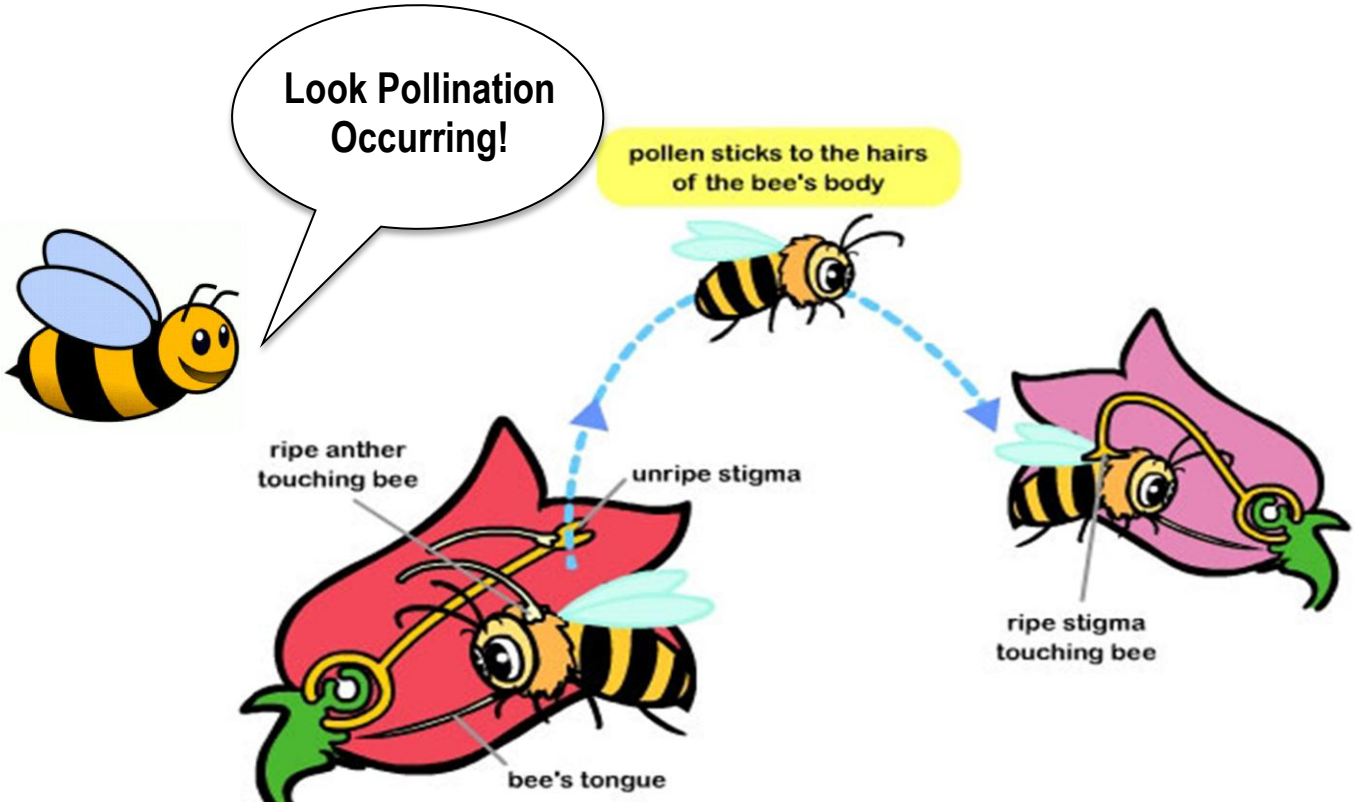
Grade 7
Science



SPRING BREAK PACKET

Student Book

Student Name	
Class Mod	

April 14-21, 2013

Prince George's County Public Schools
Division of Teaching and Learning
Department of Curriculum and Instruction

Materials contained in this packet have been adopted from the MSA Public Release Items 2007, 2008, 2009 and 2010
Institute of Education Sciences National Center for Education Statistics and Past Spring and Winter Break Packets.

Note to Student and Parents

This homework packet for Spring Break has been created to provide practice for students to work through selected response and brief constructed response items related to previously learned skills and processes, physical science, life science and earth/space science concepts. It is intended to be used for review purposes in preparation for the Maryland State Assessment (MSA) in Science and therefore students are encouraged to return a completed packet to their science teacher when they return from spring break.

The Spring Break Packet contains a technical passage, selected and brief constructed response items (SRs and BCRs), graphs, charts and a scoring rubric for brief constructed response items (BCRs).

Please write your response to the SRs and BCRs on the space provided in this booklet.

Enclosed in this packet, is a copy of the Maryland State Assessment Rubric for scoring BCRs. It can also be found online at Maryland State Department of Education (MSDE) website *mdk12.org*. It is highly recommended that this rubric be used when responding to BCRs.

Grading Scale	
Overall Score	Grade
29 - 25	A
24 - 18	B
17 - 13	C
12 - 6	D
5 - 0	E

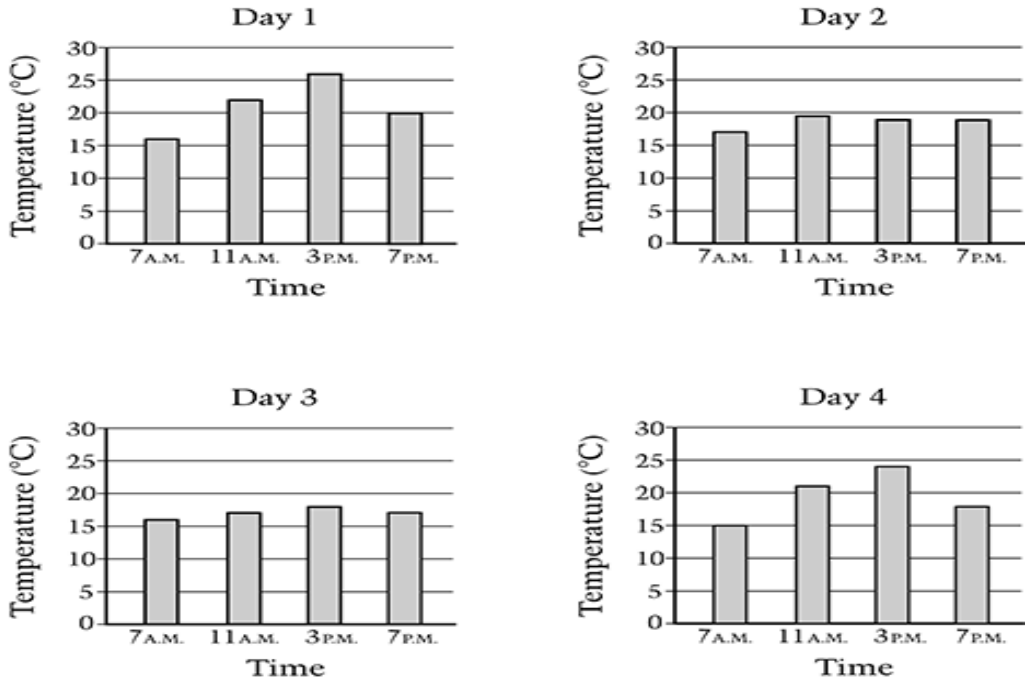
Each Selected Response question is worth 1 point. The Brief Constructed Response Questions (numbers 2, 4, 6, 7, 13, 19) is worth a maximum of 3 points each.

Approximate time: The allocated amount of time required to complete this Spring Break Packet is 120 minutes.

Parent's Name	
Parent's Signature	

1.0 Skills and Processes

1. Grace's class measured the temperature outside four times a day for four days in a row. Their results are shown below.



Based on these data, which two days were most likely cloudy?

A. Days 1 and 2

B. Days 2 and 3

C. Days 3 and 4

D. Days 1 and 4

2. You have run several trials in your experiment and gathered data from each trial.

What will help you organize all the information from your experiment?

A. develop a hypothesis

B. create a table or a graph

C. run some more trials

D. draw your conclusion

Use the information and table below to answer Number 3.

3. You are helping a friend with a lab report. He tells you that he has discovered that tomato plants grow better in moist soil than in dry soil. You look over the experimental design and see the table below.

Experimental Design

Number of Plants	Soil Type	Garden Location
20	dry	sunny
25	moist	part shady

Use the space provided on page 6 to evaluate your friend's experimental design.

In your response be sure to include:

- **the list of variables in the experiment**
- **validity of your friend's conclusion**
- **a description on how you would change the experiment**

Write your answer in the space provided.

Use the information and table below to answer Number 4.

Rafael lives near a road at the bottom of a hill. His parents are concerned that soil will wash off the hill and rocks will fall onto the road. Rafael conducts an investigation to find out if grass growing on a hillside will help stop soil erosion. He collects two samples of the same size and type of soil. One sample of soil has grass growing on it and the other does not. He places each sample of soil in a small tray

After pouring the water onto both pieces of soil, Rafael makes an observation. The water collected in the tray under the soil with grass looks clearer than the water collected in the tray under the soil without grass.

4. What conclusion can Rafael make from his observation?

A. The grass helped to hold the soil in place.

B. The grass helped to move the water through the soil.

C. The soil without grass was sticky, so more water stayed in the soil.

D. The soil without grass was loose, so more water stayed in the soil.

Use the information and table below to answer Number 5.

Two students investigated the growth of pea plants. Each student had three pots. All of the pots contained the same type and amount of soil. They planted pea seeds in each pot. The students set up their investigations as shown in the table below.

5. Use the space provided on page 9 to explain, which student had the best setup to find out how the amount of sunlight affects the growth of pea plants?

In your response, be sure to identify the independent and dependent variables.

a. Michael
b. Carmen

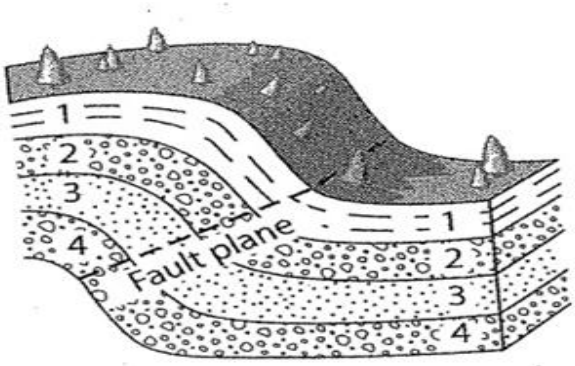
	Volume of Water added to Pots	Temperature of the Environment	Amount of Sunlight Pots Received
Michael	The same for each pot	Different for each pot	The same for each pot
Carmen	The same for each pot	The same for each pot	Different or each pot

Write your answer in the space provided.

2.0 Earth Space Science

Directions: Use the information and the diagram below to answer Numbers 6 and 7 on pages 10 and 11.

6. The diagram below shows four rock layers.



Fossils found in sedimentary rock help show the history of life on Earth. If fossils have been found in layers 1, 3 and 4 in the diagram above, how would you describe the age of the fossils in layer 3?

A. They are older than the fossils in layers 1 and 4.

B. They are younger than the fossils in layers 1 and 4.

C. They are older than fossils in layer 1 and younger than the fossils in layer 4.

D. They are older than the fossils in layer 4 and younger than the fossils in layer 1.

7. Suppose that these rock layers are near a subduction, where one of Earth's plates slides under another. The layers are slowly sinking into the Earth's mantle. Which will <u>most likely</u> happen to the fossils found in these rock layers?

A. They will be preserved.

B. They will be destroyed.

C. Their age will decrease.

D. Their sequence will be reversed.

8. Use the diagram below to answer Number 8.

Which correctly lists the order in which the water passed through the funnels, from fastest to slowest?

A. Pebbles, fine sand, coarse sand

B. Pebbles, coarse sand, fine sand

C. Fine sand, coarse sand, pebbles

D. Coarse sand, pebbles, fine sand

Use the information below to answer Number 9.

9. Climate refers to the average weather condition in an area. Both mechanical and chemical weathering occurs faster in wet cool climates. Rainfall provides water needed for chemical changes as well as freezing and thawing. Marble is a hard yet permeable rock. Permeable means that marble has a lot of tiny connected air spaces. Suppose a marble monument was placed outside for 100 years in a region with a wet cool climate.

How would mechanical and chemical weathering occur in marble? In your response be sure to explain the difference between mechanical and chemical weathering.

Write your answer in the space provided.

10. Roger poured water over a pile of sand. Some of the sand washed away. This process is similar to which of the following?

A. The eruption of a volcano.

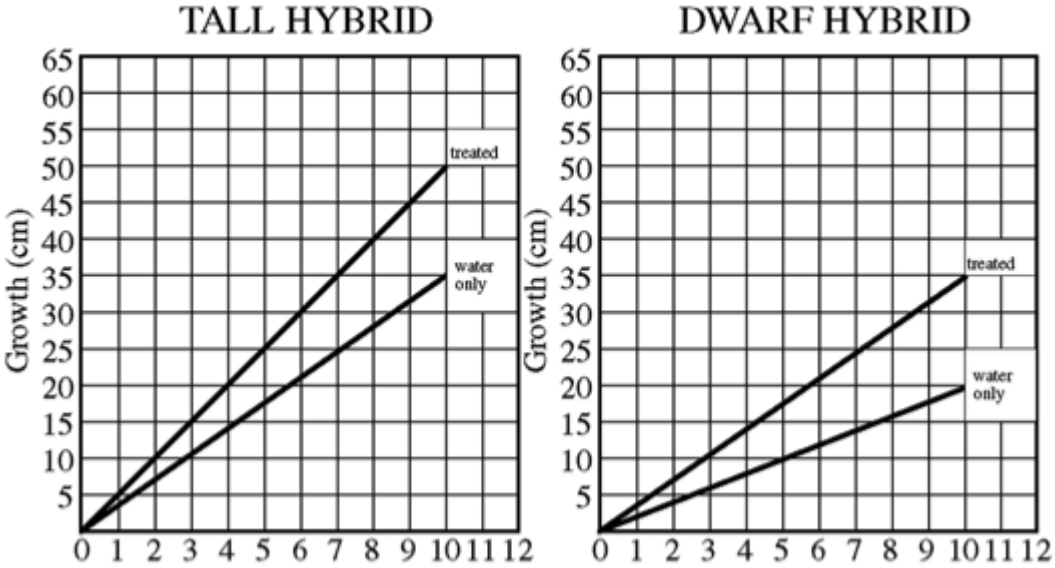
B. The erosion of the walls of a canyon.

C. The uplifting of mountain ranges.

D. The forming of dunes or mounds in a desert.

3.0 Life Science

Use the diagram below to answer Number 11.



11. In an experiment to study the effect of a new fertilizer on the growth of tall hybrid corn and dwarf hybrid corn, from immediately after germination to ten days of growth, the data below were obtained. Other growing conditions such as water and sunlight were the same for both groups.

Which of the following is the most reasonable conclusion that can be drawn from the data above?

A. The new fertilizer influences the growth of both corn varieties tested.

B. The new fertilizer causes faster growth rate for both varieties than do other fertilizers.

C. The new fertilizer improves the root system of the tall hybrid to a greater extent than it does that of the dwarf hybrid.

D. The new fertilizer is effective in producing faster growth for both varieties for the first ten days only.

12. In your body, what two organs work together to make sure that oxygen gets to all the other organs of your body?

A. Lungs and kidneys

B. Heart and lungs

C. Brain and kidneys

D. Heart and liver

13. A scientist has recently discovered a new organism that lives in a pond. An organism from this new species

- **is mobile**
- **can reproduce**
- **is multicellular**
- **has bilateral symmetry**

These factors best describe a(n)

A. plant

B. fungi

C. animal

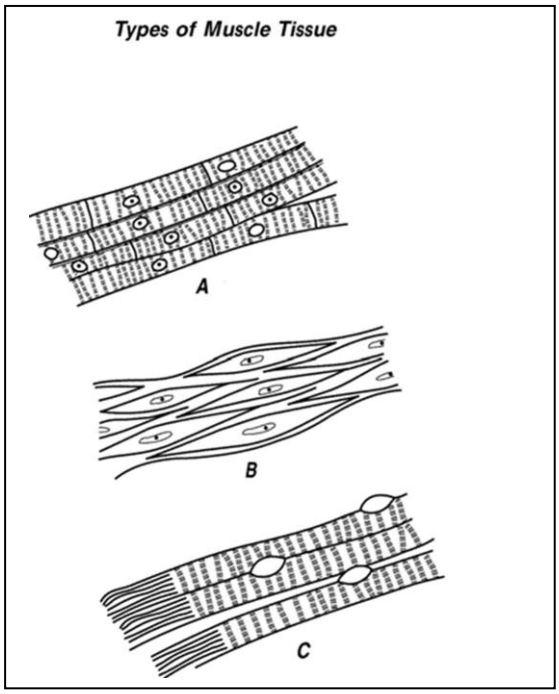
D. bacteria

Use the technical passage below to answer Number 14 on page 17.

The Muscular System

There are about 600 muscles in your body. The muscles that are not under your conscious control are called involuntary muscles**.** Involuntary muscles are responsible for activities such as breathing and digesting food. The muscles that are under your control are called voluntary muscles. Smiling and turning the pages in a book are actions of voluntary muscles.

Your body has three types of muscle tissue—skeletal muscle, smooth muscle, and cardiac muscle. Some of these muscle tissues are involuntary, and some are voluntary. Skeletal muscles are attached to the bones of your skeleton. At the end of a skeletal muscle is a tendon. A tendon is a strong connective tissue that attaches muscle to bone. Because you have conscious control of skeletal muscles, they are classified as voluntary muscles. These muscles provide the force that moves your bones. Skeletal muscles react quickly and tire quickly. Skeletal muscle cells appear banded, or striated. For this reason, they are sometimes called striated muscles. Smooth muscles are called involuntary muscles because they work automatically. They are inside many internal organs of the body, and control many types of movements inside your body, such as those involved in the process of digestion. Smooth muscles react more slowly and tire more slowly than skeletal muscles. Cardiac muscles are involuntary muscles found only in the heart and they are also striated. Cardiac muscles do not get tired.



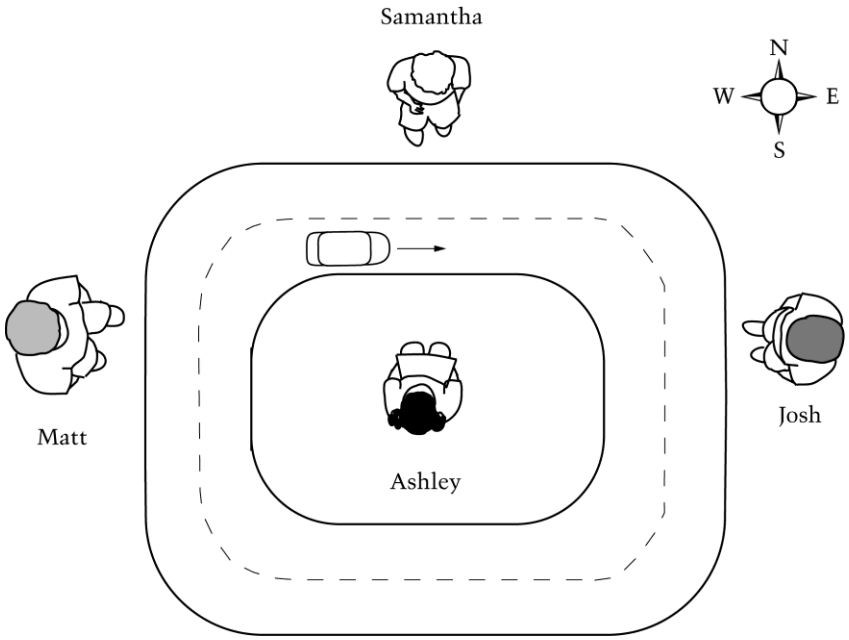
14. Use the space provided on page 18 to describe the type of muscle tissue shown in item B of the diagram above. In your description, be sure to include:

- **where the tissue can be found in the body.**
- **the function of the tissue in the body.**

Write your answer in the space provided.

4.0 Physical Science

The diagram below shows the top of a toy car as it travels on a curved track. Four students, Matt, Samantha, Josh, and Ashley stand in the positions shown and watch the toy car move.



15. When the toy car is in the position shown in the diagram, what can all four students correctly conclude about the direction in which the car is moving?

A. The car is moving left to right.

B. The car is moving right to left.

C. The car is moving east to west.

D. The car is moving west to east.

16. Which is an example of melting?

A. Flowing water making a rock smooth

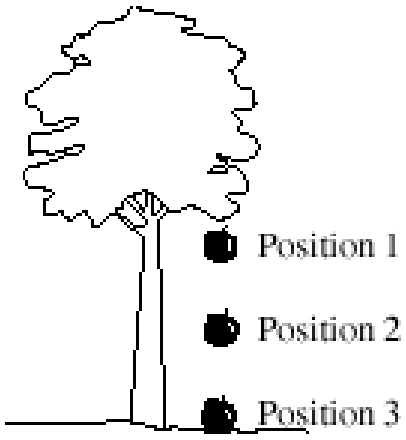
B. A carrot becoming soft when cooked

C. Sugar mixed into tea making the tea sweet

D. Butter changing into liquid in a warm pan

17. The drawing shows an apple falling to the ground.

In which of the three positions does gravity act on the apple?



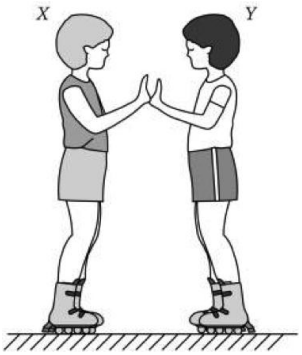
A. 2 only

B. 1 and 2 only

C. 1 and 3 only

D. 1, 2, and 3

18. Motion of two boys on skates



Two boys wearing in-line skates are standing on a smooth surface with the palms of their hands touching and their arms bent, as shown above.

If Boy X pushes by straightening his arms out while Boy Y holds his arms in the original position, what is the motion of the two boys?

A. Boy X does not move and Boy Y moves backward.

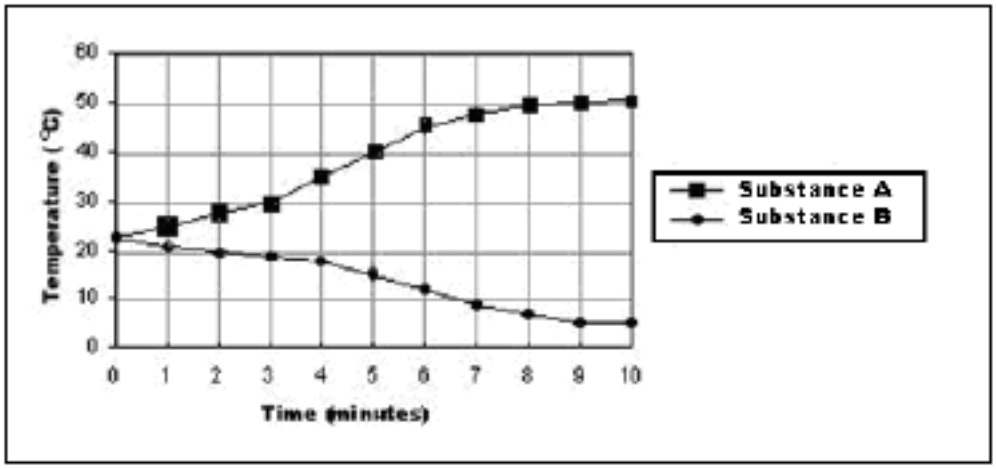
B. Boy Y does not move and Boy X moves backward.

C. Boy X and Boy Y both move backward.

D. The motion depends on how hard Boy X pushes.

Use the diagram below to answer Number 19.

Energy of Two Substances



19. A student observes two different substances. One of the substances is ice that is melting. The student measures the temperature of each substance every minute, then plots the time and temperature data and creates the graph above.

Use the space provided on page 23 to explain which substance, A or B, is the melting ice. In your explanation, be sure to include:

- **energy transfer**
- **the state of matter**

Write your answer in the space provided.

MSA SCIENCE RUBRIC

LEVEL 3

There is evidence in this response that the student has a *full and complete understanding* of the question or problem.

- The supporting scientific evidence is complete and demonstrates a full integration of scientific concepts, principles, and/or skills.
- The response reflects a complete synthesis of information, such as data, cause-effect relationships, or other collected evidence.
- The accurate use of scientific terminology strengthens the response.
- An effective application of the concept to a practical problem or real-world situation reveals a complete understanding of the scientific principles. *

LEVEL 2

There is evidence in this response that the student has a *general understanding* of the question or problem.

- The supporting scientific evidence is generally complete with some integration of scientific concepts, principles, and/or skills.
- The response reflects some synthesis of information, such as data, cause-effect relationships, or other collected evidence.
- The accurate use of scientific terminology is present in the response.
- An application of the concept to a practical problem or real-world situation reveals a general understanding of the scientific principles. *

LEVEL 1

There is evidence in this response that the student has *minimal understanding* of the question or problem.

- The supporting scientific evidence is minimal.
- The response provides little or no synthesis of information, such as data, cause-effect relationships, or other collected evidence.
- The accurate use of scientific terminology may not be present in the response.
- An application, if attempted, is minimal. *

LEVEL 0

There is evidence that the student has *no understanding* of the question or problem.

- The response is completely incorrect or irrelevant or there is no response.

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* *On the Maryland School Assessment, the application of a concept to a practical problem or real-world situation will be scored when it is required in the response and requested in the item stem.*