

A

Student Name _____

School Name _____

LSS/LEA 24 Name _____



Grade 5

MISA

Practice Test

P

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School Use Only

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Place the
Student ID Label Here

D Gender
 Female Male

E Date of Birth

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Section 1

Directions:

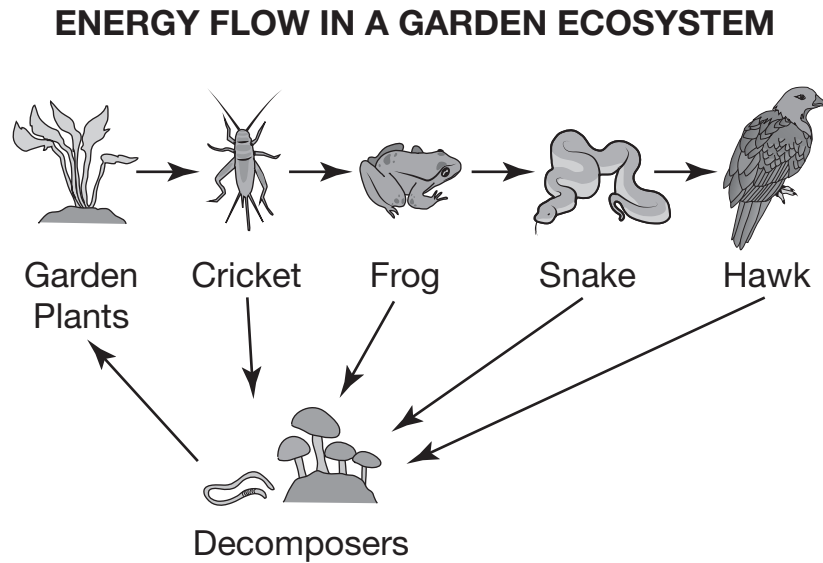
Today you are going to take Section 1 of the MISA Practice Test.

Read each question. Then, follow the directions to answer each question. Mark your answers by completely filling in the circles in your test book. Do not make any pencil marks outside of the circles. If you need to change an answer, be sure to erase your first answer completely.

Some of the questions will ask you to write a response. Write your response in the space provided in your test book. Be sure to keep your response within the space provided. Only responses written within the space provided will be scored.

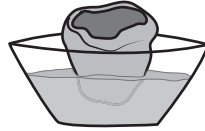
If you do not know the answer to a question, you may go on to the next question. If you finish early, you may review your answers and any questions you did not answer in this Section ONLY. Do not go past the stop sign.

After the plants started to grow, the students noticed organisms that were not there before the garden was planted. The students learned that over time the garden had become a small ecosystem. To demonstrate the flow of energy in the garden ecosystem, the students drew a diagram and included decomposers found in the compost, producers, and consumers as shown below.

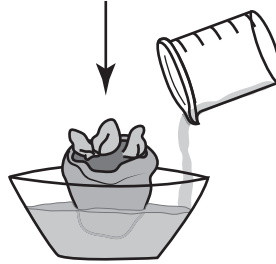


After the students rinsed off the fully grown lettuce, the teacher explained that some plants, such as lettuce, can be regrown from cuttings. The teacher then cut the lettuce, keeping the stem, and placed it in a bowl of water on a windowsill. The students added water to the bowl once a day for ten days. During that time, the lettuce started to sprout new leaves.

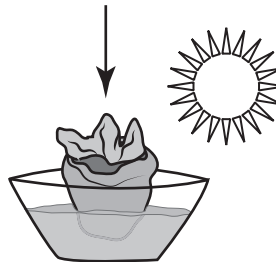
HOW TO REGROW LETTUCE



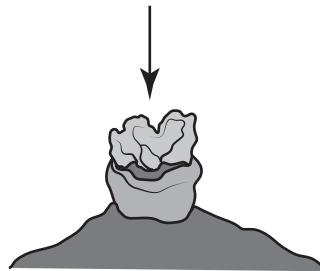
Place the stem of the lettuce in a bowl of water with the top exposed to air.



Add water every day.



Keep the bowl in a sunny area.



Once the lettuce sprouts, plant it in the school garden.

After the lettuce sprouted, the teacher took the lettuce to the school garden and planted it so that the lettuce plant could continue to grow until it was ready to be picked. The students then recorded in their journals the materials needed to recycle lettuce plants and how the lettuce plants can be recycled.

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SERIAL #

1 The compost in the school garden contained pieces of nonliving plants.

The plant matter was most likely placed in the compost to be

- (A) eaten by the crickets
- (B) used as shelter by the snakes
- (C) used as nutrients for the hawk
- (D) broken down by the decomposers

2 A student observed a caterpillar eating a leaf in the garden.

If the student placed the caterpillar into the garden ecosystem diagram, the caterpillar would replace

- (A) the plant as a producer
- (B) the cricket as a producer
- (C) the plant as a consumer
- (D) the cricket as a consumer

3 The students included decomposers in the garden ecosystem diagram to show that decomposers have important roles in the garden ecosystem.

Identify the roles of decomposers.

Select all that apply.

- (A) eat plant roots
- (B) compete with plants for soil
- (C) remove nutrients from the soil
- (D) recycle material back into the soil
- (E) break down plant and animal remains

Section 1

4 The lettuce plant grew new leaves after the teacher placed it in the bowl of water in the classroom.

The students claimed the plant grew new leaves because the plant

- (A) can survive and grow anywhere
- (B) was away from insects and other animals in the garden
- (C) needed a different temperature than the outside garden
- (D) received the materials it needed from water, air, and sunlight

5 One of the students claimed that the lettuce did not have to be planted in the garden to survive.

Which statement provides evidence that supports this claim?

- (A) The lettuce grew in the garden.
- (B) The lettuce in the classroom sprouted new leaves.
- (C) The students watered the lettuce in the classroom.
- (D) The students saw insects and other animals in the garden.



6 Use evidence from the diagram to describe how matter is cycled through the garden ecosystem. In your description, be sure to include the roles of the organisms.

One of the students asked whether magnets affect objects made of all materials. To further investigate the student's question, an investigation using bar magnets held above objects made of various materials was conducted. The students observed which objects were attracted by the magnets and recorded their observations in a table like the following table.

WHAT MATERIALS ARE ATTRACTED BY MAGNETS?

Object	Attracted by Magnet
Wood pencil	No
Plastic ruler	No
Steel paper clips	Yes
Paper cups	No
Iron nails	Yes
Copper pennies	No
Aluminum foil	No

7 Which question did the students most likely want to answer by conducting the “Objects Attracted by Magnets” investigation?

- Ⓐ Are large objects attracted by a magnet?
- Ⓑ What materials are attracted by magnets?
- Ⓒ How far from a magnet can an object be and still be attracted by a magnet?
- Ⓓ Does the shape of a magnet affect the objects that will be attracted by a magnet?

8 A student asked if the steel paper clips could be attracted by a bar magnet from a distance greater than 5 centimeters.

The best way to investigate if the paper clips could be attracted from a distance greater than 5 centimeters is to

- Ⓐ increase the distance of the magnet from the steel paper clips and increase the number of steel paper clips
- Ⓑ decrease the angle of the magnet from the steel paper clips and increase the number of steel paper clips
- Ⓒ increase the distance of the magnet from the steel paper clips with the same sized bar magnet
- Ⓓ decrease the angle of the magnet from the steel paper clips with the same sized bar magnet

GO ON TO NEXT PAGE

12 Use the data from the "Objects Attracted by Magnets" investigation to explain why the steel paper clips did not need to be in direct contact to be attracted by the bar magnet the teacher used. In your explanation, be sure to include evidence from the students' investigation.

Blank writing area with horizontal lines for student response.



Section 2

Directions:

Today you are going to take Section 2 of the MISA Practice Test.

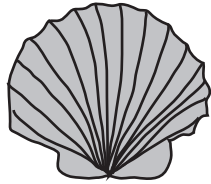
Read each question. Then, follow the directions to answer each question. Mark your answers by completely filling in the circles in your test book. Do not make any pencil marks outside of the circles. If you need to change an answer, be sure to erase your first answer completely.

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If you do not know the answer to a question, you may go on to the next question. If you finish early, you may review your answers and any questions you did not answer in this Section ONLY. Do not go past the stop sign.

After the field trip to Calvert Cliffs, some students stated that they observed rock layers high up on the cliff face similar to the diagrams they made in their science journals. The rock layers were visible due to their different coloration. The students also observed fossils in some of the rock layers. The diagrams of the fossils they observed and the rock layers in the cliffs are shown.

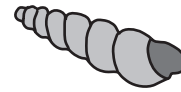
FOSSILS OBSERVED AT CALVERT CLIFFS



Scallop Shell Fossil



Murex Shell Fossil



Snail Fossil



Shark Tooth Fossil



Sand Dollar Fossil

ROCK LAYERS OF CALVERT CLIFFS



- 1 The students' diagram of the rock layer that appeared to have moved is evidence that the area was affected by an Earth force.

The event that most likely caused the movement seen in the diagram was

- (A) a flood
- (B) a hurricane
- (C) an earthquake
- (D) a volcano eruption

- 2 The fossils and rock layers provide evidence that although it is now dry land, millions of years ago the area of Calvert Cliffs was

- (A) underwater
- (B) hot and humid
- (C) the same as today
- (D) a desert environment

- 3 The students concluded that Calvert Cliffs at one time was

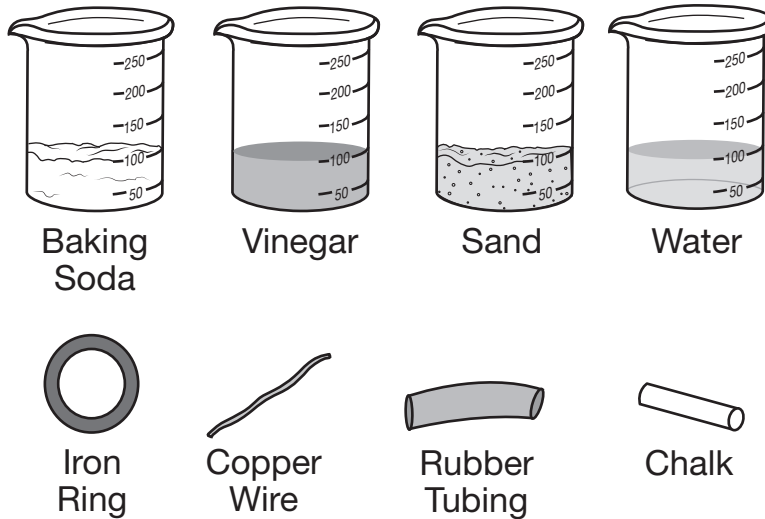
- (A) a desert environment because of the fossil evidence from land mammals
- (B) a mountain environment because of the fossil evidence from land mammals
- (C) a forest environment because of the fossil evidence from marine organisms
- (D) an ocean environment because of the fossil evidence from marine organisms

5 What evidence can be obtained from the rock layers diagram about the organisms in layer 3?

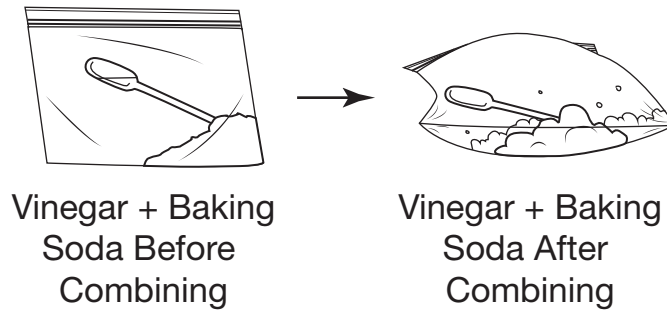
- Ⓐ The organisms in layer 3 lived before organisms in layer 2 and after organisms in layer 6.
- Ⓑ The organisms in layer 3 lived after organisms in layer 2 and before organisms in layer 6.
- Ⓒ The organisms in layer 3 lived after organisms in layer 4 and at the same time as organisms in layer 6.
- Ⓓ The organisms in layer 3 lived before organisms in layer 4 and at the same time as organisms in layer 6.

Read all of the information. Use the information to answer the questions.

A science class investigated the properties of matter and observed that some forms of matter, gases, such as air, are not easily observed. Other forms of matter, such as liquids and solids, are easily observed and can be sorted using physical properties. In order to investigate the physical properties of matter, the students gathered some liquids and powdery solids in beakers as well as other solid objects from the teacher's lab supplies. The students went over safety instructions with the teacher and put on protective goggles and lab coats. The collection of solid and liquid matter is shown.

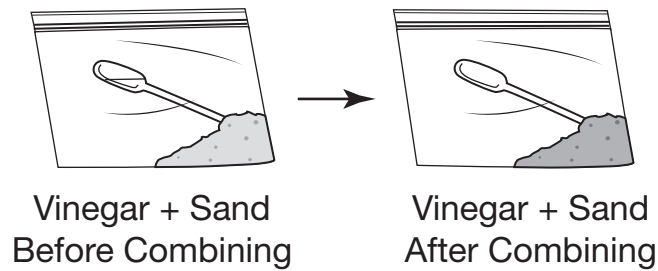


A diagram of the result of combining vinegar with baking soda is shown.



The students used the same procedure and repeated the investigation, replacing the baking soda with sand.

A diagram of the results of combining vinegar with sand is shown.



8 Part 1

The students placed the same amount of liquid in each beaker in the examining matter investigation. The unit of measurement for the liquid in each beaker was 100

- Ⓐ liters
- Ⓑ milliliters
- Ⓒ grams
- Ⓓ milligrams

Part 2

Then the students observed that the same amount of liquid was placed in the beakers; however, some beakers felt heavier, which was evidence that the beakers could be sorted in a different way.

Which physical properties of the liquids in the beakers would the students most likely use to sort the liquids?

Select all that apply.

- Ⓐ color
- Ⓑ mass
- Ⓒ hardness
- Ⓓ volume
- Ⓔ temperature

- 11 After combining the materials, the students collected qualitative and quantitative data about the substances. The students used various lab tools to more closely observe if a change occurred to the substances and then recorded their observations in their lab journals.

Which tools would the students use to collect quantitative data?

Select all that apply.

- Ⓐ Balance
- Ⓑ Microscope
- Ⓒ Thermometer
- Ⓓ Magnifying glass
- Ⓔ Graduated cylinder



You have come to the end of Section 2 of the test. Review your answers from Section 2 only.



Read all of the information. Use the information to answer the questions.

A student observed that some power plants and vehicles release smoke into the air, and some do not. The student began researching the energy sources that might make this difference possible and what effect these sources of energy might have on the environment.

The research stated that depending on where people live, electricity is produced using biomass, fossil fuel, hydroelectricity, nuclear power, solar energy, or wind power. The student found that most vehicles are powered by fossil fuels, but some now run on electricity. The research also stated that some stoves use natural gas, while others use electricity, and that the burning of fossil fuels releases warming gases that contribute to climate change.

The student constructed a table from the research about how energy is produced from the different energy sources, including some facts about each energy source, shown as follows.

Energy Source	How Energy Is Produced	Facts about Using the Resource
Biomass	Household garbage, logging and farming leftovers, and food crops are processed into fuels for transportation and to produce electricity.	<ul style="list-style-type: none"> • Less waste makes it to landfills. • More land is needed for crops. • Burning biomass releases fewer warming gases than burning fossil fuels.
Fossil fuels	Coal, oil, and natural gas are burned to produce electricity and power transportation and other engines.	<ul style="list-style-type: none"> • A large amount of energy is contained in a small amount of fuel. • The fuel takes millions of years to occur naturally. • Warming gases are released when burned.



1 The student used the information in the research to conclude that wind energy is cleaner than fossil fuel energy.

The evidence that wind energy is cleaner than fossil fuel energy is that wind energy is

- (A) a renewable energy source that reduces local air quality
- (B) a renewable energy source that improves local air quality
- (C) a nonrenewable energy source that reduces local air quality
- (D) a nonrenewable energy source that improves local air quality

2 Identify the positive effects the use of solar panels has on the environment.

Select all that apply.

- (A) conserves nonrenewable resources
- (B) increases the need for renewable energy
- (C) improves the quality of air in the atmosphere
- (D) increases the use of nonrenewable resources
- (E) generates electricity from a renewable resource



3 The students listed energy sources that would be best to power schools and homes.

Identify the energy source that has the greatest negative effect on the atmosphere.

- (A) nuclear
- (B) biomass
- (C) fossil fuels
- (D) hydroelectricity

4 The student determined that a hydroelectric dam would affect the environment.

Select a set of positive and negative effects that a hydroelectric dam would have on the environment.

- (A) Positive effect: resources are readily available
Negative effect: on aquatic animals
- (B) Positive effect: resources are readily available
Negative effect: on the geosphere
- (C) Positive effect: resources will run out in a few years
Negative effect: on land animals
- (D) Positive effect: resources need to be constantly replaced
Negative effect: on the atmosphere

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SERIAL #

5 Part 1

The student's research included the use of fossil fuels to power homes and vehicles.

Identify words or phrases that describe fossil fuels.

Select all that apply.

- Ⓐ renewable
- Ⓑ nonrenewable
- Ⓒ sources of energy
- Ⓓ made from rock layers
- Ⓔ removed from the ground

Part 2

The use of fossil fuels negatively affects the environment by

- Ⓐ increasing pollution in the air
- Ⓑ decreasing the need for power plants
- Ⓒ increasing available energy resources
- Ⓓ decreasing the need to use wind energy

6 Identify the positive and negative effects of using nuclear energy to power large cities.

Lined area for writing the answer to question 6.

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Series of bubbles for marking answers, with the first bubble containing a square.

SERIAL #

Read all of the information. Use the information to answer the questions.

A group of students observed ladybugs in a school garden and wanted to find out more about insect life cycles. During the research, the students found evidence that as they develop some young insects appear similar to adult insects. Other insects appear different as they go through the stages of development. To do more research about the growth and behavior of insects, the students attended a summer camp, "The Bug Institute," sponsored by a local university. While at the camp, the students kept journals to record their observations. The first activity at the camp involved researching the life cycles of two different insects and drawing diagrams, similar to the diagrams as follows.

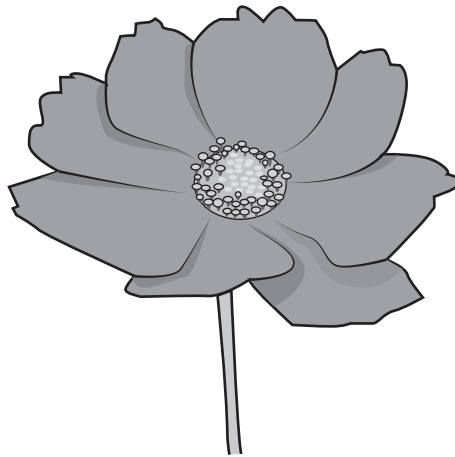


To learn more about how insects interact with their environment the students performed an investigation with each insect, the details of which are shown.

1. Ladybug investigation:

The students examined adult ladybugs that were placed in a terrarium containing cosmos plants. The flowers of the cosmos plants come in one of three colors: pink, purple, or white. A diagram of a flower from a cosmos plant is shown.

FLOWER OF THE COSMOS PLANT





7 Select the statement that accurately describes the life cycles in the diagram.

- Ⓐ The first stage of an insect's life cycle starts as a pupa but the cricket develops into an adult from the egg stage.
- Ⓑ The first stage of an insect's life cycle starts as a larva but the cricket develops into an adult from the pupa stage.
- Ⓒ The first stage of an insect's life cycle starts as an egg but the cricket develops into an adult from the nymph stage.
- Ⓓ The first stage of an insect's life cycle starts as a nymph but the cricket develops into an adult from the larva stage.



10 The purpose of the students' cricket investigation was to observe the crickets' response to a stimulus.

The students most likely used the cotton balls soaked in solutions as evidence that the crickets are attracted by certain

- Ⓐ colors
- Ⓑ odors
- Ⓒ sounds
- Ⓓ temperatures

11 The observation that most likely helped the students draw the conclusion about ladybugs is that the ladybugs

- Ⓐ flew around all flowers equally
- Ⓑ rested equally on all flower colors
- Ⓒ ate parts of certain flowers most often
- Ⓓ rested on a single flower color most often



You have come to the end of Section 3 of the test. Review your answers from Section 3 only.



Read all of the information. Use the information to answer the questions.

Simple Cardboard Invention May Help Billions

Not every useful invention has to be developed over many years and cost a lot of money to make. Sometimes the simplest of ideas can improve our lives profoundly. All it takes is a little imagination and a desire to make a difference!

Ask John Bohmer, whose weekend project with his two daughters may end up not only make a significant difference in helping our environment but also improving the lives of 3 billion people worldwide.

John's invention is a solar-powered oven made from cardboard.

Dubbed¹ Kyoto Box, it is composed of two cardboard boxes, one inside the other, covered with a sheet of acrylic glass—to help trap the heat from the sun. The inner box is painted with black paint, which absorbs the heat, while the box on the outside is lined with silver foil that reflects any energy that escapes toward the black box. This helps to create a concentrated source of energy that can be used for cooking.

The simple oven costs only \$7 USD to manufacture² and can easily be put together in any cardboard factory. With the capability of reaching high temperatures, it can be used to boil water, cook rice and casserole—and even bake bread.

It is estimated that over 3 billion people living in developing countries use chopped firewood for their main fuel, generating an estimated 2 tons of dangerous carbon dioxide emissions a year.

While solar cookers are not a new idea, this is the first time someone has come up with one that works and is cheap enough to be adapted on a large scale.

“Simple Cardboard Invention May Help Billions” - Meera Dolasia, DOGO News, © 2009. Reprinted by permission of the publisher.

¹Dubbed — named

²manufacture — make

1 John Bohmer's invention is inexpensive technology that uses

- (A) renewable resources to allow food to last longer
- (B) renewable resources to heat food before it is eaten
- (C) nonrenewable resources to protect food from germs
- (D) nonrenewable resources to make appliances more affordable

2 Which environmental impacts would occur if John Bohmer's invention were used more often?

Select all that apply.

- (A) an increased use of fossil fuels
- (B) a decreased use of fossil fuels
- (C) more use of renewable resources as energy sources
- (D) more use of nonrenewable resources as energy sources
- (E) an increased amount of carbon dioxide in the atmosphere
- (F) a decreased amount of carbon dioxide in the atmosphere

3 The increased use of the invention would most likely increase

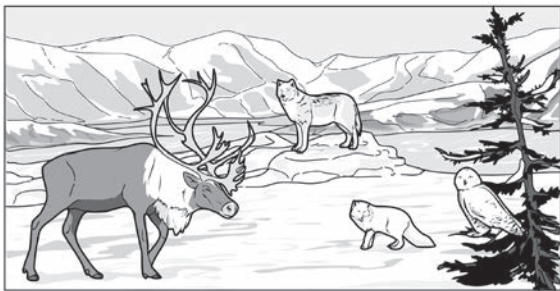
- (A) the need to chop down trees
- (B) the need to dig for fossil fuels
- (C) the use of nonrenewable resources
- (D) the quality of the air in the atmosphere

Name	Observations
Caribou	<ul style="list-style-type: none">• herbivores• migrate north in summer• migrate south in winter• large hooves• male and females have antlers• coats are white in winter• coats are brown in summer
Arctic Wolf	<ul style="list-style-type: none">• carnivores• live alone or in packs of six• ears are smaller than the gray wolf's• legs are shorter than the gray wolf's• coats are thick and white
Arctic Fox	<ul style="list-style-type: none">• omnivores• live in burrows• white coat in winter• brown or gray coat in summer
Snowy Owl	<ul style="list-style-type: none">• carnivores• feathers turn whiter as they get older• hunt at night and day• excellent hearing and eyesight

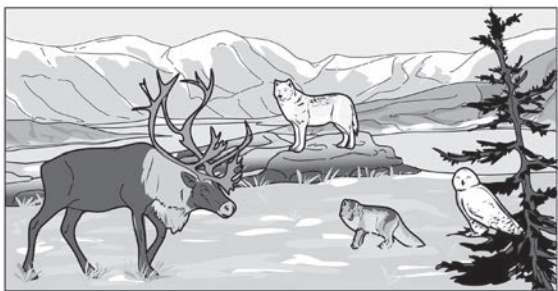
While researching tundra animals, the students found that the animals' environment changes. Higher temperatures have reduced the amount of snow present in the tundra, leading to more springlike and summerlike days. The students investigated how changes to the environment may affect the animals that live in a tundra.

To observe the changes to the environment and how the animals would appear during each season, the students constructed four diagrams, as shown.

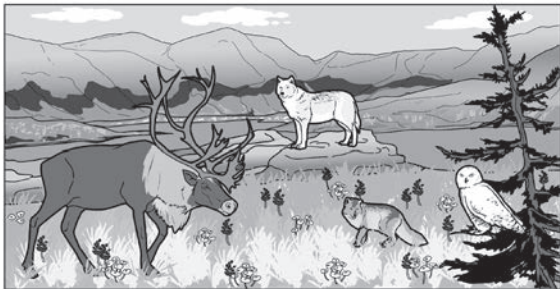
WINTER



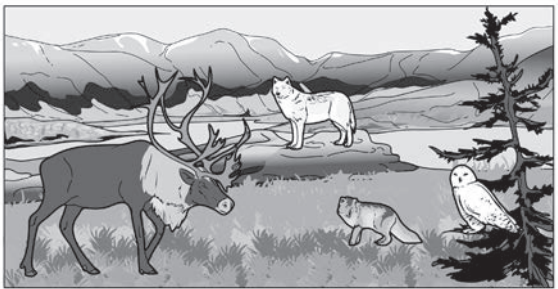
SPRING



SUMMER



FALL



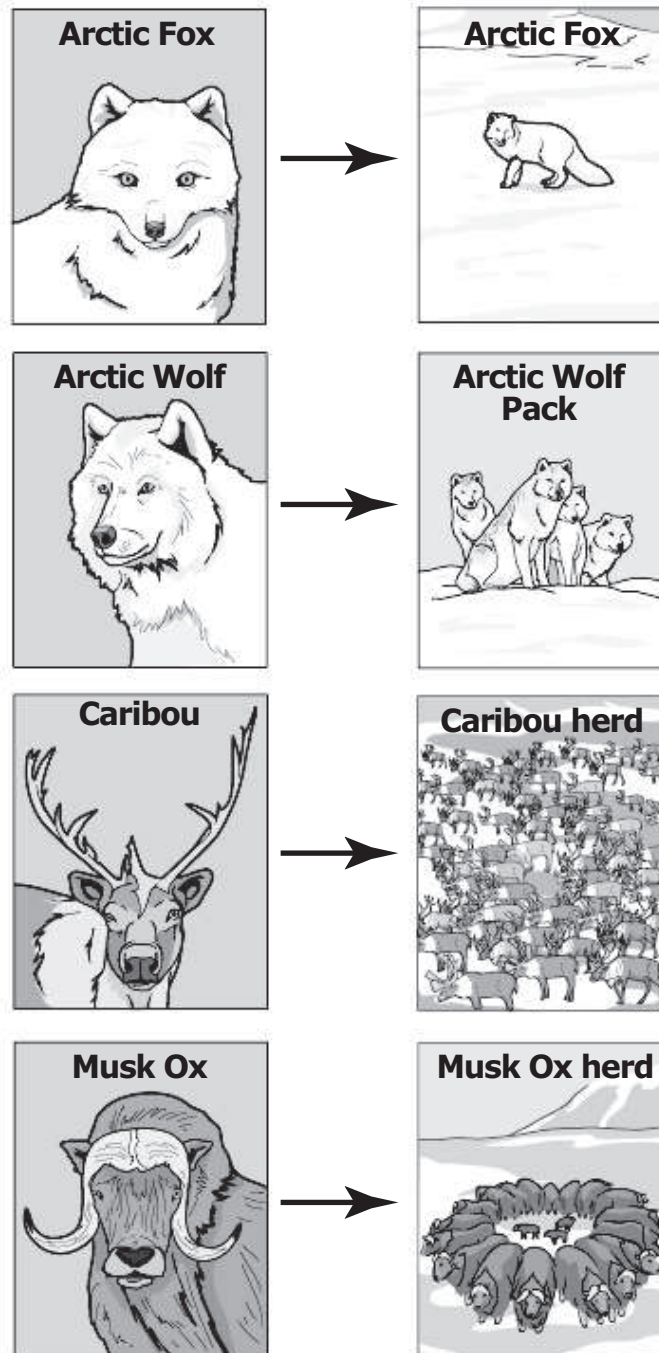
PLEASE DO NOT WRITE IN THIS AREA



SERIAL #

The research indicated some tundra animals live in large groups while others live alone or in small groups. The research also indicated that prey animals tend to live in larger groups and predators live in smaller groups.

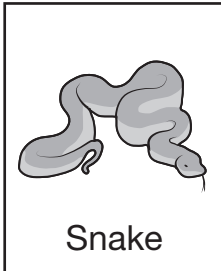
The students then constructed diagrams of the Arctic Fox, Arctic Wolf, Caribou, and Musk Oxen to observe whether the animals live alone, in small groups or in large groups, shown as follows.



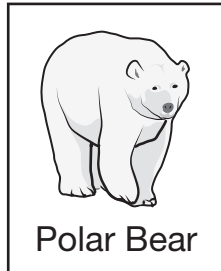
9 Based on evidence, the students questioned whether other animals would be able to survive in a tundra environment.

Select the animals that would most likely be able to survive in a tundra environment.

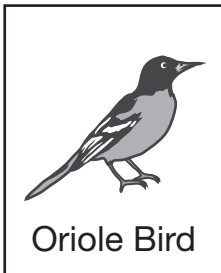
(A)



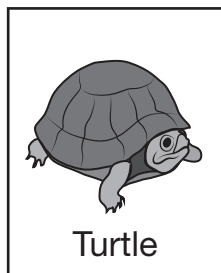
(B)



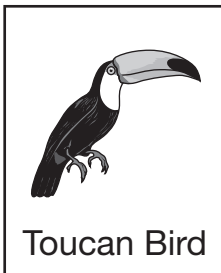
(C)



(D)



(E)



(F)





12 Use evidence from the research to support the claim that being part of a group helps the animals survive.





You have come to the end of Section 4 of the test. Review your answers from Section 4 only.



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A horizontal row of 25 circles. The first circle on the left contains a small square, while the others are empty.

SERIAL #

Section 4

3









MICAP

Maryland Comprehensive
Assessment Program

Grade 5
MISA
Practice Test

