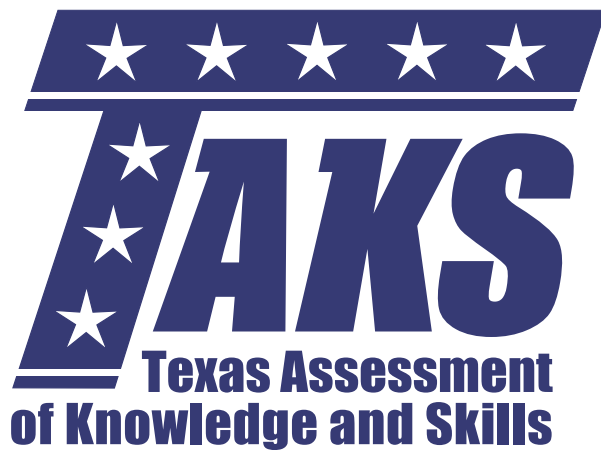


STUDENT NAME \_\_\_\_\_



**GRADE 5  
SCIENCE**

**Administered April 2009**



# SCIENCE

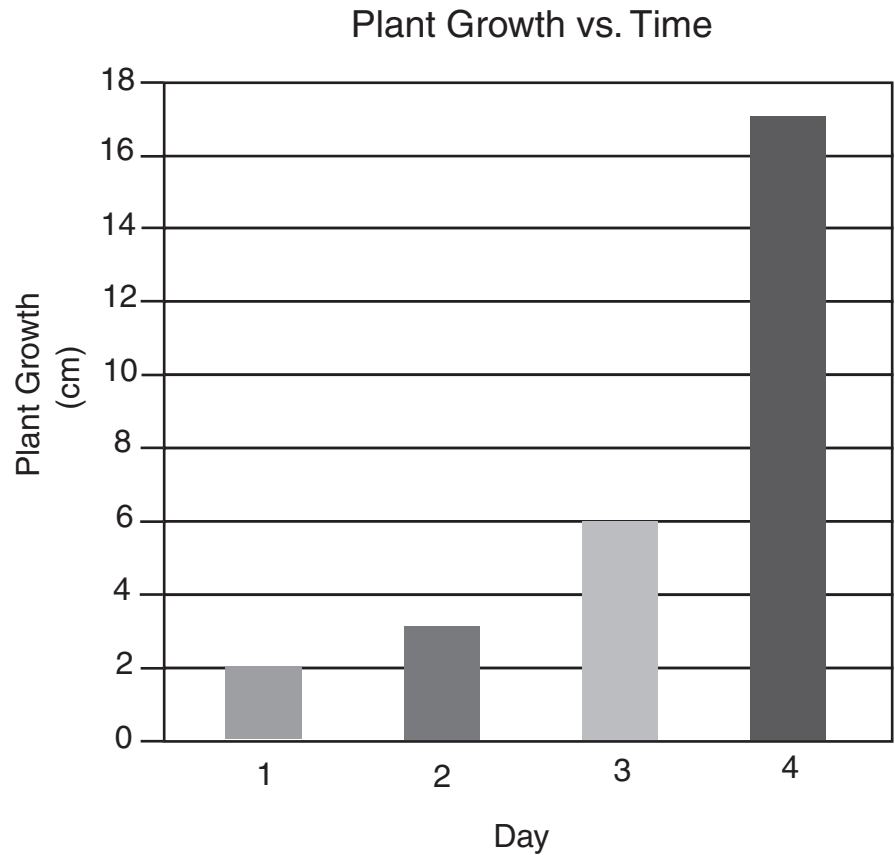
**DIRECTIONS**

Read each question and choose the best answer. Then fill in the correct answer on your answer document.

**SAMPLE A**

Which of the following can be found on both Earth and the moon?

- A** Rain
- B** Rocks
- C** Oil
- D** Predators



The graph shows how much a plant grew over four days. According to the graph, how many centimeters did the plant grow between Day 1 and Day 4? Record and bubble in your answer on the answer document.

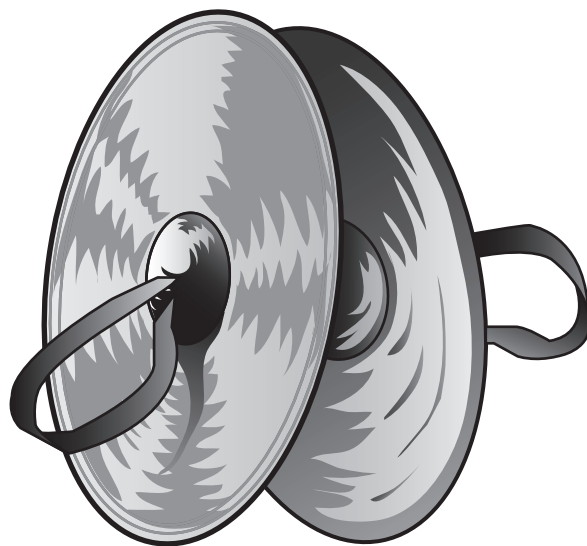


**1** Which of the following items is necessary in a laboratory for safety purposes?

- A** Triple-beam balance
- B** Metric ruler
- C** Computer monitor
- D** Fire extinguisher

**2** The brown fur of the arctic hare turns white in winter. How does this color change most likely help the arctic hare?

- F** It helps the animal save water.
- G** It helps the animal hide from predators.
- H** It helps keep the animal cool.
- J** It helps protect the animal from disease.



**3** A student plays the cymbals in a band. When the cymbals are hit together, a loud sound is produced. The force of the cymbals hitting each other produces sound because —

- A** metal conducts heat
- B** energy is absorbed
- C** metal is magnetic
- D** air vibrates



© Gvictoria/Dreamstime # 290787

4 Which tool below best models the way the dog's jaws work?

**F**



© Leon Chong/Stockphoto # 1425655

**H**



© Long Hai/Stockphoto # 2555054

**G**



© Jdwild/Dreamstime # 693805

**J**



© Peterguess/Dreamstime # 436438

- 5** Ice cream in a bowl changed from solid to liquid in a few minutes. Which of the following most likely caused this change?
- A** Bacteria grew in the ice cream.
  - B** Heat was added to the ice cream.
  - C** Water evaporated from the ice cream.
  - D** Frozen berries were sprinkled on the ice cream.

- 6** A student wants to find out how many different kinds of birds are found in a park. In addition to a bird identification book, the student should use —
- F** binoculars
  - G** goggles
  - H** a microscope
  - J** a hand lens





© Mark Wilson/Stockphoto # 519050

- 7 The picture shows a type of gazelle that lives in Africa. It eats leaves, twigs, flowers, and fruits. Which characteristic most helps this gazelle get food?
- A Long neck
  - B Tan fur
  - C Curled horns
  - D Large ears



Empty cicada shell



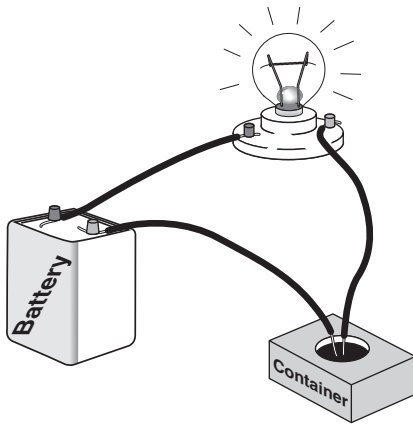
Cicada

8 The pictures show an empty cicada shell and a cicada. The cicada shell most likely shows that —

- F the cicada was killed by a bird
- G the cicada's outer skin helps attract mates
- H cicadas shed their skin during their life cycle
- J cicadas first appeared on Earth before dinosaurs were extinct

9 Which process will separate the sugar from a mixture of sugar and water?

- A Stirring the mixture
- B Evaporating the water
- C Adding more water
- D Adding more sugar



Material in Container	Lightbulb	
	Off	On
Tap water		✓
Saltwater		✓
Aluminum foil		✓
Sand	✓	
Marbles	✓	

**10** The chart shows the results of an investigation. Which question could be answered from these data?

- F** Does electricity prevent rust?
- G** Will a glowing lightbulb get hot?
- H** How long will a battery work?
- J** Which materials conduct electricity?

Use the information below and your knowledge of science to help you answer questions 11–13.

## Hydroelectric Power

People rely on electricity to do many jobs. A source of energy is needed to produce this electricity. Sometimes this energy comes from coal, wind, solar, or nuclear power. It can also come from moving water. Hydroelectric power plants are used to produce electricity from moving water.

Water flows naturally in a river, but a dam can make water flow with more force. A dam creates a lake with a large amount of water. Water that is allowed to flow through small tunnels in the dam turns machines called turbines. The movement of the turbines turns a generator that produces electricity.

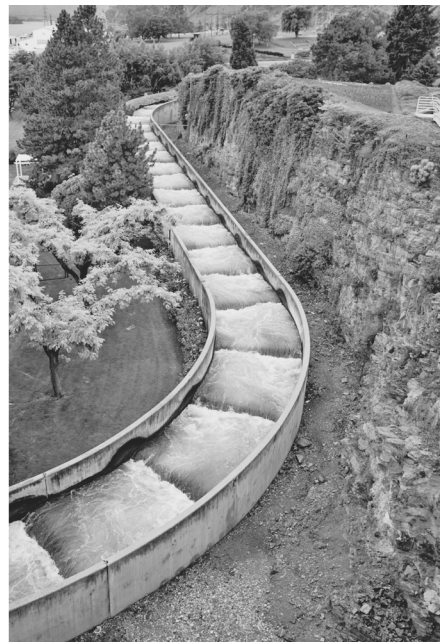
Blocking a river with a dam can affect wildlife. Some types of fish that live in the ocean swim up the river to reproduce. If a dam blocks a river, the fish can no longer swim up the river. This is why some dams are built with a fish ladder. A fish ladder allows fish to swim around a dam and continue up the river.

Hydroelectric Dam



© Mark Jensen/Stockphoto # 2052840

Fish Ladder at a Dam



© Allen Jackson/Stockphoto # 1809689

**11** Moving water has energy. Energy from the water that moves through a dam is changed mainly to —

- A** magnetic energy
- B** solar energy
- C** electrical energy
- D** light energy

**12** Salmon is a type of fish that lives in the ocean and swims up rivers to reproduce. How would building a dam without a fish ladder affect the salmon population in the area?

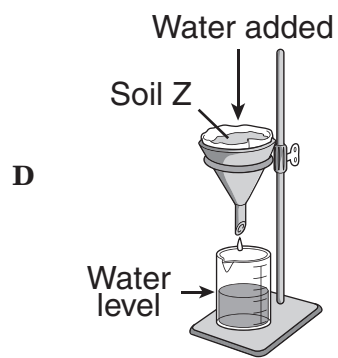
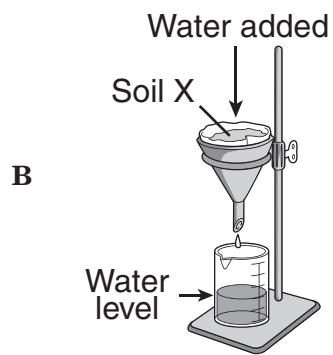
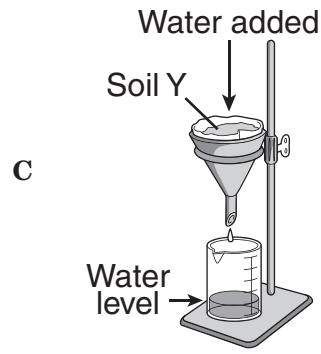
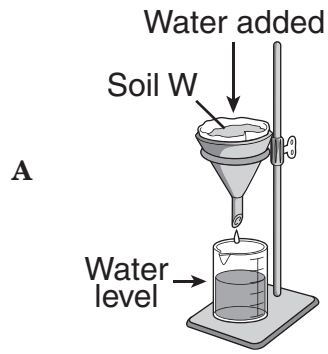
- F** The size of salmon would most likely increase.
- G** The number of salmon would most likely decrease.
- H** The salmon would become stronger swimmers.
- J** The salmon would change their diet.

**13** After lake water flows through a dam, which processes help replace the water in the lake?

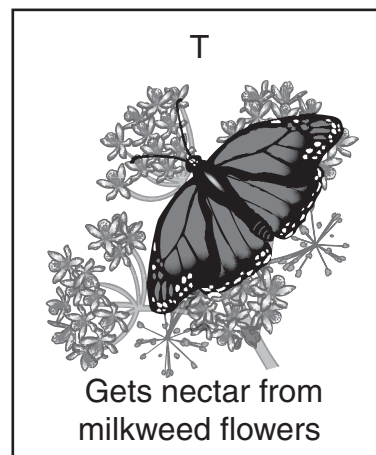
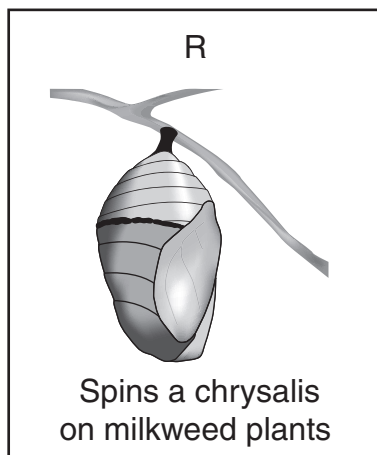
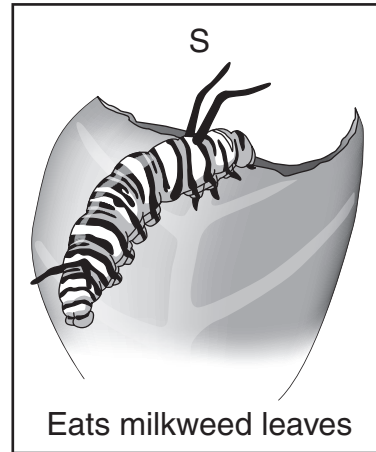
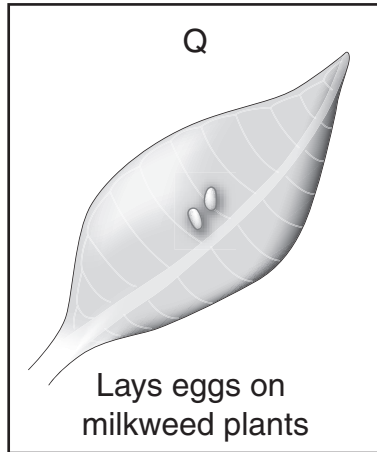
- A** Rainfall and runoff
- B** Erosion and weathering
- C** Refraction and reflection
- D** Separating and evaporating

- 14** A fork falls off the edge of a table. Which force moves the fork toward the floor?
- F** The pull of Earth's gravity
  - G** The pull of Earth's rotation
  - H** The push of the table
  - J** The push of air pressure

- 15 Some students added 500 milliliters of water to equal amounts of four different samples of soil. In this investigation, which sample of soil held the most water?



**16** The pictures below show how the monarch butterfly uses the milkweed plant.



Which picture shows the stage at which the monarch butterfly helps the milkweed plant reproduce?

- F** Q
- G** R
- H** S
- J** T



Common Name	Length (centimeters)	Number of Toes on Front Feet	Number of Toes on Back Feet
Gulf Coast water dog	16–22	4	4
Marbled salamander	9–13	4	5
Smallmouth salamander	11–18	4	5
Spotted salamander	11–25	4	5
Texas blind salamander	8–14	4	5

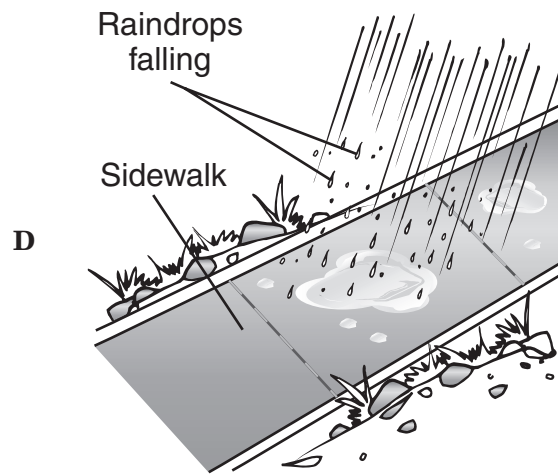
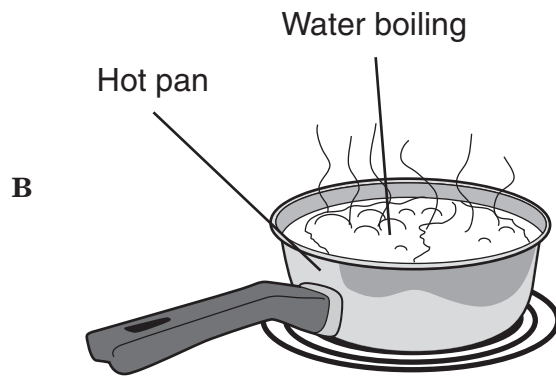
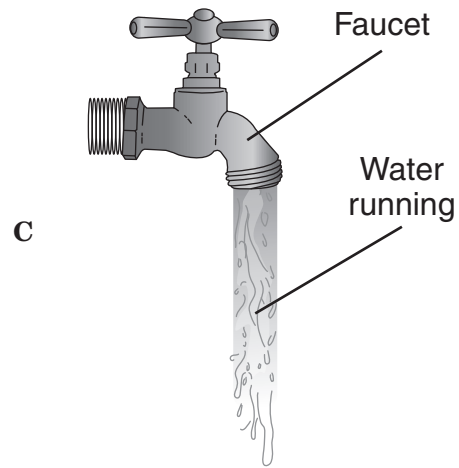
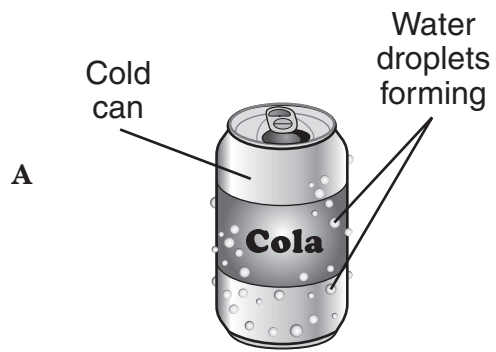
**17** On a recent field trip, students found a 20-centimeter-long salamander. The salamander had four toes on its front feet and five toes on its back feet. According to the table above, the students most likely found which type of salamander?

- A** Gulf Coast water dog
- B** Smallmouth salamander
- C** Spotted salamander
- D** Texas blind salamander

**18** Which of these is the center of our solar system?

- F** Mars
- G** The moon
- H** Jupiter
- J** The sun

19 Which picture best shows the process of condensation?

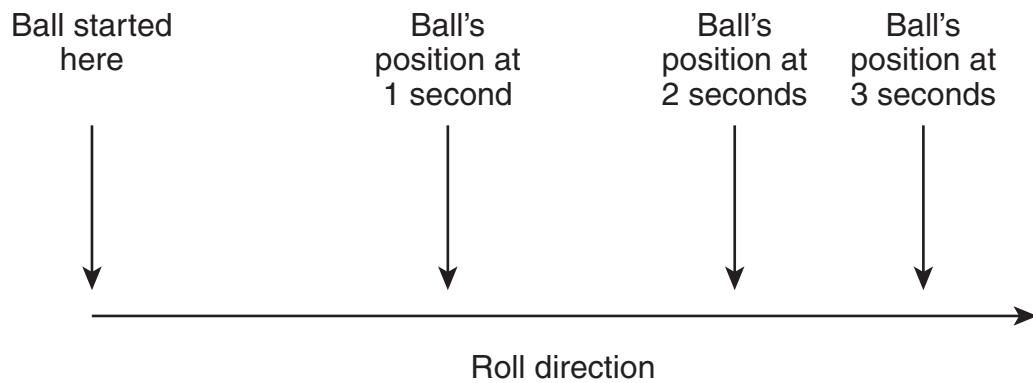


**20** One example of a trait passed from a parent plant to its offspring is —

- F** the amount of water in the plant's environment
- G** the amount of sunlight shining on the plant
- H** the color of the flowers on the plant
- J** the nutrients in the soil where the plant grows

**21** Which of the following is best classified as a nonrenewable resource?

- A** Grass
- B** Aluminum
- C** Sunlight
- D** Oxygen



- 22** The diagram above shows the path of a rolling ball. A student marked the position of the ball at 1 second, 2 seconds, and 3 seconds. How far did the ball roll in 3 seconds? Record and bubble in your answer to the nearest centimeter on the answer document.

- 23** The Davis Mountains in West Texas used to be taller than they are now. Which of the following conditions most likely caused the mountains to become shorter over time?

**A** Heat and pressure  
**B** Soil deposition  
**C** Rain and wind  
**D** River formation

Tomato Plant Data

Type of Soil	?
W	13
X	6
Y	22
Z	9

- 24** Some students measured the growth of four tomato plants after one month. The plants grew in identical containers with different soils. The students made a table of their data, as shown above. What is the best title for the second column in their table?

**F** Plant Height (cm)  
**G** Days of Growth  
**H** Container Size (mL)  
**J** Number of Plants

- 25** Clouds bring rain and snow to Earth's surface. How do rain and snow most support life on Earth?

**A** They cool the land surface.  
**B** They carry acids into the soil.  
**C** They bring freshwater to land organisms.  
**D** They build up mountains.

- 26** Which of the following can be found on both Earth and the moon?

**F** Hills  
**G** Thick atmosphere  
**H** Thunderstorms  
**J** Oceans

Organisms	Habitat	Food Sources
Bobcats	Rocky canyons, thickets	Small mammals, birds
Bighorn sheep	Mountains	Grasses, brush, cacti
Elk	Mountains	Shrubs, trees, grasses
Bacteria	Many habitats	Dead plants and animals
Bronze frogs	Shallow water	Small frogs, worms, insects

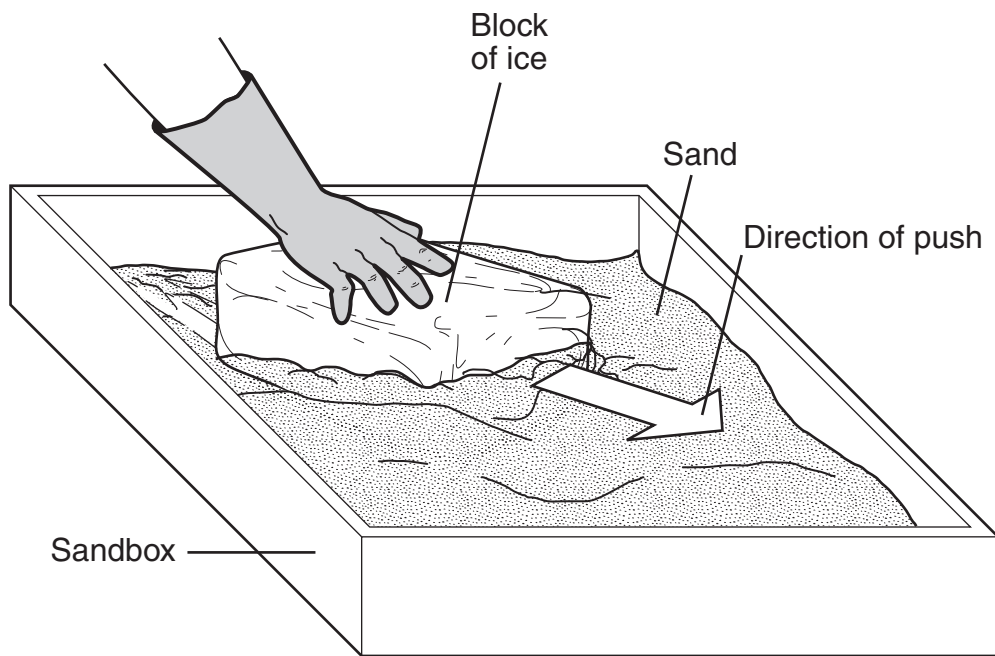
**27** According to the table shown above, elk most likely compete with which organisms for food?

- A** Bobcats
- B** Bighorn sheep
- C** Bacteria
- D** Bronze frogs

- 28** Which of the following happens in our solar system?
- F** Earth revolves around the sun once per day.
  - G** The moon revolves around Earth once per day.
  - H** Earth revolves around the sun once per year.
  - J** The moon revolves around Earth once per year.

- 29** Which two properties of a crayon will stay about the same after the crayon is melted?
- A** Shape and physical state
  - B** Temperature and hardness
  - C** Color and mass
  - D** Thickness and texture

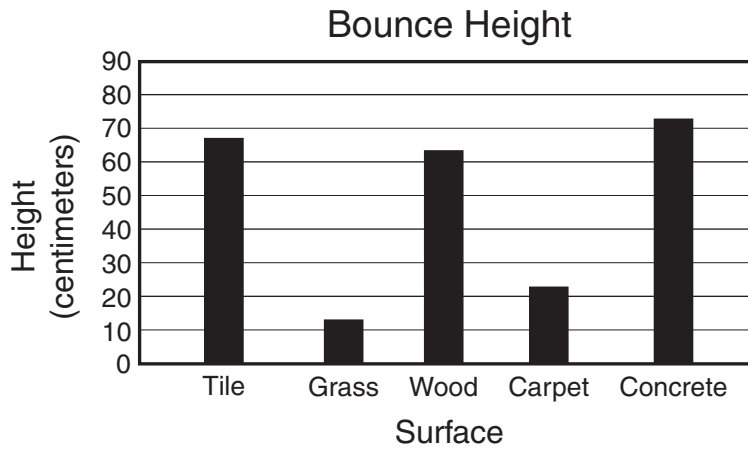
- 30** Some students wanted to make a model to show how the size of the moon compares with the size of Earth. They used an orange to represent the moon. Which of the following would best represent Earth?
- F** A cantaloupe
  - G** A grape
  - H** A lime
  - J** A cherry



**31** Which of the following features is best modeled in the diagram above?

- A** Island
- B** Glacier
- C** River
- D** Volcano



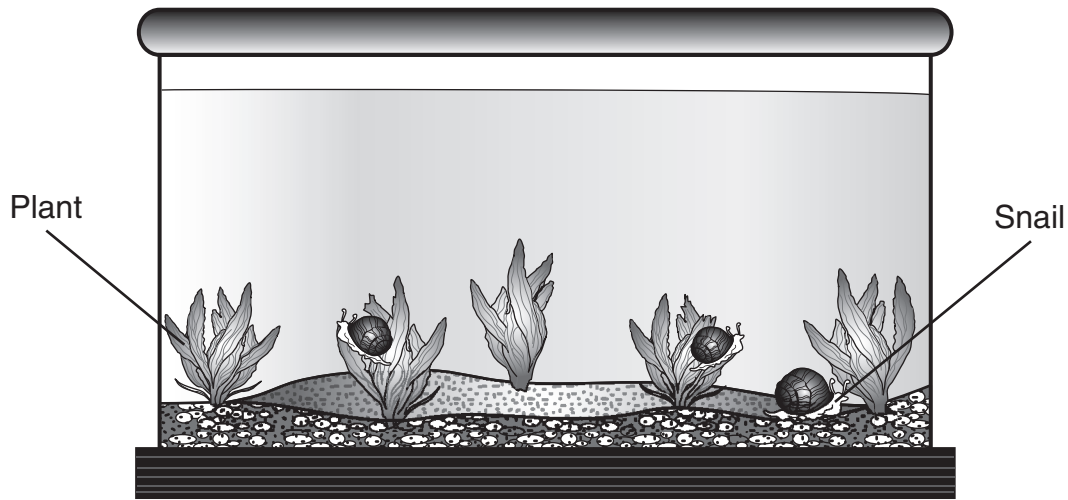


- 32** A rubber ball was dropped from the same height onto five different surfaces. The height of the first bounce was measured and recorded. The graph shows the data. Based on the data, which of the following is the best conclusion?
- F** Rubber balls bounce higher on harder surfaces.
  - G** All balls bounce higher indoors than they do outdoors.
  - H** Tennis balls bounce higher than basketballs on all surfaces.
  - J** Large balls do not bounce as high as small balls.

- 33** Which of the following animal features most helps the animal move around in its habitat?
- A** A bird's sharp beak
  - B** A cow's tail
  - C** A sea turtle's flippers
  - D** A black bear's fur



- 34** The picture shows a clear glass marble on top of some words. Some of the letters look different because light —
- F** bounces as it reaches the marble
  - G** changes color as it enters the marble
  - H** shines less brightly behind the marble
  - J** bends as it passes through the marble



**35** At the beginning of the week, there were three snails and 12 live plants in an aquarium. The picture above shows the aquarium at the end of the week. Which of the following most likely happened during the week?

- A** The snails reproduced faster than the plants.
- B** The plants grew at a faster rate than the snails.
- C** The snails ate many of the plants.
- D** The number of plants and snails both decreased.

**36** When a dog sees a cat, a message travels from the dog's eyes to the dog's —

- F** brain
- G** nose
- H** paws
- J** muscles

**37** What tool is most useful for measuring the width of a turtle shell?

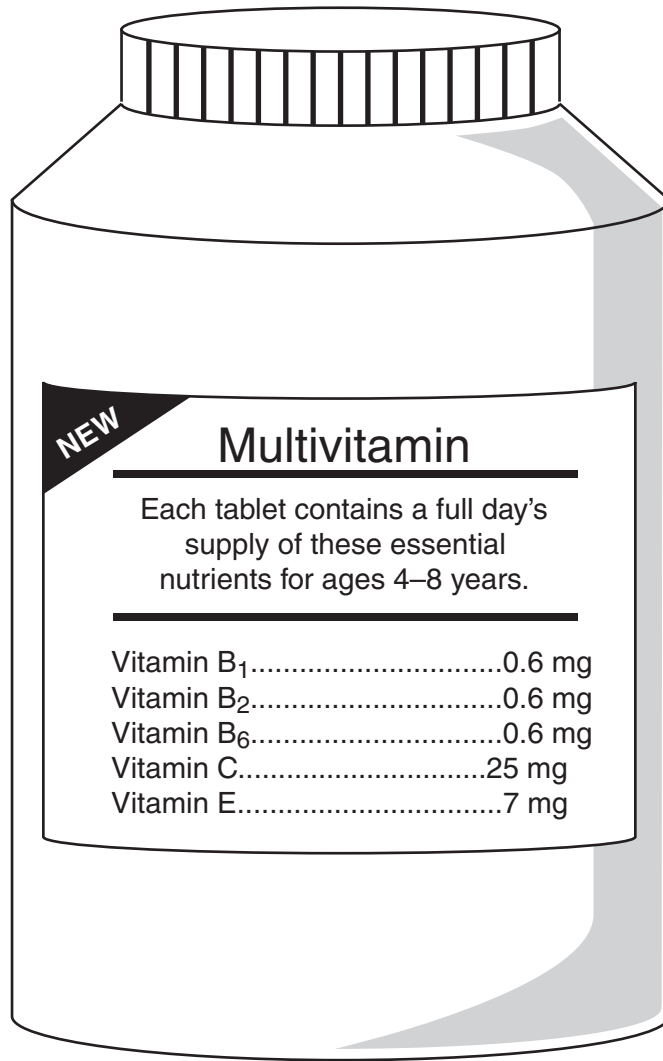
- A** Balance
- B** Collecting net
- C** Magnifying glass
- D** Ruler

**38** Which of these mixtures would be easiest to separate?

- F** Fruit salad
- G** Powdered lemonade
- H** Hot chocolate
- J** Instant pudding

**39** Crows are found throughout many parts of the world. They are black birds with excellent hearing. In the wild they live for six to seven years. Some crows in Japan open hard-shelled nuts by dropping them in front of moving cars. Which of these is a learned behavior?

- A** Having excellent hearing
- B** Living six to seven years
- C** Dropping nuts in front of cars
- D** Having black feathers



- 40 The picture shows the label for a new product. Based on the label, the reader can conclude that the tablets —
- F were made for children
  - G have different flavors
  - H are easy to chew
  - J have a pleasant taste

BE SURE YOU HAVE RECORDED ALL OF YOUR ANSWERS  
ON THE ANSWER DOCUMENT.









