SAMPLE A

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
SAMPLE B

Use the terms to label these statements.

If plants are watered every day, then they will grow faster than plants watered once a week.

Terms

- Inference
- Hypothesis

The stems are drooping, so the plants need water.
A fungus is found growing on dead leaves on the forest floor. The fungus is an example of a —

- A decomposer
- B carnivore
- C predator
- D producer
### Monthly Rainfall in Norfolk in Inches

<table>
<thead>
<tr>
<th>Year</th>
<th>May</th>
<th>June</th>
<th>July</th>
</tr>
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<tbody>
<tr>
<td>2008</td>
<td>21.4</td>
<td>18.7</td>
<td>12.3</td>
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<tr>
<td>2009</td>
<td>23.6</td>
<td>15.1</td>
<td>11.3</td>
</tr>
<tr>
<td>2010</td>
<td>24.6</td>
<td>16.3</td>
<td>12.1</td>
</tr>
<tr>
<td>2011</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

Based on the table, how much rainfall should a scientist have predicted for May of 2011 in Norfolk?

- **A** 12–17 inches
- **B** 15–20 inches
- **C** 18–23 inches
- **D** 21–26 inches
Which of these best explains why the sun is not visible during the night?

- A The moon blocks the sun from view.
- B That side of the sun faces away from Earth.
- C The sun stops creating light at night.
- D That side of Earth faces away from the sun.
A model of a plate boundary is shown. What most likely happens as the plates slide past each other?

- A  A mountain forms.
- B  An earthquake occurs.
- C  The ocean floor widens.
- D  Magma comes to the surface.
Directions: Type your answer in the box. Use a whole number.

What is the mass of the rock shown?

Student Investigation

Key

10 g
5 g
1 g
During pollination, pollen is transferred from a stamen to a —

- A petal
- B stem
- C sepal
- D stigma
Which of these is an impact made by humans?

- A. Marble being dug from a rock quarry
- B. Marble forming from sedimentary rock
- C. Oceans drying and exposing limestone
- D. Limestone forming from shells of ocean animals
Lobster pots are used by fishermen to catch lobsters in shallow water. In which area of the ocean would commercial fishermen most likely place their lobster pots?

- **A** On the bottom of an ocean trench
- **B** On top of a mid-ocean ridge
- **C** On the continental slope
- **D** On the continental shelf
Which unit is best to use to measure the distance a runner covered in 30 seconds?

- A mm
- B cm
- C m
- D km
In which direction will the ball most likely go after it hits the wall?

A

B

C

D
Directions: Click and drag the answers to the correct boxes.

Place the type of rock in the correct space.

**Rock Cycle**

- Erosion, Compaction
- Melting, Cooling
- Heat, Pressure

Options:
- Igneous
- Metamorphic
- Sedimentary
Which cell part is necessary for producing food?

- A  Cell membrane
- B  Vacuole
- C  Chloroplast
- D  Cytoplasm
One way in which light waves are different from sound waves is that light waves —

- A can move through empty space
- B are caused by rapid vibrations
- C travel more slowly
- D can be reflected
### Substances

<table>
<thead>
<tr>
<th>Compounds</th>
<th>Elements</th>
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</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>Silver</td>
</tr>
<tr>
<td>Sugar</td>
<td>Oxygen</td>
</tr>
<tr>
<td>?</td>
<td>Iron</td>
</tr>
</tbody>
</table>

**Which material will correctly complete the chart?**

- **A** Gold, because it is a shiny metal
- **B** Salt, because it is made of two types of atoms
- **C** Nitrogen, because it is a gas in the atmosphere
- **D** Carbon, because it is part of many different molecules
A student rubbed a plastic comb with a piece of wool cloth and then placed the comb near a stream of water. The water bent toward the comb as shown because of —

- A thermal energy
- B static electricity
- C magnetism
- D gravity
Which plant part develops into a fruit?

- A Flower
- B Stem
- C Leaf
- D Root
### How Long Does It Take Objects to Reach the Ground?

<table>
<thead>
<tr>
<th>Object</th>
<th>Drop Height (m)</th>
<th>Time (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton Ball</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Marble</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Crumpled Paper</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Tennis Ball</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

A student is investigating the time it takes for different objects to reach the ground after they are dropped. The constant in this investigation is the —

- A  time to reach the ground
- B  distance to the ground
- C  weight of each object
- D  object being dropped
Directions: Click and drag the answers to the correct boxes.

Identify the data shown for the unknown substance as either quantitative or qualitative.

<table>
<thead>
<tr>
<th>Data for an Unknown Substance</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative</td>
<td>Gold color</td>
</tr>
<tr>
<td>Qualitative</td>
<td>Weighs 20.5 g</td>
</tr>
<tr>
<td></td>
<td>Greenish black streak</td>
</tr>
<tr>
<td></td>
<td>About 4 cm$^3$</td>
</tr>
<tr>
<td></td>
<td>Sinks in water</td>
</tr>
<tr>
<td></td>
<td>Hardness of 6–6.5</td>
</tr>
</tbody>
</table>
Which of these represents a correct flow of energy based on the food web shown?

- A  Loggerhead Turtle → Horseshoe Crab → Razor Clam
- B  Horseshoe Crab → Loggerhead Turtle → Sanderling
- C  Diamondback Terrapin → Razor Clam → Plankton
- D  Razor Clam → Horseshoe Crab → Sanderling
When stirred together, which two substances form a solution?

- A  Sand and salt
- B  Sugar and salt
- C  Sand and water
- D  Sugar and water
The plants are most likely responding to which factor in the environment?

- A Light
- B Water
- C Oxygen
- D Carbon dioxide
The greater the frequency of a sound wave, the —

- A lower the pitch
- B higher the pitch
- C softer the sound
- D louder the sound
A student made the model showing the particles in a solid. To improve the model, the student should —

- **A** put the beads in a square container
- **B** take out some beads so the particles can move more easily
- **C** shake the container gently to show how the particles vibrate
- **D** use different-colored beads to make the particles easier to see
Which substance produced during photosynthesis is represented by the X in the illustration?

- A Water
- B Oxygen
- C Sunlight
- D Carbon dioxide
Which of these animals is classified as a vertebrate?

A. Snail
B. Snake
C. Butterfly
D. Ladybug
An electromagnet can be made using a battery, insulated wire, and —

A  an iron nail
B  an aluminum can
C  a nickel coin
D  a gold chain
High and low tides on the coast are caused mostly by —

- A underwater earthquakes
- B the gravity from the moon
- C storms over the ocean
- D the tilt of Earth
The plant shown grows in swamps and produces an odor similar to a skunk. Why should people preserve a plant like the skunk cabbage?

- **A** It depends on a moist environment.
- **B** It has a certain role in the ecosystem.
- **C** It is prized by gardeners for its flowers.
- **D** It has leaves that are about the same shape as each other.
Ocean Food Chain

Phytoplankton → White Shark → Fish → Seal → Animal-like Plankton

Which pair of organisms needs to switch places for the ocean food chain to be correct?

A. Phytoplankton and fish
B. Animal-like plankton and fish
C. White shark and phytoplankton
D. White shark and animal-like plankton
# Temperatures of Water (°C)

<table>
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<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>20</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Black</td>
<td>20</td>
<td>52</td>
<td>59</td>
<td>54</td>
</tr>
<tr>
<td>Brown</td>
<td>20</td>
<td>37</td>
<td>36</td>
<td>32</td>
</tr>
<tr>
<td>Green</td>
<td>20</td>
<td>29</td>
<td>28</td>
<td>27</td>
</tr>
</tbody>
</table>

Students investigated how different colors of construction paper in a solar oven affect the heating of water. Which graph correctly represents the data for the brown construction paper?
A student made a track for a toy sled using 4 different materials. At which section of the track is friction most likely to cause the greatest resistance to the motion of the toy sled?

- A 1
- B 2
- C 3
- D 4
Which pair of colors is in order from the longest wavelength of light in the visible spectrum to the shortest wavelength?

- A  Green, orange
- B  Yellow, red
- C  Violet, blue
- D  Red, violet
Based on the mineral identification table, which mineral belongs in square X of the flow chart?

- **A** Mica
- **B** Graphite
- **C** Magnetite
- **D** Hornblende
The conveyor belt moves the groceries by transforming electrical energy into —

- A thermal energy
- B radiant energy
- C mechanical energy
- D potential energy
Students made a classroom barometer that can be used to measure —

- A wind direction
- B temperature
- C air pressure
- D precipitation
Which of these is an example of a behavioral adaptation?

- A  A cow that has flat teeth
- B  A squirrel that has buried acorns
- C  A fish that has scales
- D  An owl that has soft feathers
Coal is important for Virginia because it —

- **A** can be used for energy
- **B** can be divided into four types
- **C** is found in many areas of the country
- **D** is formed from plant and animal remains
## Grade 5 Science
### Released Test Item Set Spring 2015
### Answer Key

<table>
<thead>
<tr>
<th>Sequence Number</th>
<th>Item Type: Multiple Choice (MC) or Technology Enhanced Item (TEI)</th>
<th>Correct Answer</th>
<th>Reporting Category</th>
<th>Reporting Category Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MC</td>
<td>A</td>
<td>003</td>
<td>Life Processes and Living Systems</td>
</tr>
<tr>
<td>2</td>
<td>MC</td>
<td>D</td>
<td>001</td>
<td>Scientific Investigation</td>
</tr>
<tr>
<td>3</td>
<td>MC</td>
<td>D</td>
<td>004</td>
<td>Earth/Space Systems and Cycles</td>
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<td>4</td>
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<td>004</td>
<td>Earth/Space Systems and Cycles</td>
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<td>5</td>
<td>TEI</td>
<td>Typed response: 37</td>
<td>001</td>
<td>Scientific Investigation</td>
</tr>
</tbody>
</table>

Directions: Type your answer in the box. Use a whole number.

What is the mass of the rock shown?

**Student Investigation**

<table>
<thead>
<tr>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>![10 g](10 g)</td>
</tr>
<tr>
<td>![5 g](5 g)</td>
</tr>
<tr>
<td>![1 g](1 g)</td>
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<td>Scientific Investigation</td>
</tr>
<tr>
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<td>MC</td>
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<td>002</td>
<td>Force, Motion, Energy, and Matter</td>
</tr>
<tr>
<td>11</td>
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<td>Answers must be placed in the correct locations: Top box: Igneous Bottom left box: Sedimentary Bottom right box: Metamorphic</td>
<td>004</td>
<td>Earth/Space Systems and Cycles</td>
</tr>
</tbody>
</table>

![Rock Cycle Diagram](image)

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<p>| 12               | MC                                                            | C              | 003               | Life Processes and Living Systems |</p>
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<tr>
<td>18</td>
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<td>Each answer must be placed in the correct column: Left Column: Weighs 20.5 g; About 4 cm³; Hardness of 6-6.5 Right Column: Gold color; Greenish black streak; Sinks in water The order in which the answers are placed in each column does not matter.</td>
<td>001</td>
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