

**VIRGINIA  
STANDARDS OF LEARNING ASSESSMENTS**

**Spring 2002 Released Test**

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**GRADE 5  
SCIENCE**

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**DIRECTIONS**

Read each question carefully and choose the best answer. Then mark the space in the answer booklet for the answer you have chosen.

**SAMPLE**

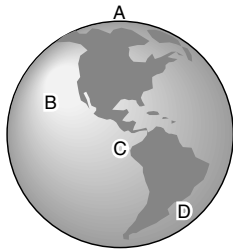
**When the Earth is seen from outer space, it looks mainly blue. This is because most of the Earth is covered with —**

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

**1 The capacity of an automobile gasoline tank would most likely be measured in —**

- A degrees Celsius (°C)
- B grams (g)
- C liters (l)
- D meters (m)

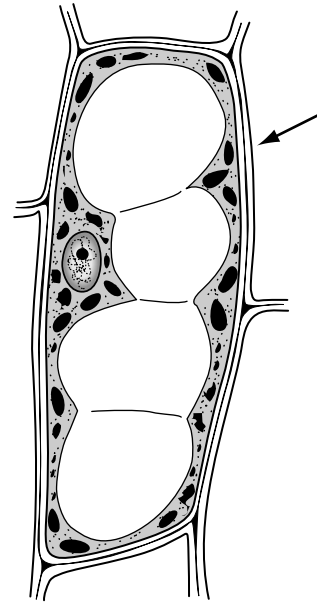
**2**



**Which of these shows the location of a polar ice cap?**

- F A
- G B
- H C
- J D

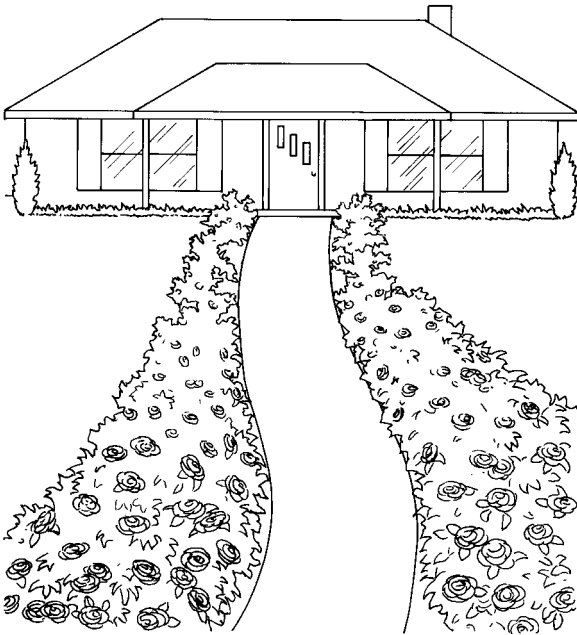
**3**



**What part of the plant cell is shown at the arrow?**

- A Cell wall
- B Cell membrane
- C Vacuole
- D Nucleus

4



**Sandy grows roses along her walkway. The roses close to the street had more blooms than the roses close to the house. Which statement is a hypothesis Sandy could make about her roses?**

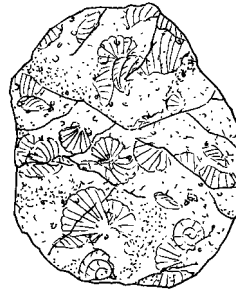
- F** There were many blooms on the roses near the house and fewer blooms on the roses closest to the street.
- G** The roses closest to the street had more blooms because they received more sunlight.
- H** The roses near the house were taller but had fewer blooms.
- J** The roses close to the house had fewer blooms and leaves.

5

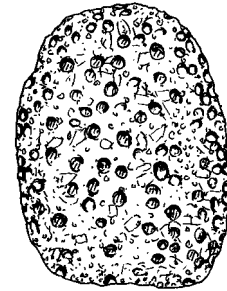
### Three Basic Types of Rocks

<b>Igneous</b>	Formed from cooled and hardened magma deep inside the Earth or from lava at the surface
<b>Sedimentary</b>	Formed when layers of sediments or rock pieces are cemented together; may contain fossils
<b>Metamorphic</b>	Formed when rocks are changed by heat, pressure or chemical action; may be banded

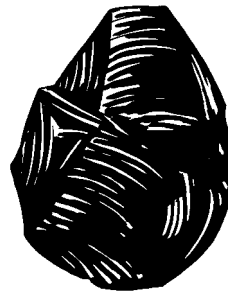
**According to the information in the chart, which of the following rocks is a sedimentary rock?**



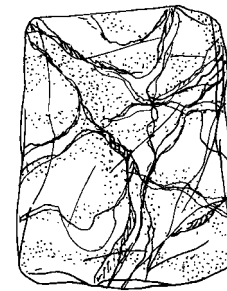
A



C



B

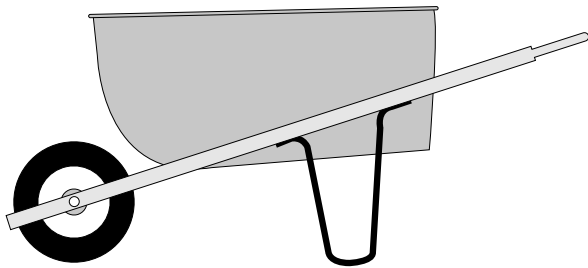


D

6 Which of the following materials is transparent?

- F Clear window glass
- G Your eyelids
- H Solid wood door
- J White paper

7



Which two simple machines does this device use to make work easier?

- A An inclined plane and a pulley
- B A wheel and axle and a wedge
- C Gears and a lever
- D A wheel and axle and a lever

8 The two structures *most* plants use to gather nutrients and energy to live are —

- F roots and leaves
- G roots and flowers
- H stems and roots
- J stems and leaves

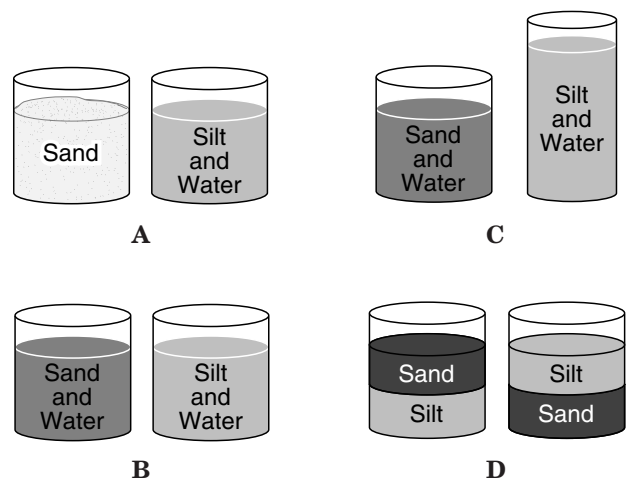
9 Students must conduct an experiment in which they find out how long a rubber ball bounces before it comes to a stop. Which unit would be best for recording this information?

- A Gram
- B Degrees Celsius
- C Meter
- D Second

10 The smallest quantity of an element is —

- F a compound
- G an atom
- H a solution
- J a molecule

11 Which of these is the fairest way to find out if sand or silt will settle faster when mixed with water?



12 **Frequency Distribution of Backpack Mass**

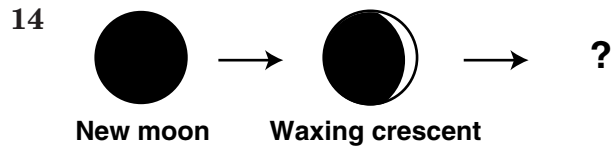
Mass of Backpacks (kilograms)	Number of Students
0-1	1
2-3	10
4-5	8
6-7	1
8-9	2

Students in Mrs. Smith’s class are trying to find the average mass of fifth-grade students’ backpacks. The information is displayed on the chart above. The chart shows the majority of fifth-grade students have backpacks with a mass of —

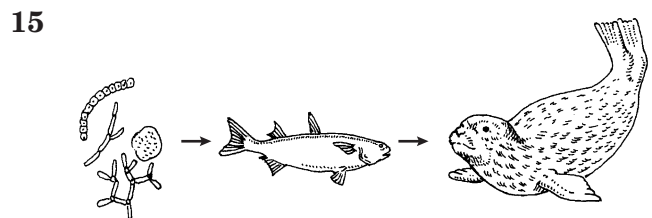
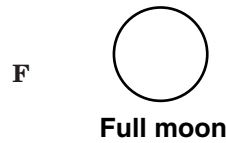
- F 2-3 kilograms
- G 4-5 kilograms
- H 6-7 kilograms
- J 8-9 kilograms

13 **The process an insect undergoes when changing from larva to adult is known as —**

- A respiration
- B metamorphosis
- C photosynthesis
- D reproduction



Which of these is the next phase of the moon?

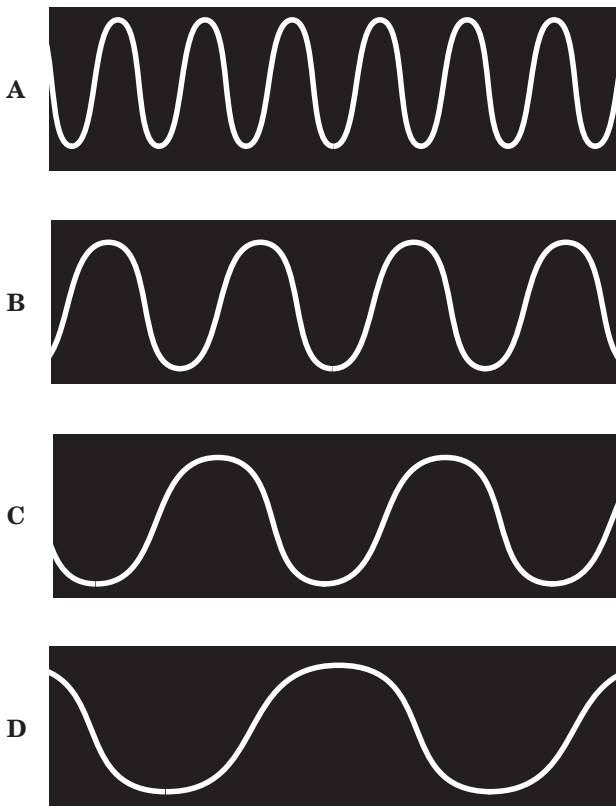


From where does the energy for this ocean food chain come?

- A Ocean waves
- B The sun
- C Whales
- D Salt

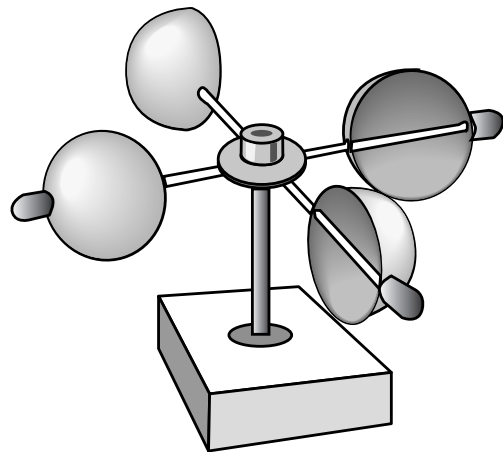
- 16 The *most common* cause of earthquakes is —
- F the sinking of the ocean floor
  - G movements in the Earth's crust
  - H giant tidal waves called tsunamis
  - J unequal heating of the atmosphere

- 17 Which diagram shows a wave with the *highest* frequency?



- 18 The *most important* reason that lakes and oceans have different types of animal life is that oceans have —
- F sandy shores and bottoms
  - G water with more salt
  - H large waves at the edges
  - J a much larger surface area

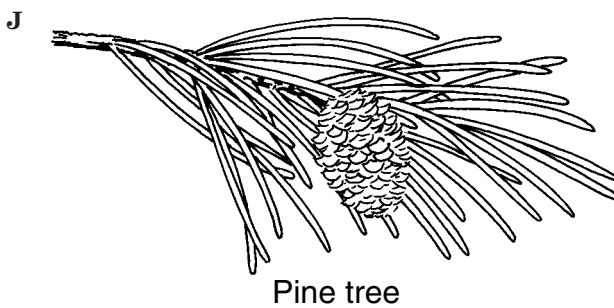
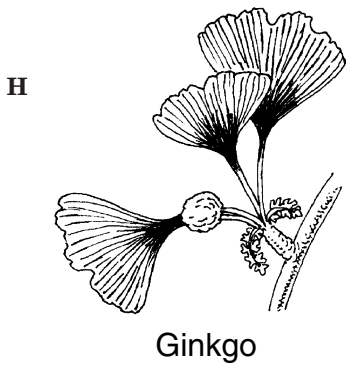
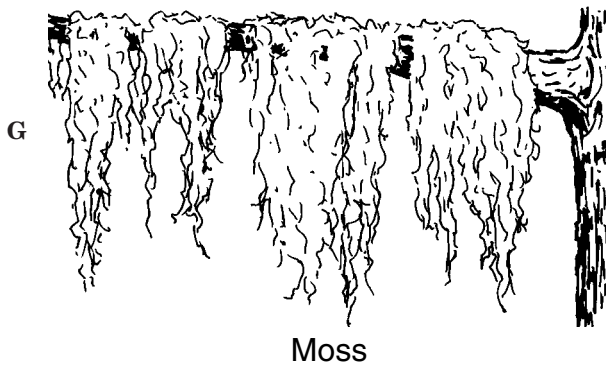
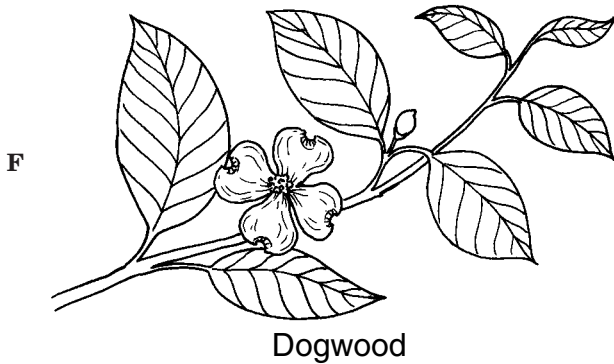
19



If this device was placed outside, it could be used to show —

- A changes in temperature
- B the amount of rainfall
- C changes in humidity
- D the speed of the wind

20 Which of the following plants is an example of a nonvascular plant?



21 The rotation of the Earth on its axis causes —

- A seasons
- B years
- C months
- D days

22 To the blue crab, the open bay of the Chesapeake Bay region is its —

- F niche
- G habitat
- H community
- J population

23 To learn about the temperature inside the Earth's crust, scientists study —

- A earthquakes
- B fossil formations
- C minerals on the ocean floor
- D volcanoes

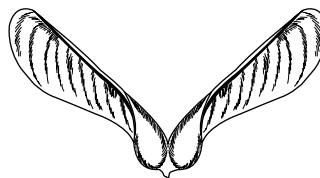
24 Todd observes that his strawberry plant has grown little green strawberries. Which of these is a prediction Todd might make about his strawberry plant?

- F The green berries will ripen into red berries.
- G The strawberry plant is growing under an oak tree.
- H The strawberry plant doesn't have enough water.
- J The green berries are a new type of strawberry.

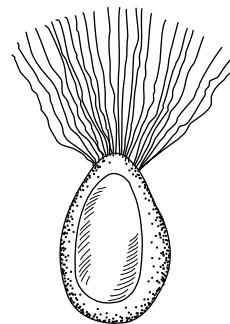
25 Certain storms form over water near the equator, usually between the months of June and November. Warm, moist air rises quickly over the ocean, causing a strong, whirling storm with high winds and heavy rains. This type of storm is known as a —

- A tornado
- B hurricane
- C blizzard
- D sandstorm

26



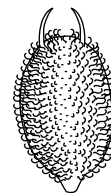
Maple



Milkweed



Dandelion



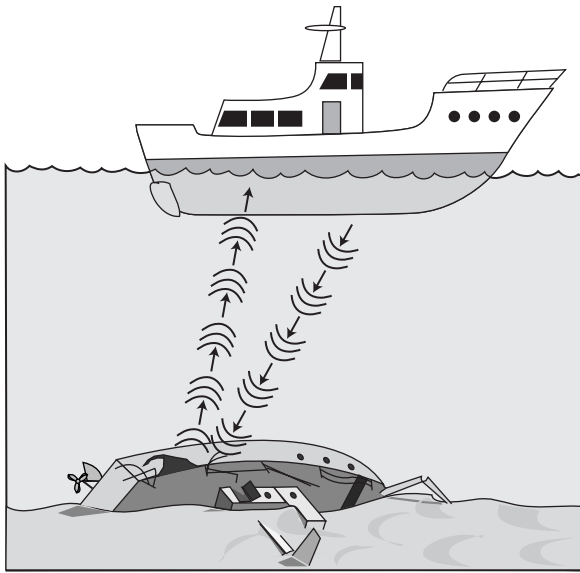
Cocklebur

Which of the following seeds is probably carried by animals?

- F Maple
- G Dandelion
- H Milkweed
- J Cocklebur

27 Which material will sound travel through the fastest?

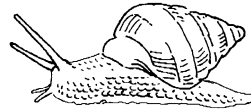
- A Water
- B Air
- C Steel
- D Cloth



Which technique is the boat using to find the distance from the surface of the ocean to the bottom?

- F Morse code
- G Radio
- H Sonar
- J Sound tracking

29 Which of the following is an invertebrate?



A



C



B



D

30 A bar magnet is placed on a table, and a sheet of blank paper is placed over the magnet. What could be sprinkled on the paper to show the magnetic field of the bar magnet?

- F Salt
- G Iron filings
- H Sand
- J Soil

## Growth of a Plant

Date	Height of Plant (cm)	Increase in Growth (cm)
March 3	2	0
March 7	4	2
March 11	6	2
March 15	8	2

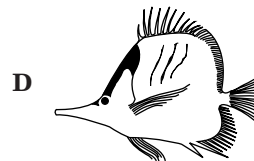
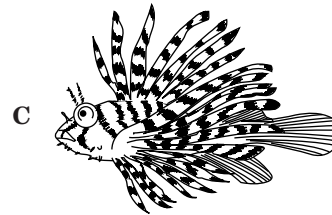
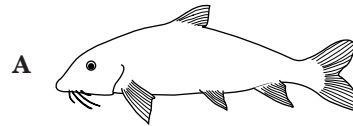
Based on the information in the chart, what would be the height of the plant on March 23?

- A 10 cm
- B 12 cm
- C 14 cm
- D 16 cm

32 Which one of the following events occurs in the formation of sedimentary rock?

- F Crystallization
- G Melting
- H Cooling
- J Weathering

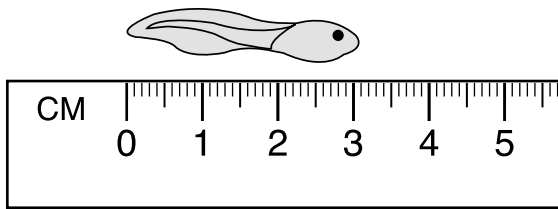
33 Bright and unusual fish markings can warn other fish to stay away. Which of these fish probably is the most dangerous to its predators?



34 When a coin is dropped, it falls to the ground. As the coin falls, it loses potential energy and gains what kind of energy?

- F Kinetic
- G Chemical
- H Electrical
- J Solar

35



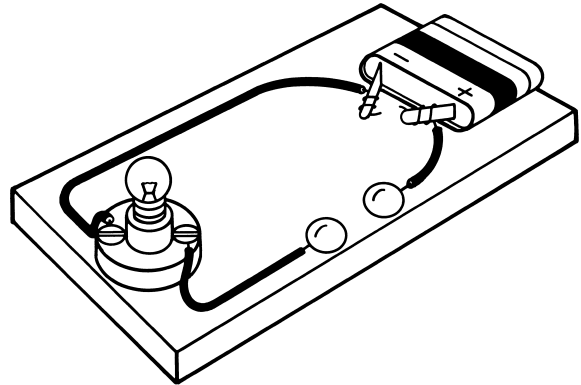
What is the length of the tadpole?

- A 2.8 cm
- B 3.1 cm
- C 3.5 cm
- D 4.0 cm

36 The American dogwood is a member of which kingdom of living things?

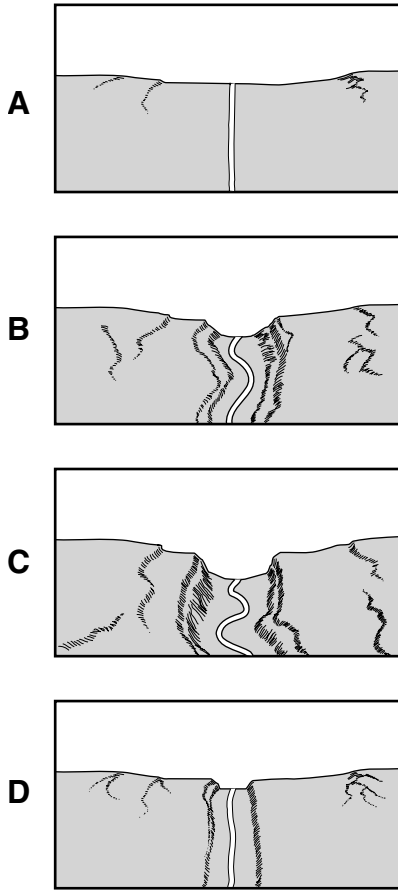
- F Monera
- G Animal
- H Protist
- J Plant

37



This instrument can be used to see if materials conduct electricity. Which of these groups contains items that could *all* conduct electricity to complete the circuit?

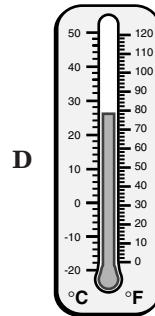
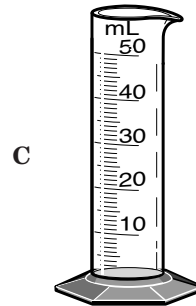
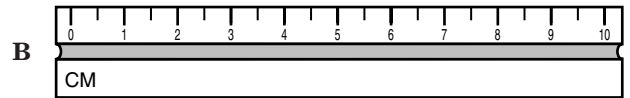
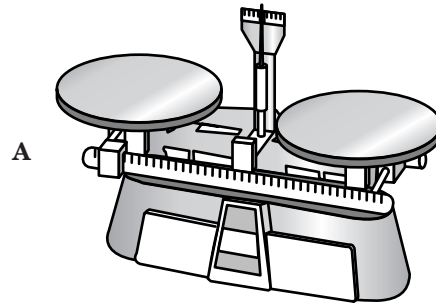
- A Rubber ball, plastic comb, nail
- B Paper clip, penny, screw
- C Cork, dollar bill, tweezers
- D Pencil, eraser, spoon



The diagrams show how a river can cause the erosion of land. Which sequence of letters best shows how the river has aged from youngest to oldest?

- F C,A,B,D
- G B,A,C,D
- H A,D,B,C
- J D,A,B,C

39 Which of the following instruments is used to measure mass?



40 When light hits an object, the rays can pass through it, bounce off it, or be absorbed by it. Light rays that bounce back are —

- F radiant
- G reflected
- H refracted
- J radar

## Answer Key

<b>Test Sequence</b>	<b>Correct Response</b>	<b>Reporting Category</b>	<b>Reporting Category Description</b>
1	C	015	Scientific Investigation
2	F	018	Earth/Space Systems and Cycles
3	A	017	Life Processes and Living Systems
4	G	015	Scientific Investigation
5	A	015	Scientific Investigation
6	F	016	Force, Motion, Energy, and Matter
7	D	016	Force, Motion, Energy, and Matter
8	F	017	Life Processes and Living Systems
9	D	015	Scientific Investigation
10	G	016	Force, Motion, Energy, and Matter
11	B	015	Scientific Investigation
12	F	015	Scientific Investigation
13	B	017	Life Processes and Living Systems
14	H	018	Earth/Space Systems and Cycles
15	B	017	Life Processes and Living Systems
16	G	018	Earth/Space Systems and Cycles
17	A	016	Force, Motion, Energy, and Matter
18	G	018	Earth/Space Systems and Cycles
19	D	018	Earth/Space Systems and Cycles
20	G	017	Life Processes and Living Systems
21	D	018	Earth/Space Systems and Cycles
22	G	017	Life Processes and Living Systems
23	D	018	Earth/Space Systems and Cycles
24	F	015	Scientific Investigation
25	B	018	Earth/Space Systems and Cycles
26	J	017	Life Processes and Living Systems
27	C	016	Force, Motion, Energy, and Matter
28	H	016	Force, Motion, Energy, and Matter
29	A	017	Life Processes and Living Systems
30	G	016	Force, Motion, Energy, and Matter
31	B	015	Scientific Investigation
32	J	018	Earth/Space Systems and Cycles
33	C	017	Life Processes and Living Systems
34	F	016	Force, Motion, Energy, and Matter
35	B	015	Scientific Investigation
36	J	017	Life Processes and Living Systems
37	B	016	Force, Motion, Energy, and Matter
38	H	018	Earth/Space Systems and Cycles
39	A	015	Scientific Investigation
40	G	016	Force, Motion, Energy, and Matter