

VIRGINIA STANDARDS OF LEARNING

Spring 2011 Released Test

# GRADE 5 SCIENCE

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Form S0111, CORE 1

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**Directions**

Read each question and choose the best answer. Then fill in the circle on your answer document for the answer you have chosen.

**SAMPLE**

**When Earth is seen from outer space, it looks mainly blue. This is because most of Earth is covered with —**

- A** ice
- B** mountains
- C** oceans
- D** deserts

**1 Which of these is a natural resource of Virginia?**

- A** A dam
- B** A glacier
- C** A river
- D** A power plant

**2**



**According to the picture, which of these is an inference rather than an observation?**

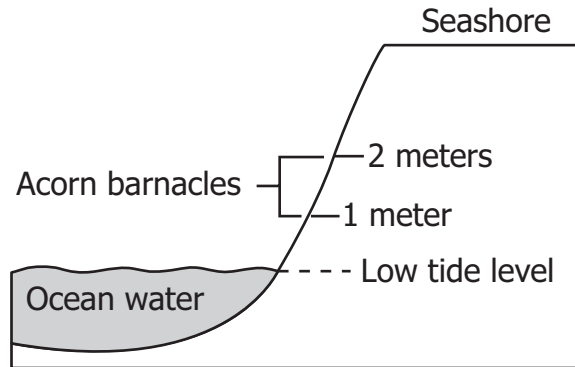
- F** This animal has hair.
- G** This animal has a tail.
- H** This animal is arching its back.
- J** This animal is frightened.

**3 To make an electromagnet, a conductor should be coiled around —**

- A** a glass tube
- B** an iron nail
- C** a roll of paper
- D** a wooden stick

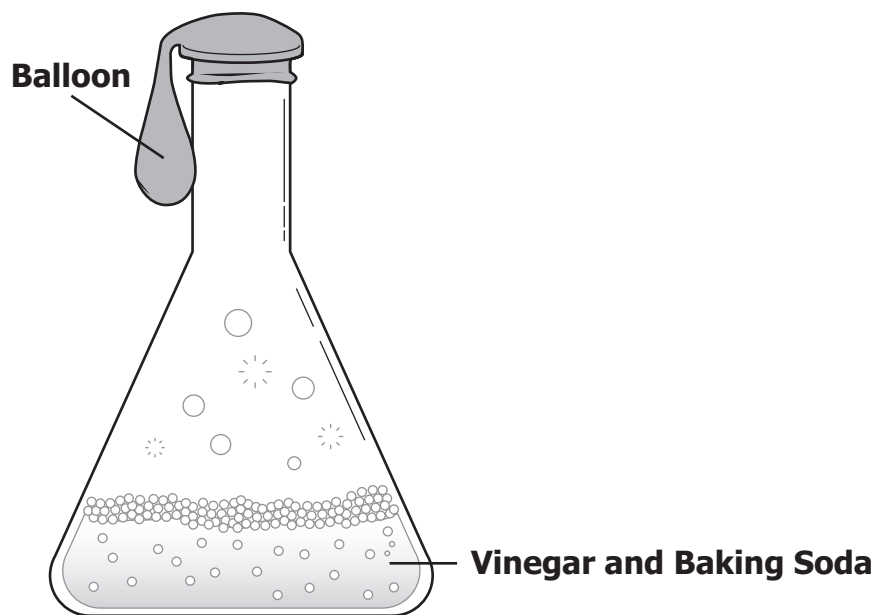
**4 Early scientists *most* likely saw a discharge of electricity for the first time when observing a —**

- F** waterfall
- G** rainbow
- H** lightning storm
- J** volcano erupting



**Acorn barnacles are seashore animals found on rocks. They live 1 to 2 meters above low-tide level. These rocks are the acorn barnacles' —**

- A** ecosystem
- B** community
- C** food web
- D** habitat



Which of these will *most* likely happen to the balloon as the chemicals react?

- F** It will float.
- G** It will break.
- H** It will inflate.
- J** It will change color.

### Great Horned Owl



The great horned owl has a sharp beak and claws used for catching prey and tearing meat. It has good eyesight to see in low light. Which of these *most* likely describes the niche of the great horned owl?

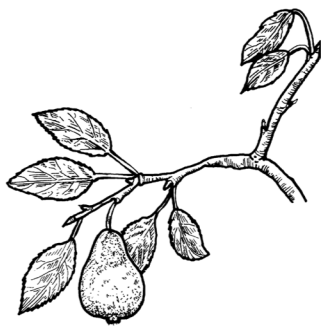
- A** Hunts small animals at night
- B** Grazes on grass during the day
- C** Comes out at dusk to sweep the sky for insects
- D** Comes out at dawn to get worms from the ground

8 Which picture shows a dormant tree branch?

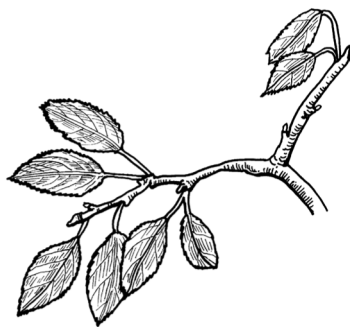
F



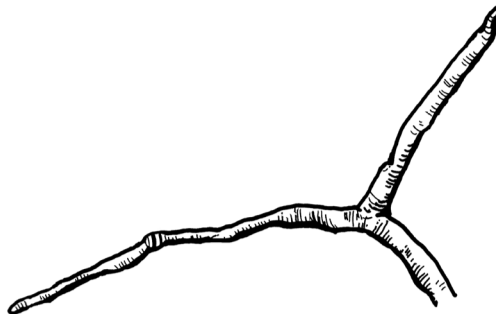
H



G



J

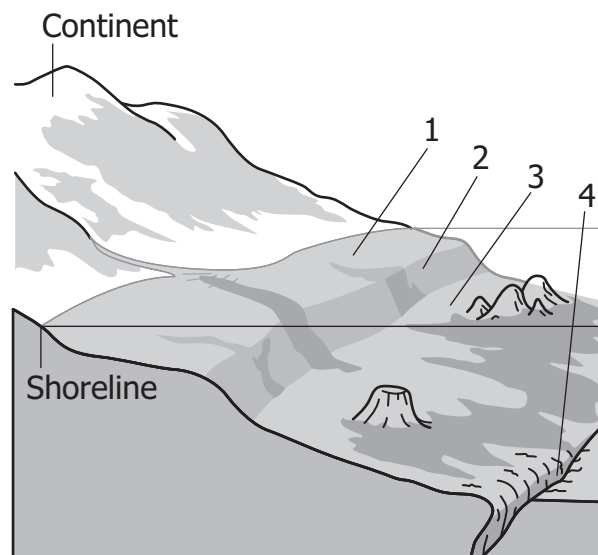




**9** An object is traveling north at a speed of 12 kilometers per hour. Which characteristic of the object is being described?

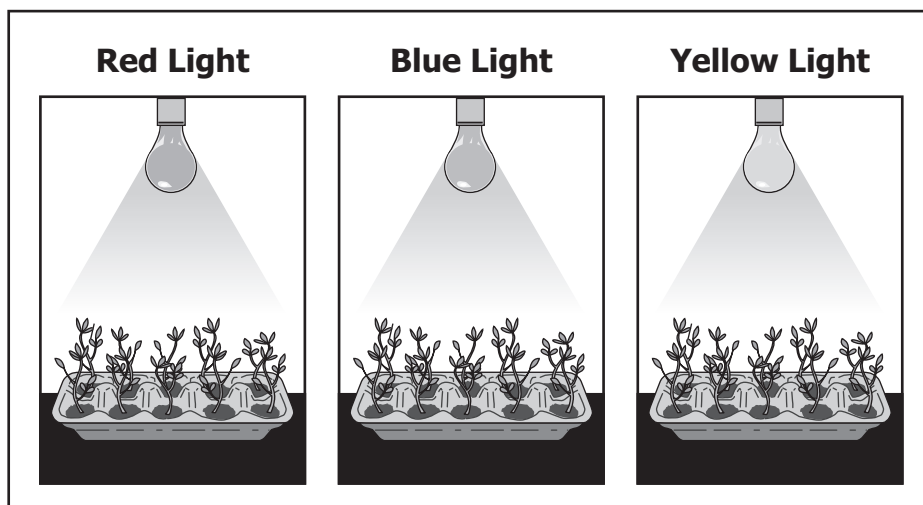
- A** Matter
- B** Motion
- C** Volume
- D** Temperature

**10**



The diagram shows a model of the ocean floor. Which number identifies the continental slope?

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

**Plant Growth Investigation**

**A student designed an investigation to test the effect of light color on plant growth. What was the manipulated (independent) variable in the investigation?**

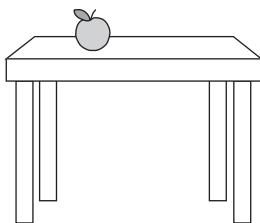
- A** Color of light bulb
- B** Height of plant
- C** Hours of light
- D** Size of pot

**12 Which of the following is the *best* observation of the refraction of light?**

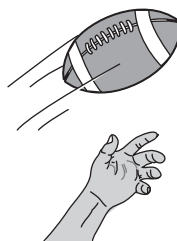
- F** Looking at oneself in a mirror
- G** Looking at a shadow of an object
- H** Viewing an object through an open window
- J** Viewing an object partially in water

**13 Which picture shows an object that has kinetic energy?**

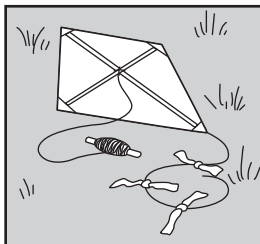
**A**



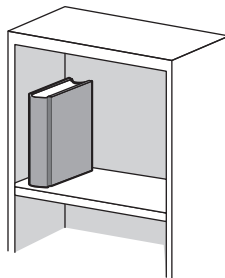
**C**



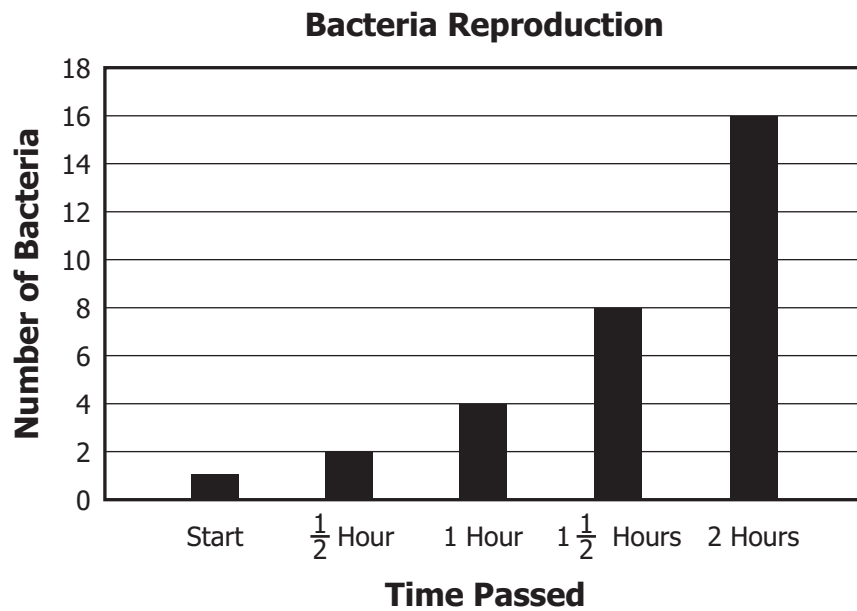
**B**



**D**

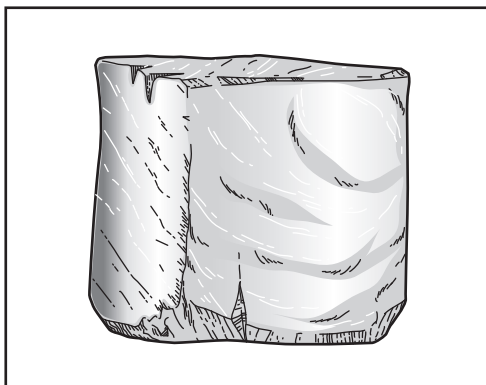


- 14 A student wants to compare the masses and volumes of three marbles. Which two instruments should be used?**
- F** Balance and graduated cylinder
  - G** Centimeter ruler and thermometer
  - H** Graduated cylinder and centimeter ruler
  - J** Thermometer and balance
- 15 Which of these is a function of a leaf?**
- A** Carrying nutrients throughout the plant
  - B** Converting solar energy into sugar
  - C** Creating shade for the plant
  - D** Absorbing water from the ground
- 16 A scientist found a fossil of an organism that had gills. When the organism was living, the area in which it lived was *most* likely covered by —**
- F** forest
  - G** grassland
  - H** bare rock
  - J** water



On a graph, students recorded how quickly bacteria reproduced over two hours. If the rate of reproduction stayed the same, how many bacteria would be present after  $2\frac{1}{2}$  hours?

- A 8
- B 16
- C 32
- D 64

**Gallium**

**Gallium is a metal that melts at about  $30^{\circ}\text{C}$ . If a person, whose body temperature is  $37^{\circ}\text{C}$ , held a cube of gallium for five minutes, what will *most* likely happen to the gallium?**

- F** It will change to a gas.
- G** It will change to a liquid.
- H** It will become a solution.
- J** It will become a mixture.

**19 Sonar helps people find which information about an object?**

- A** Color
- B** Weight
- C** Location
- D** Temperature

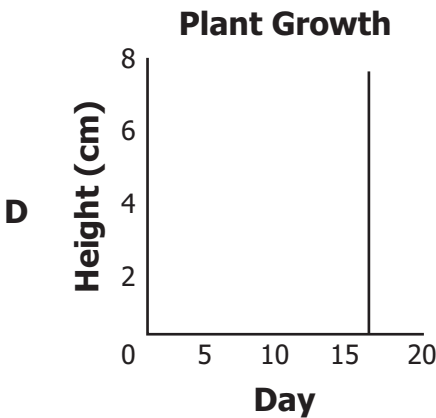
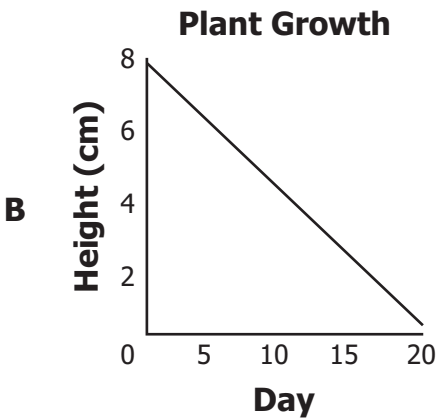
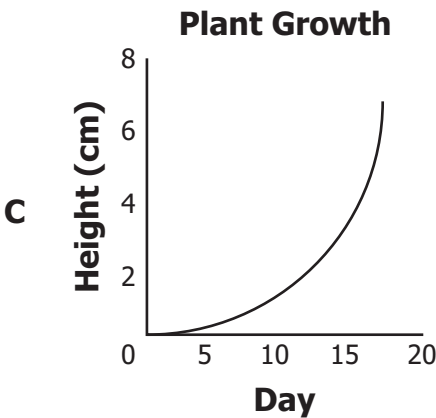
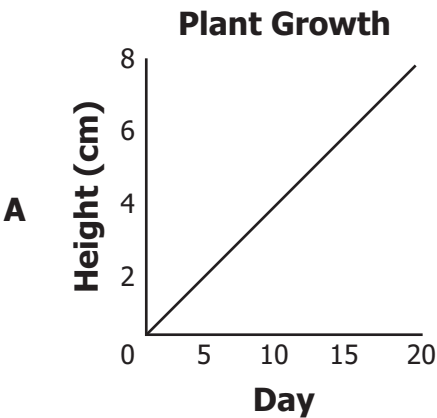
**20 Which of these often occur as the Earth's crustal plates move?**

- F** Hurricanes
- G** Floods
- H** Tornadoes
- J** Earthquakes

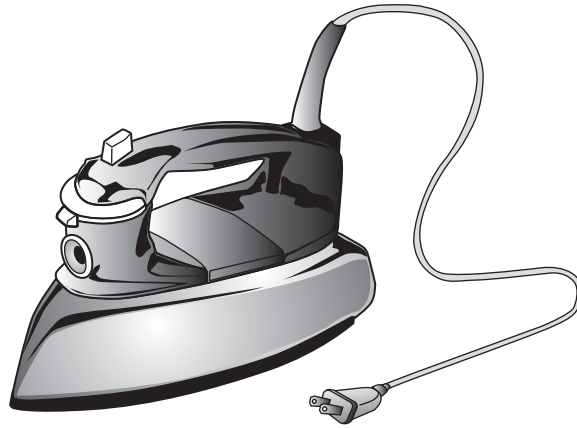
Plant Growth

Day	Height (cm)
0	0
5	2
10	4
15	6
20	8

Which line graph *best* shows the data in the table?





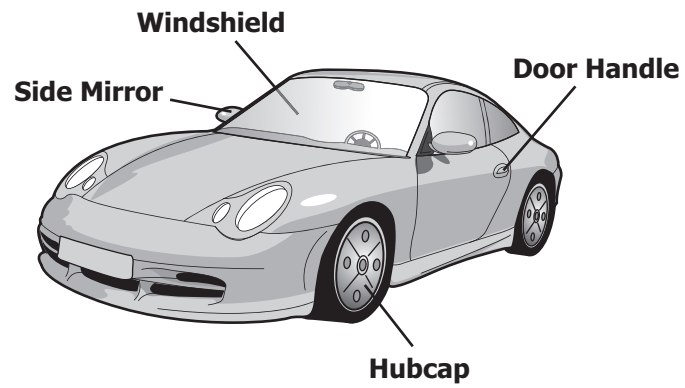


**Which energy transformation *most* likely occurs in a steam iron?**

- F** Electrical energy changes to heat energy.
- G** Electrical energy changes to sound energy.
- H** Mechanical energy changes to heat energy.
- J** Mechanical energy changes to light energy.

**23 Which of these human activities in a forest has a positive effect on the ecosystem?**

- A** Clearing the land to build new homes
- B** Planting new trees where old ones were cut down
- C** Building a new highway through the area
- D** Cutting down trees to make farmland

**Automobile**

**Which part of an automobile is transparent?**

- F** Door Handle
- G** Side Mirror
- H** Hubcap
- J** Windshield

**25 All of the populations of species in an area make up a —**

- A** region
- B** niche
- C** family
- D** community

**26 Pumice is formed when lava from a volcano cools. Which rock type is pumice?**

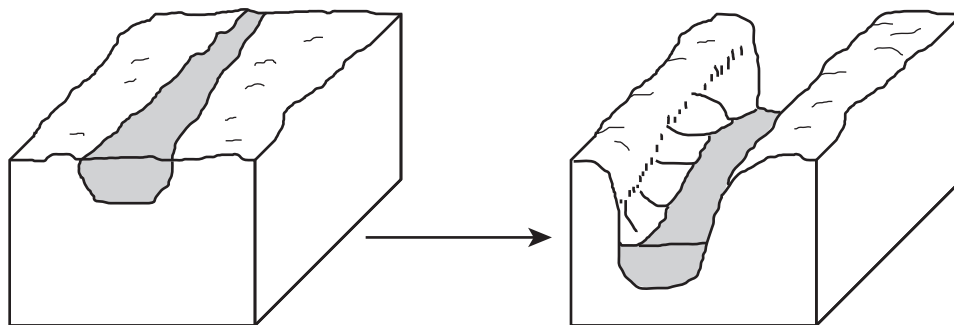
- F** Gaseous rock
- G** Igneous rock
- H** Sedimentary rock
- J** Metamorphic rock

Mineral Chart

Mineral	Color	Transparency	Luster	Hardness
Gold	gold-yellow, brass-yellow, pale yellow	opaque	metallic	2.5 to 3
Pyrite	pale yellow to brass-yellow	opaque	metallic	6 to 6.5

Based on the information in the table, the *best* way to tell gold from pyrite is by which property?

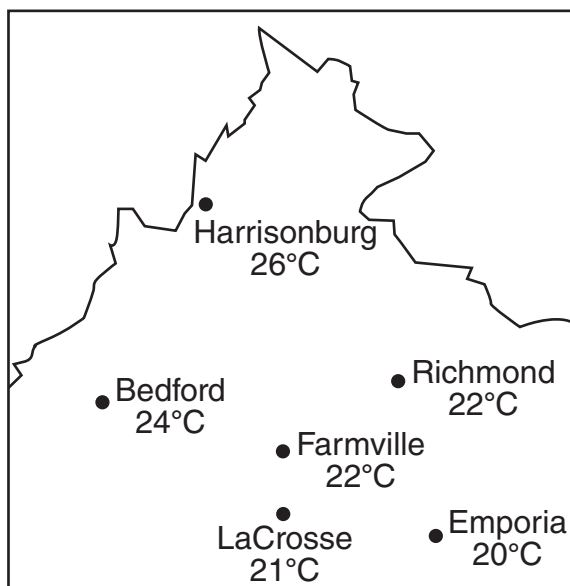
- A Color
- B Transparency
- C Luster
- D Hardness



**The diagram above shows the changes to a land surface caused by a river flowing through the area for many years. Which process caused the changes to the surface?**

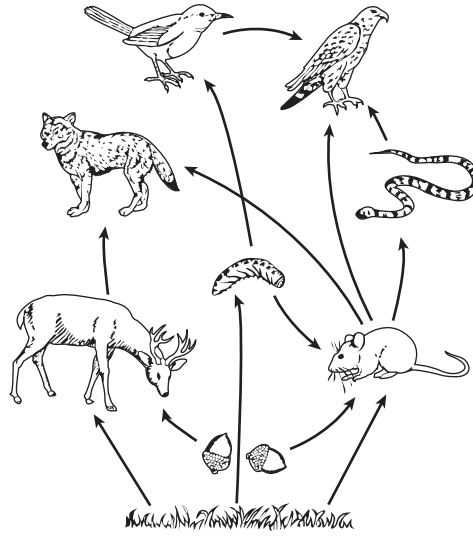
- F** Condensation
- G** Erosion
- H** Evaporation
- J** Pollution

## Virginia



**Which statement is supported by the data on this map?**

- A** Emporia is colder than Bedford at the time of these measurements.
- B** Bedford is the hottest city in the state of Virginia.
- C** LaCrosse will become cooler over the next few days.
- D** Richmond, Farmville, and LaCrosse are all colder than Emporia.



**In this food web, which two organisms could be harmed if the mouse population were to decline?**

- F** Deer and caterpillar
- G** Wolf and snake
- H** Oak and grass
- J** Hawk and songbird

Garden Club Sunflower Sprouts

Pot	Number of sunflower seeds	Total number of sunflower sprouts
1	20	17
2	20	18
3	20	16
4	20	9

The school garden club planted sunflower seeds in 6-inch pots. Each pot was watered the same amount every two days. At the end of one month, the number of sprouts was counted. Which pot had an *unusual* number of sprouts?

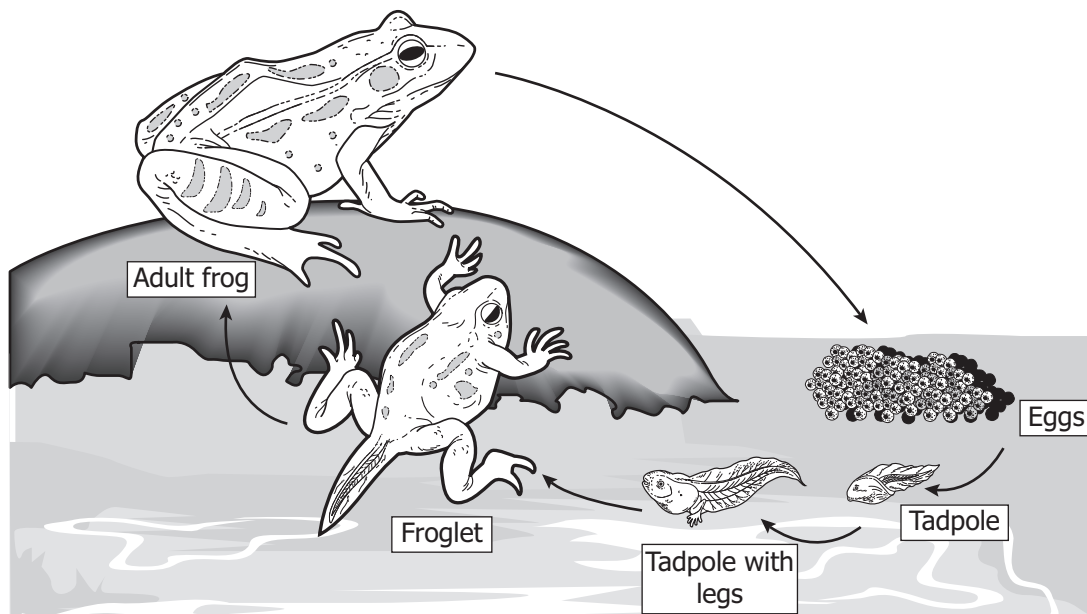
- A 1
- B 2
- C 3
- D 4

32 Which of these organisms has cells with cell walls?

- F A bluebird
- G A pine tree
- H A ladybug
- J A fox squirrel



## Frog Life Cycle



**Which of these is a difference between tadpoles and adult frogs?**

- A** Only tadpoles can swim.
- B** Only tadpoles can lay eggs.
- C** Only frogs are eaten by predators.
- D** Only frogs can survive on land.

**34 Which layer of Earth is the *thinnest*?**

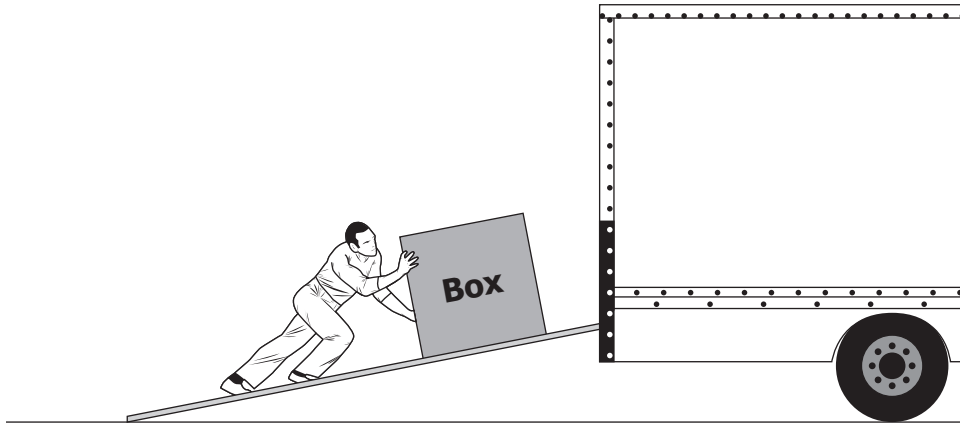
- F** Inner core
- G** Crust
- H** Outer core
- J** Mantle

**35 The surface of the Moon is made up of —**

- A** craters, highlands, and flat areas
- B** swirling gases
- C** large bodies of water
- D** a mixture of gases and water

**36 Which is the *best* tool for measuring the temperature of lake water?**

- F** Meter stick
- G** Balance
- H** Graduated cylinder
- J** Thermometer



The box would be easier to move if the surface of the ramp was smoother because there would be less —

- A mass in the box
- B friction opposing the box
- C gravity pulling on the box
- D distance to push the box

38 Which of these is the *most* important product of Virginia forests?

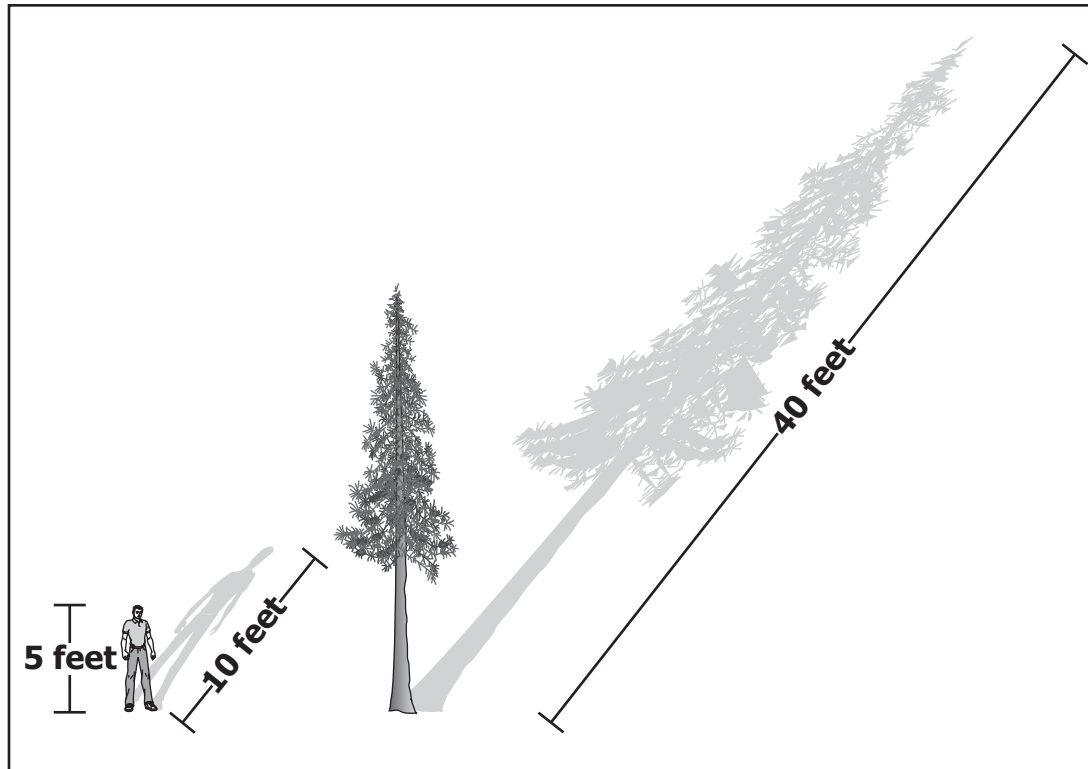
- F Pecan trees
- G Pine cones
- H Hardwood lumber
- J Maple leaves

**Tube Worms**

© Joanna Humphries/Stockphoto #6738807

**Which of these would *best* describe the tube worms shown?**

- A** Mammals
- B** Vertebrates
- C** Amphibians
- D** Invertebrates

**Objects and Their Shadows**

**Based on information in the diagram, about how tall is the tree?**

- F** 10 feet
- G** 20 feet
- H** 40 feet
- J** 80 feet