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Teacher Name _____

School _____

System _____



TENNESSEE

Tennessee Comprehensive Assessment Program Achievement Test ~ Grade 5 Item Sampler





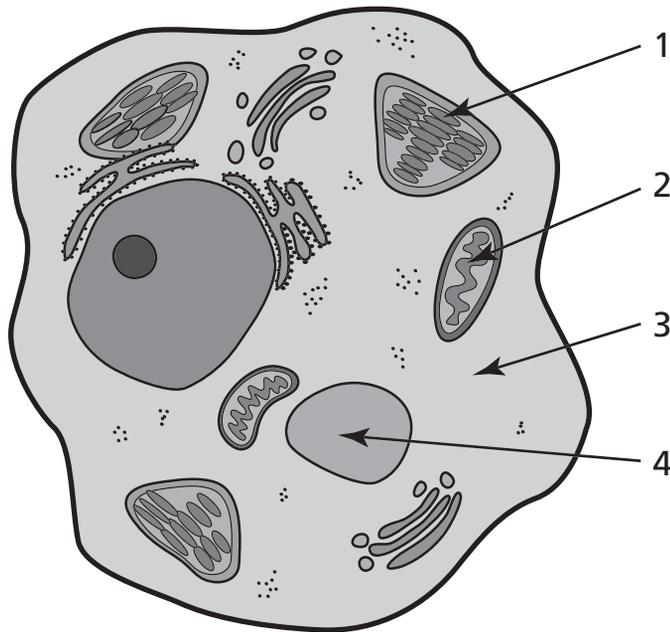
Reporting Category:

LIFE SCIENCE 1: Cells, Flow of Matter & Energy, Heredity

Performance Indicator:

0507.1.1 Identify the major parts of plant and animal cells, such as the nucleus, cell membrane, cell wall, and cytoplasm.

1 The diagram shows a cell.



Which numbered structure represents the cytoplasm?

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

Reporting Category: LIFE SCIENCE 1: Cells, Flow of Matter & Energy, Heredity

Performance Indicator: 0507.TE.2 Recognize the connection between a scientific advance and the development of a new tool or technology.

2 The development of the microscope made it possible for people to

- F** measure the force of gravity.
- G** view the planets in the solar system.
- H** explain the types of heat transfer.
- J** view the small structures inside cells.

Reporting Category: LIFE SCIENCE 1: Cells, Flow of Matter & Energy, Heredity

Performance Indicator: 0507.1.2 Compare and contrast basic structures and functions of plant and animal cells.

3 What is the role of the nucleus in a plant or animal cell?

- A** controls what enters and leaves the cell
- B** stores nutrients for the cell
- C** produces food for the cell
- D** controls the activities of the cell

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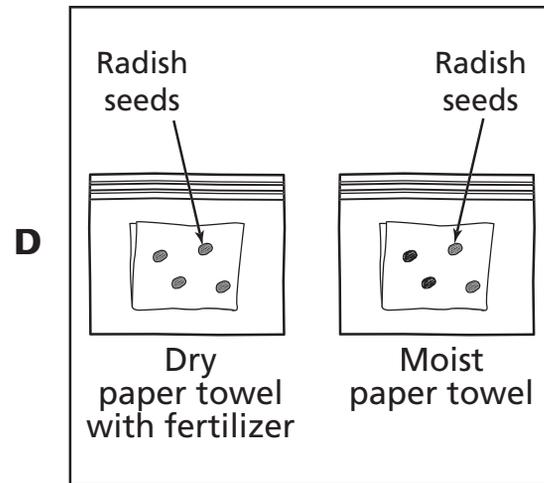
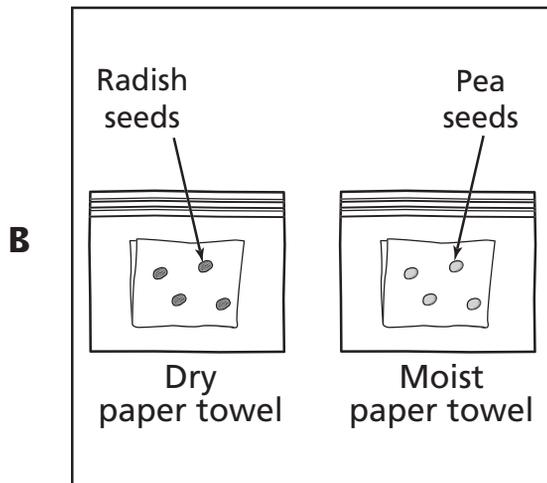
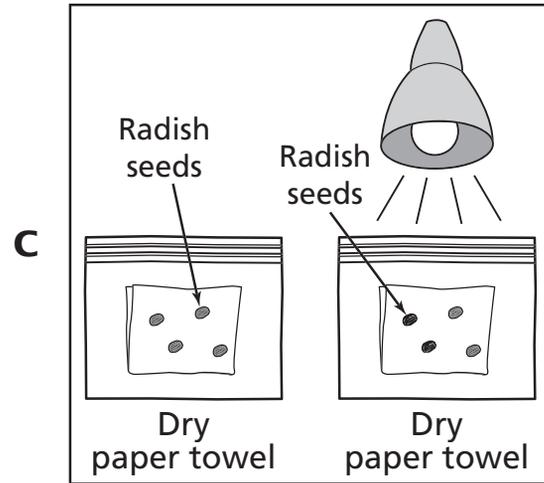
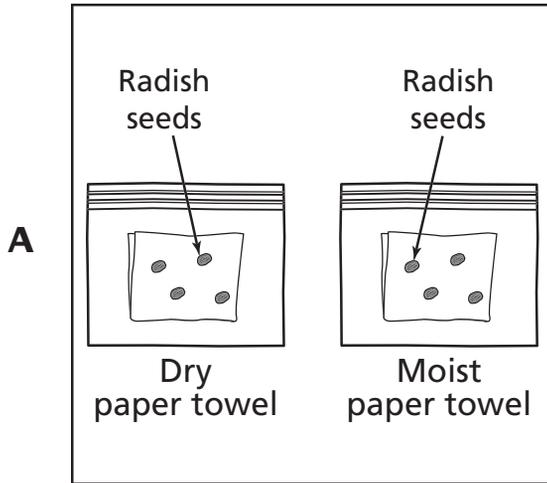
Reporting Category: LIFE SCIENCE 1: Cells, Flow of Matter & Energy, Heredity

Performance Indicator: 0507.3.1 Identify photosynthesis as the food manufacturing process in plants.

4 Which process do plants use to make the energy they need?

- F** symbiosis
- G** respiration
- H** pollination
- J** photosynthesis

- 5** Students are investigating whether water affects the germination of radish seeds. Which experiment is best to use in answering their question?



Reporting Category: LIFE SCIENCE 1: Cells, Flow of Matter & Energy, Heredity

Performance Indicator: 0507.TE.1 Select a tool, technology, or invention that was used to solve a human problem.

6 The picture shows an aqueduct that people built in California.

Aqueduct



© iafoto/Stockphoto #4220639

The aqueduct carries water long distances. Which of these best explains why people built the aqueduct?

- F** to get water to people who live in areas with little water
- G** to limit the erosion of the mountains and soil
- H** to prevent water from flooding the state
- J** to help animals migrate

Reporting Category: LIFE SCIENCE 1: Cells, Flow of Matter & Energy, Heredity

Performance Indicator: 0507.3.2 Compare how plants and animals obtain energy.

7 Which organism obtains energy in the same way as a tree?

- A** lizard
- B** field mouse
- C** grass
- D** jackrabbit

Reporting Category: LIFE SCIENCE 1: Cells, Flow of Matter & Energy, Heredity

Performance Indicator: 0507.4.1 Recognize that information is passed from parent to offspring during reproduction.

8 A male guinea pig receives information that determines its physical characteristics. This information comes from

- F** both parents.
- G** neither parent.
- H** only the dominant parent.
- J** only the male parent.

Go On ►

Reporting Category: LIFE SCIENCE 1: Cells, Flow of Matter & Energy, Heredity

Performance Indicator: 0507.4.2 Distinguish between inherited traits and those that can be attributed to the environment.

9 Which of these is an inherited trait?

- A** braided hair
- B** pierced ears
- C** ability to read
- D** eye color

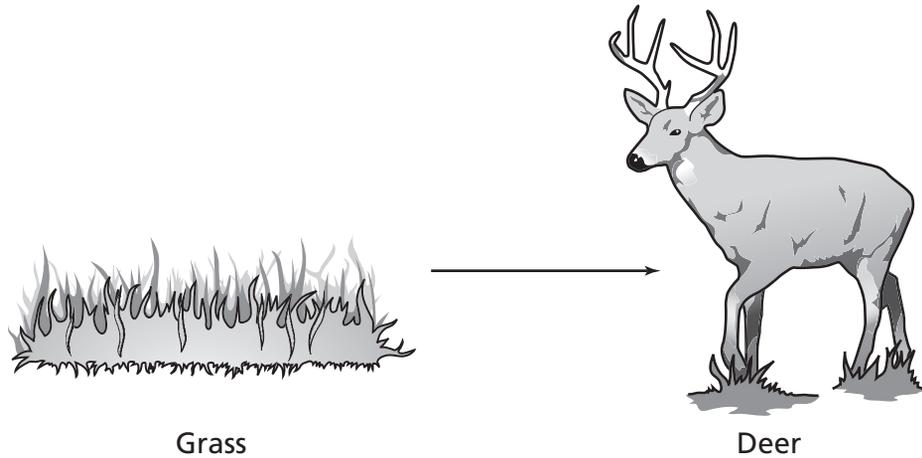
Reporting Category:

LIFE SCIENCE 2: Interdependence,
Biodiversity & Change

Performance Indicator:

0507.2.1 Describe the different types of nutritional relationships that exist among organisms.

10 Nutrients flow from the grass to the deer, as shown.



Which best describes the role of the deer in this diagram?

- F** producer
- G** host
- H** consumer
- J** prey

Go On ►

Reporting Category: LIFE SCIENCE 2: Interdependence, Biodiversity & Change

Performance Indicator: 0507.2.2 Distinguish among symbiotic, commensal, and parasitic relationships.

11 Lichens are made of fungi and algae that benefit from growing together. Which of these best describes this relationship?

- A** parasitic
- B** commensal
- C** competitive
- D** mutualistic

Reporting Category: LIFE SCIENCE 2: Interdependence, Biodiversity & Change

Performance Indicator: 0507.2.3 Use information about the impact of human actions or natural disasters on the environment to support a simple hypothesis, make a prediction, or draw a conclusion.

12 An ecosystem of forests was destroyed and replaced with a large shopping mall. Predict how this will most likely affect the environment of the area.

- F** result in habitat destruction
- G** provide more wildlife habitats
- H** cause an increase in the number of species
- J** cause a decrease in human population

Reporting Category:

LIFE SCIENCE 2: Interdependence,
Biodiversity & Change

Performance Indicator:

0507.5.1 Identify physical and behavioral adaptations that enable animals, such as amphibians, reptiles, birds, fish, and mammals, to survive in a particular environment.

13 A pond is shown.



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Which physical adaptation would most help an animal survive in this pond environment?

- A** webbed feet
- B** long, dark fur
- C** thick blubber
- D** dry, scaly skin

Go On ►

Reporting Category: LIFE SCIENCE 2: Interdependence, Biodiversity & Change

Performance Indicator: 0507.5.2 Explain how fossils provide information about the past.

14 A picture of a fossil is shown.



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The feet and legs of this animal were most likely used for

- F** running.
- G** swimming.
- H** climbing trees.
- J** grasping prey.

Reporting Category: EARTH AND SPACE SCIENCE: The Universe, The Earth, The Atmosphere

Performance Indicator: 0507.6.1 Distinguish among the planets according to their known characteristics, such as appearance, location, composition, and apparent motion.

15 Which planet is the largest in our solar system?

- A** Mars
- B** Earth
- C** Jupiter
- D** Saturn

Go On ►

Reporting Category: EARTH AND SPACE SCIENCE: The Universe, The Earth, The Atmosphere

Performance Indicator: 0507.6.2 Select information from a complex data representation to draw conclusions about the planets.

16 The table contains some facts about Mercury and Neptune.

Facts About Mercury and Neptune

Topic	Mercury	Neptune
Diameter	4,879 km	49,572 km
Temperature Range	-173°C to 427°C	-223°C to -220°C
Atmosphere	Hydrogen, Helium, Oxygen	Hydrogen, Helium, Methane
Moons	None	13
Average Distance from Sun	57,910,000 km	4,504,300,000 km
Rings	None	Yes

Which conclusion is accurate based on this table?

- F** Both planets have moons.
- G** Both planets have temperatures that are always below freezing.
- H** Both planets have atmospheres made of similar gases.
- J** Both planets have similar diameters.

Reporting Category: EARTH AND SPACE SCIENCE: The Universe, The Earth, The Atmosphere

Performance Indicator: 0507.6.3 Identify methods and tools for identifying star patterns.

17 A star chart is best to use to

- A** see stars up close.
- B** identify constellations.
- C** travel around the stars.
- D** predict how constellations move.

Reporting Category: EARTH AND SPACE SCIENCE: The Universe, The Earth, The Atmosphere

Performance Indicator: 0507.6.3 Identify methods and tools for identifying star patterns.

18 A student looks for the Big Dipper constellation in the night sky. Which tool best helps the student identify this constellation?

- F** star chart
- G** microscope
- H** binoculars
- J** globe

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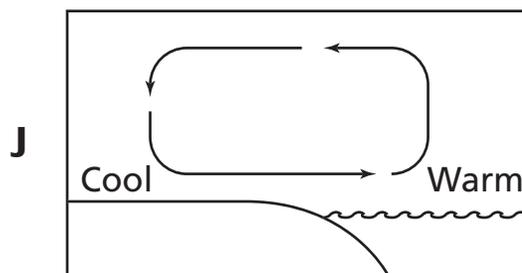
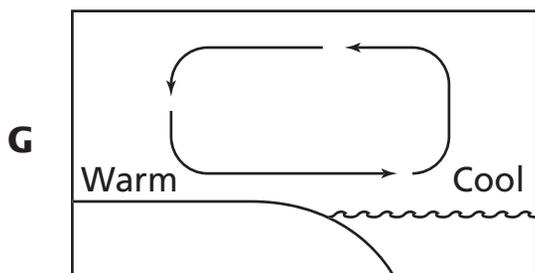
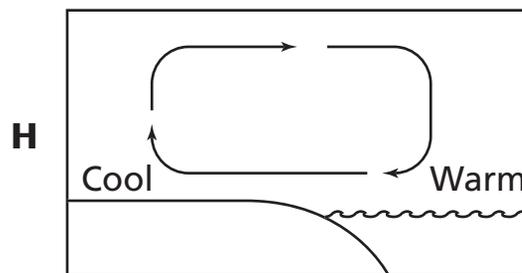
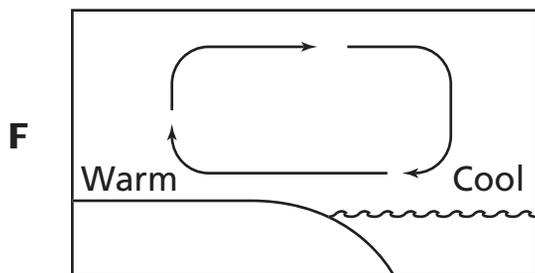
Reporting Category: EARTH AND SPACE SCIENCE: The Universe, The Earth, The Atmosphere

Performance Indicator: 0507.7.1 Describe internal forces such as volcanoes, earthquakes, faulting, and plate movements that are responsible for the earth's major geological features, such as mountains, valleys, etc.

19 The Blue Ridge Mountains form part of the eastern Appalachian Mountains. How were these mountains most likely formed?

- A** Earthquakes caused rocks to form piles.
- B** Large moving earth plates ran into one another.
- C** Wind blew sediments into clumps.
- D** Rivers wore away rock, leaving peaks.

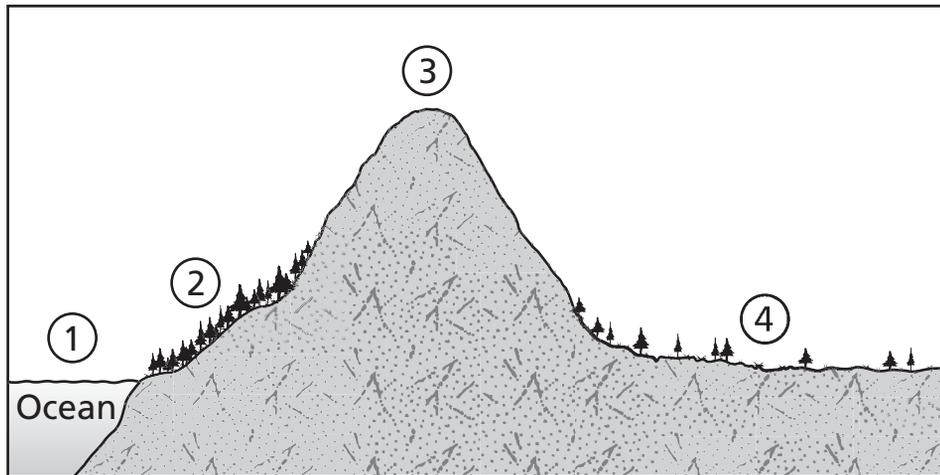
20 Which diagram correctly identifies the air movement of a sea breeze?



Reporting Category: EARTH AND SPACE SCIENCE: The Universe, The Earth, The Atmosphere

Performance Indicator: 0507.8.2 Explain how mountains affect weather and climate.

21 A coastal mountain range is shown.

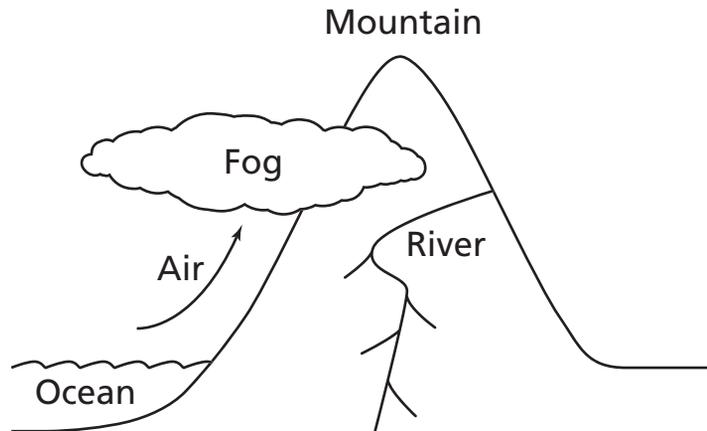


Which area would most likely receive the greatest amount of precipitation?

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

Performance Indicator: 0507.8.2 Explain how mountains affect weather and climate.

22 The diagram shows fog forming near a mountain.



Which best explains what caused the fog to form?

- F** Air is warmed as the sun rises.
- G** Ocean currents flow toward the mountain.
- H** A river flows down the mountain.
- J** Moist air cools as it rises.

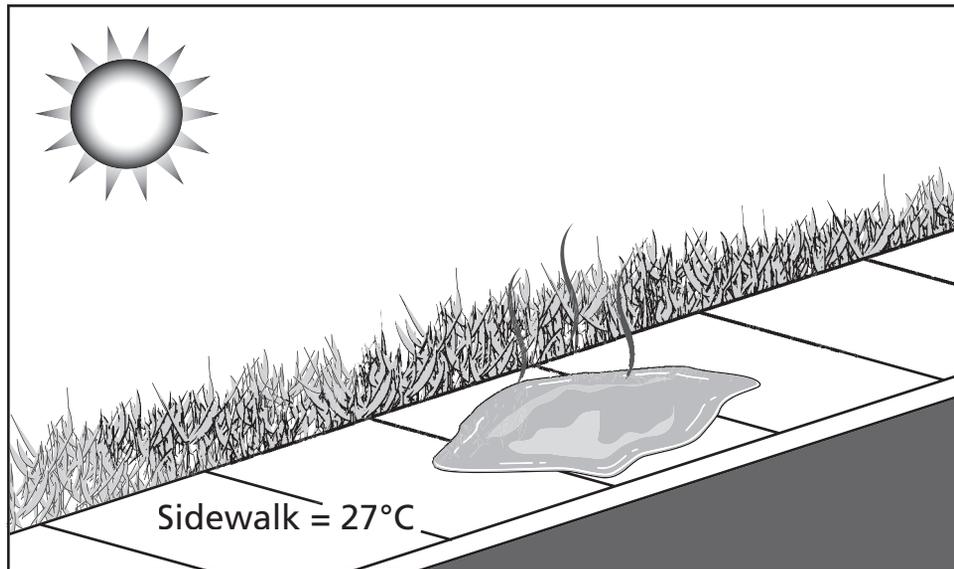
Reporting Category: PHYSICAL SCIENCE 1: Matter and Energy

Performance Indicator: 0507.9.1 Distinguish between physical and chemical properties.

23 Which of these describes a chemical change in matter?

- A** Wax melts.
- B** Paper burns.
- C** Rocks break.
- D** Copper shines.

24 The picture shows a puddle of water on a sidewalk.

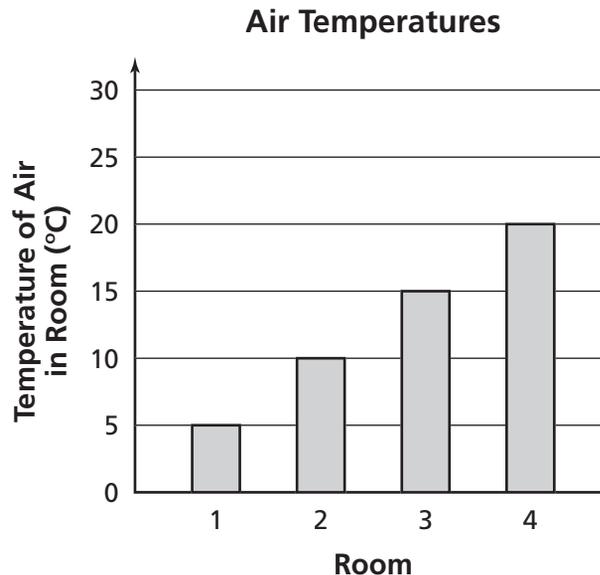


Which best describes what is happening to the water?

- F** As heat is added, the water will melt.
- G** As heat is removed, the water will freeze.
- H** As heat is removed, water vapor will condense.
- J** As heat is added, the water will evaporate.

Performance Indicator: 0507.9.3 Describe factors that influence the rate at which different types of material freeze, melt, or evaporate.

25 A student has four samples of ice, each in an 8-ounce plastic cup. Each sample has a mass of 50 grams and a starting temperature of -10°C . Each sample is placed in a different room. The graph shows the original air temperature in each room.



Compared to the ice in the other rooms, what will most likely happen to the ice in Room 4?

- A** It will freeze the fastest.
- B** It will melt the fastest.
- C** It will evaporate the fastest.
- D** It will condense the fastest.

Reporting Category: PHYSICAL SCIENCE 1: Matter and Energy

Performance Indicator: 0507.10.1 Differentiate between potential and kinetic energy.

26 Which of these is the best example of potential energy?

- F** a ball rolling on a soccer field
- G** a boulder sitting on top of a steep hill
- H** a marble at rest on the floor
- J** a person riding a bicycle on a flat surface

Reporting Category: PHYSICAL SCIENCE 1: Matter and Energy

Performance Indicator: 0507.10.2 Use data from an investigation to determine the method by which heat energy is transferred from one object or material to another.

27 During a heat transfer demonstration, students observed water being pumped around a closed loop in an engine. The moving water carries heat from the hot engine to the radiator. Which type of heat transfer is involved when the cooler water absorbs heat while in contact with the hot engine?

- A** convection
- B** conduction
- C** insulation
- D** radiation

Go On ►

Reporting Category: PHYSICAL SCIENCE 2: Motion, Forces in Nature

Performance Indicator: 0507.11.1 Explain the relationship that exist among mass, force, and distance traveled.

28 Four toy cars were pushed along a flat surface with the same amount of force. The masses of the cars are shown in the table.

Toy Car	Mass (grams)
1	25
2	50
3	75
4	100

Using the information given, which toy car most likely traveled the farthest?

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

Reporting Category: PHYSICAL SCIENCE 2: Motion, Forces in Nature

Performance Indicator: 0507.12.1 Recognize that the earth attracts objects without touching them.

29 In situations in which there is no direct contact, what causes objects to be attracted to Earth?

- A** electric force
- B** magnetic force
- C** friction
- D** gravity

Reporting Category: PHYSICAL SCIENCE 2: Motion, Forces in Nature

Performance Indicator: 0507.12.2 Identify the force that causes objects to fall to the earth.

30 A pencil falls off a desk. What pulls the pencil toward the floor?

- F** magnetism
- G** potential energy
- H** kinetic energy
- J** gravity

Go On ►

31 Four objects with different shapes were dropped from the same height. The time each took to reach the ground is shown in the table below.

Data Table

Object	Drop Time (seconds)
1	.52
2	.34
3	1.00
4	.69

Which object most likely had the least surface area?

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

Science Answer Key

1	C
2	J
3	D
4	J
5	A
6	F
7	C
8	F

9	D
10	H
11	D
12	F
13	A
14	G
15	C
16	H

17	B
18	F
19	B
20	F
21	B
22	J
23	B
24	J

25	B
26	G
27	B
28	F
29	D
30	J
31	B



Tennessee Comprehensive Assessment Program

Achievement Test ~ Grade 5

Item Sampler