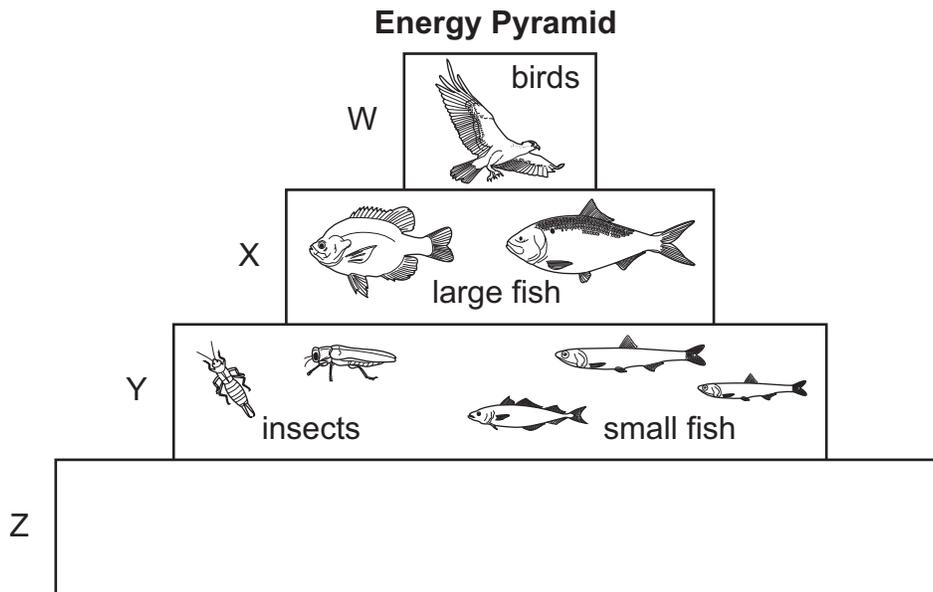
Part A: Describe a relationship between organisms in level W and organisms in level X in the model.

_____

_____

_____

Part B: Identify two things that are passed from organisms in level Y to organisms in level X in the model.

_____

_____

_____

Go on to the next page.

5. *Continued.* Please refer to the previous page for task explanation.

Part C: Describe a type of organism that should be included in level Z in the model.

_____

_____

_____

_____

Go on to the next page.

6. A group of snails lives in a dark forest. Some of the snails have white shells, and some of the snails have brown shells. The drawings below show how the shell color for the group of snails changed over three generations.

Generation 1	**Generation 2**	**Generation 3**
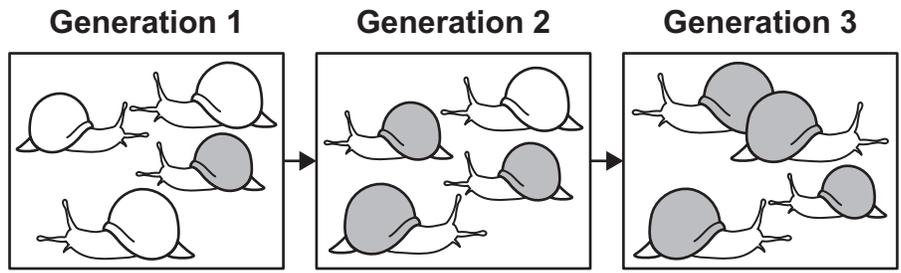
Part A: Explain why having a brown shell in a dark forest is an advantage over having a white shell.

_____

_____

_____

Part B: Explain why the number of snails with brown shells has increased over time.

_____

_____

_____

Part C: Describe a possible change to the forest that could result in an increase in the number of snails with white shells.

_____

_____

_____

Go on to the next page.

7. A student performs the following procedure:

Procedure

1. Measure 25 grams of an unknown solid.
2. Measure 200 grams of water.
3. Pour the unknown solid and water into a beaker, which weighs 50 grams.
4. Stir the solution.

The student records the following observation:

Observation

About half of the unknown solid dissolves and the other half settles to the bottom of the beaker.

Part A: The student calculated the combined weight of the unknown solid and the water to be 275 grams. Describe the mistake the student made in this calculation.

_____

_____

_____

_____

_____

Part B: Describe how stirring the solution will affect the total amount of matter in this investigation.

_____

_____

_____

_____

_____

Go on to the next page.

Baking Cookies

A student is following a recipe to bake some cookies. The recipe is shown below.

Ingredients

- 1 cup butter
- 1 cup white sugar
- 1 cup brown sugar
- 2 eggs
- 2 teaspoons vanilla extract
- 3 cups flour
- 1 teaspoon baking soda
- 2 teaspoons hot water
- ½ teaspoon salt
- 2 cups chocolate chips
- 1 cup chopped walnuts

Procedure

1. Mix the white sugar, brown sugar, and butter until smooth.
2. Stir the eggs and vanilla extract into the mixture.
3. Mix the baking soda in the hot water until the water is clear and then add it to the mixture.
4. Stir in the salt, flour, chocolate chips, and walnuts until the cookie dough is formed.
5. Bake the cookie dough in an oven for 10 minutes at 350°F.

8. The student makes a mistake and mixes the white sugar in the hot water instead of mixing the baking soda in the hot water. Which investigation setup would **best** help the student separate the white sugar from the water?

A.

1	Stir the liquid with a powerful magnet.
2	Allow the magnet and the particles stuck to it to dry off on a paper towel.
3	White sugar can then be scraped off the magnet.

B.

1	Heat the liquid over a source of heat.
2	Allow the water to evaporate.
3	White sugar can be collected after all the water has evaporated.

C.

1	Pour the liquid into a container and place a lid on it.
2	Allow the liquid in the container to sit overnight.
3	White sugar will float to the top of the water and can be scooped out.

D.

1	Pour the liquid through a screen.
2	Allow the particles left on the screen to completely dry.
3	White sugar can then be collected from the screen.

Go on to the next page.

9. The student places some of the dry ingredients into a bowl and stirs the ingredients until they are mixed thoroughly.

    Dry Ingredients

    - flour
    - salt
    - brown sugar
    - chocolate chips

    The student wants to use a screen to separate the mixture into its individual components. Which statement describes how the student's plan will **most likely** work?

    A. The student's plan will work. The screen is designed to separate solids from other solids.

    B. The student's plan will not work. The screen can only be used to separate liquids from solids.

    C. The student's plan will work. The screen will allow the smaller particles (flour, salt, and brown sugar) to pass through its openings.

    D. The student's plan will not work. The screen will only separate the larger particles (chocolate chips) from the other ingredients.

Go on to the next page.

10. The student decides to perform a separate investigation to see how baking with white sugar compares to baking with brown sugar. The student performs the following two procedures.

Procedure 1	Procedure 2
• Measure 1/4 cup of white sugar. • Measure 1/2 cup of butter. • Combine the ingredients with a spoon and place the mixture in a pan. • Bake the mixture in an oven for one hour.	• Measure 1/4 cup of brown sugar. • Measure 1 cup of butter. • Combine the ingredients with a spoon and place the mixture in a pan. • Bake the mixture in an oven for 45 minutes.

In the table below, circle **two** ways the student's investigation could be changed to make it a fair test. Next, circle **one** observation that would help the student decide whether a new substance was formed during the investigation.

Changes to the Investigation (circle two)	Observation of a New Substance Being Formed (circle one)
Use the same amount of butter in both procedures.	The baked result has properties different from those of the original ingredients.
Combine the ingredients with a different tool.	The oven is warmer after baking than it was before baking.
Bake the mixtures for the same amount of time.	Both of the original ingredients can be seen in the baked result.
Use different ovens for both procedures.	The color of the original ingredients did not change during baking.

11. The student wants to develop a model to represent how the baking soda is affected in step 3 of the procedure. Which description of a model would **best** represent this process?

   A. A balloon fills up with air. The balloon and the air remain large enough to be seen.

   B. A balloon fills up with air. The balloon can be seen, but the air is too small to be seen.

   C. Salt and pepper are mixed together. The salt and the pepper become too small to be seen.

   D. Salt and pepper are mixed together. The pepper and the salt remain large enough to be seen.

Go on to the next page.

12. Before baking the cookies, the student measures the weight of the prepared cookie dough. Which graph **best** represents how the amount of matter inside the oven is affected by the cooking process?

A.

Amount of Matter

Before   After
Baking   Baking

B.

Amount of Matter

Before   After
Baking   Baking

C.

Amount of Matter

Before   After
Baking   Baking

D.

Amount of Matter

Before   After
Baking   Baking

Go on to the next page.
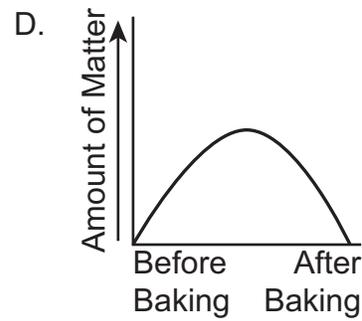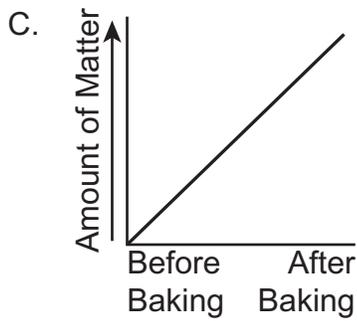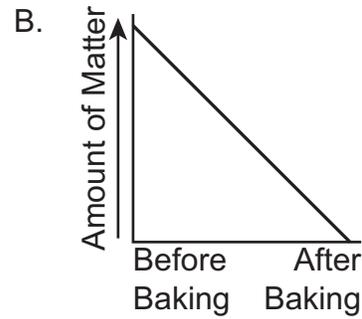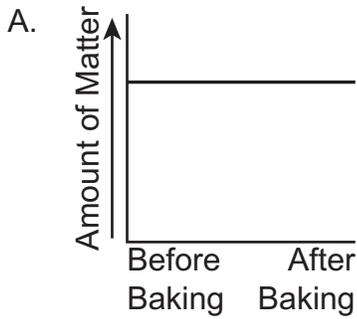
13. The student measures the combined weight of all the ingredients before the cookie dough is made. After the cookies are baked in the oven and allowed to cool, the student weighs the finished cookies. The weight of the cookies is less than that of their ingredients.

Part A: Explain what happened to the matter that is not part of the finished cookies.

_____

_____

_____

_____

_____

_____

Part B: Identify one possible cause for the lighter weight of the cookies compared to that of the ingredients.

_____

_____

_____

_____

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The Galveston Hurricane of 1900

Galveston is an island near the coast of Texas. In September 1900, Galveston was the site of one of the worst natural disasters in United States history when it was hit by a major hurricane.

On the morning of September 8, 1900, people noticed that the height of the waves hitting the beach started to increase, flooding the lowest parts of the island. Meteorologists in Galveston recorded the weather that morning as partly cloudy skies with winds blowing at 20 mph. Later that day, the weather changed as rain came with lightning and thunder and the wind speed increased. At about 6:00 p.m., the rain gauge and thermometer were blown off the weather station. The meteorologists recorded a sudden drop in atmospheric pressure, as shown by the data in Table 1.

Table 1: Pressure Readings on September 8, 1900, in Galveston

Time	Atmospheric Pressure (inches)
5:00 p.m.	29.05
6:06 p.m.	28.85
7:15 p.m.	28.70
8:00 p.m.	28.55

As floodwaters started to rise and wind speeds increased, people were told to seek shelter and move to higher ground. A rise in the sea level, known as a storm surge, in the Gulf of Mexico caused flooding on the island. The storm surge reached a height of 15 feet. Since the island of Galveston is 9 feet above sea level, the island was completely flooded by the Gulf of Mexico.

There was not a system in 1900 to classify the strength of a hurricane. Table 2 shows how hurricanes are classified today.

Table 2: Classification of Hurricanes

Category	Wind Speed (miles per hour)	Damage	Storm Surge (feet)
1	74–95	minor home damage, some vegetation loss, signs blown away	4–5
2	96–110	damaged roofs, small boats destroyed, minor flooding	6–8
3	111–130	small buildings destroyed, low-lying roads washed away	9–12
4	131–155	destroyed roofs, most trees knocked down, widespread flooding	13–18
5	155+	most buildings destroyed, major loss of vegetation, most roads cut off or destroyed	18+

After the floodwaters flowed back into the Gulf of Mexico and the winds returned to normal, the people of Galveston started to rebuild. A seawall was completed in 1904 to protect against future hurricanes. The concrete seawall was 3.3 miles long, 16 feet thick at its base, and 17 feet high. Sand was used to fill the space behind the seawall, increasing the height of the island. Rocks were put at the base of the seawall to break the force of waves. Since 1904, the seawall has protected Galveston from several other hurricanes.

Today, the seawall is a place where the people of Galveston play. The list describes some features of the Galveston seawall:

- The top of the seawall is a trail for hiking and biking.
- Fishing piers reach out from the seawall into the Gulf of Mexico.
- A beach is located in front of the seawall.
- Artists paint murals on the part of the seawall facing the beach.

Go on to the next page.

14. Circle a word or phrase in each set of options to complete the following statement.

A student states that if the seawall had been built before 1900, there would have been

(less / the same amount of / more) damage and (fewer / the same amount of / more)

people would have been injured in 1900.

15. Which statement explains why the Galveston hurricane of 1900 caused so much damage?

    A.   Most buildings were hit by flying objects picked up by high winds.

    B.   The storm surge caused flooding that washed away many buildings.

    C.   Most buildings were destroyed by tornadoes resulting from the hurricane.

    D.   The thunderstorms were so strong that many buildings were struck by lightning.

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16. **This question has two parts.**

Part A: Use the information in Table 1 to make a bar graph of the atmospheric pressure in Galveston for the evening of September 8, 1900.

Atmospheric Pressure in Galveston on September 8, 1900
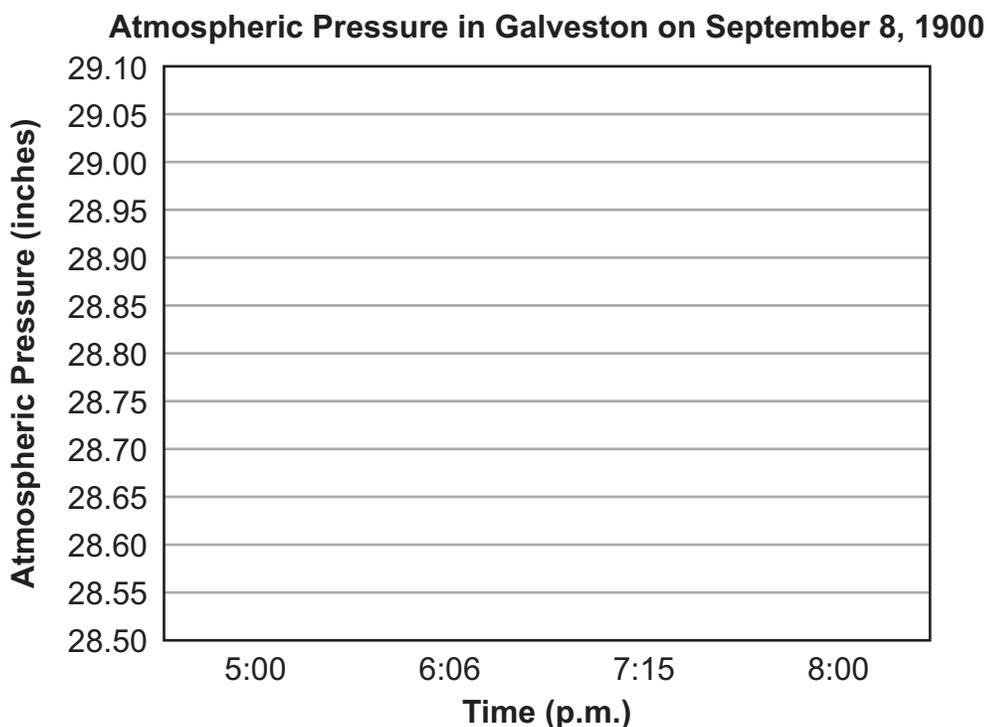
Part B: Which statement describes a cause-and-effect relationship between atmospheric pressure and a characteristic of a hurricane?

A.   As the atmospheric pressure increases, wave activity changes from calm to active.

B.   As the atmospheric pressure decreases, the wind speed changes from low to high.

C.   As the atmospheric pressure decreases, the skies change from cloudy to partly cloudy.

D.   As the atmospheric pressure increases, the weather changes from a drizzle to heavy rain.

Go on to the next page.

17. Based on Table 2 and other information in the scenario, which chart includes the
most likely wind speed for the Galveston hurricane of 1900 and provides evidence to support
that wind speed?

A.

Estimated Wind Speed (mph)	Explanation
100	Most of the buildings were destroyed.

B.

Estimated Wind Speed (mph)	Explanation
100	The storm surge reached a height of 15 feet.

C.

Estimated Wind Speed (mph)	Explanation
140	Most of the buildings were destroyed.

D.

Estimated Wind Speed (mph)	Explanation
140	The storm surge reached a height of 15 feet.

18. The Galveston seawall protects the island from hurricanes up to category 4. Which change to
the current seawall is **most likely** to protect Galveston from a category 5 hurricane?

A. The length of the current seawall would have to be shortened because category 5
hurricanes can produce heavy flooding.

B. The current seawall would have to be rebuilt to allow water to pass through it because
category 5 hurricanes produce large waves.

C. The height of the current seawall would have to be increased because category 5
hurricanes have a storm surge of more than 18 feet.

D. The width of the current seawall would have to be increased because category 5
hurricanes have wind speeds of more than 155 mph.

Go on to the next page.

19. Building the seawall in Galveston has had both positive and negative effects.

    Categorize the following effects by writing the number of each effect in one of the sections of the chart below.

Positive Effect(s) of Building the Galveston Seawall	Negative Effect(s) of Building the Galveston Seawall

1. protects the island from damage from waves

2. changed a natural ecosystem to a human-controlled ecosystem

3. provides a place for people to play

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20. A map of Galveston Island with possible locations for the seawall is shown below.
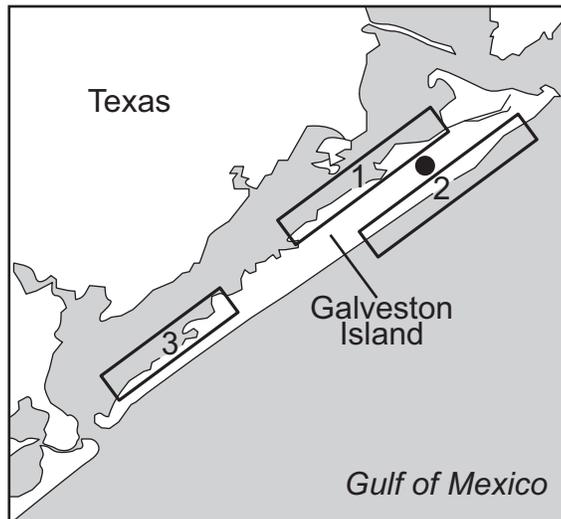

Key
● center of city of Galveston

In the chart below, circle the area where the people of Galveston **most likely** built the seawall in 1904. Next, circle the explanation that **best** supports this decision.

Seawall Area (circle one)	Explanation (circle one)
1	This location is designed to protect the city center from future events.
2	This location is designed to reduce winds moving from land toward the Gulf of Mexico.
3	This location is designed to limit the amount of water moving between the island and the mainland of Texas.

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21. A seawall is designed to protect cities from the effects of a hurricane. A student developed two seawall models to possibly reduce the impacts of a hurricane on a nearby city.
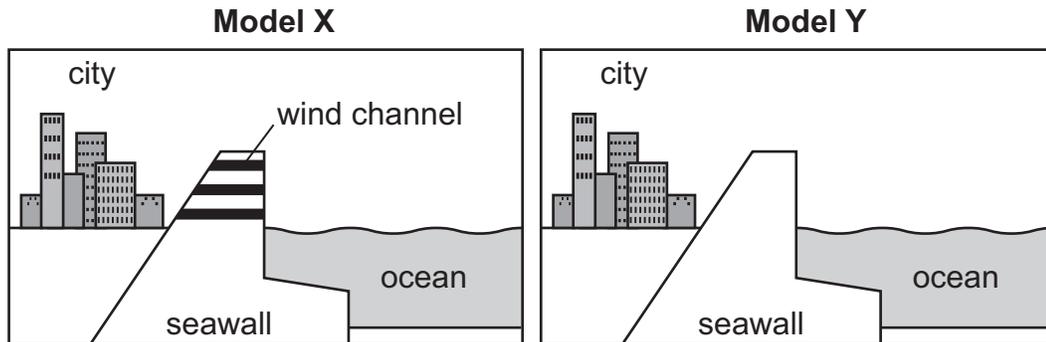
Which pair of statements identifies the model that would be **most** effective at decreasing the impacts of a hurricane and explains why?

A. Model Y would be most effective. The seawall would stop wind from directly hitting the buildings in the city.

B. Model Y would be most effective. The seawall would reduce the amount of ocean water that could rise up and flood the city.

C. Model X would be most effective. The wind channels would allow water to flow through the seawall and decrease wave action.

D. Model X would be most effective. The wind channels would allow wind to flow through the seawall and reduce the amount of water that could flood the city.

STOP.

ATTENTION!

Do NOT go on

until you are

told to do so.

STOP

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