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Science

West Virginia
WESTEST 2

Science

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<http://wvde.state.wv.us/oaa/filecabinet.html>

Grade Four

4.1.13 ~ apply mathematical skills and use metric units in measurements and calculations.

Depth of Knowledge 1

Tom tells your class he is 1.27 meters tall. What would Tom's height be in centimeters?

0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

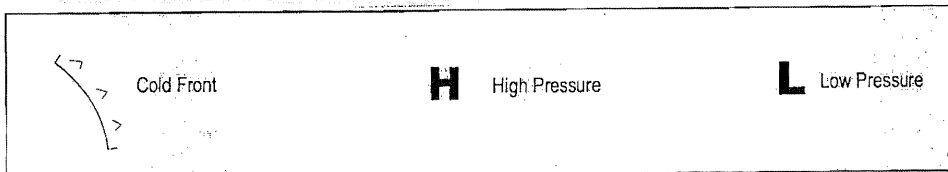
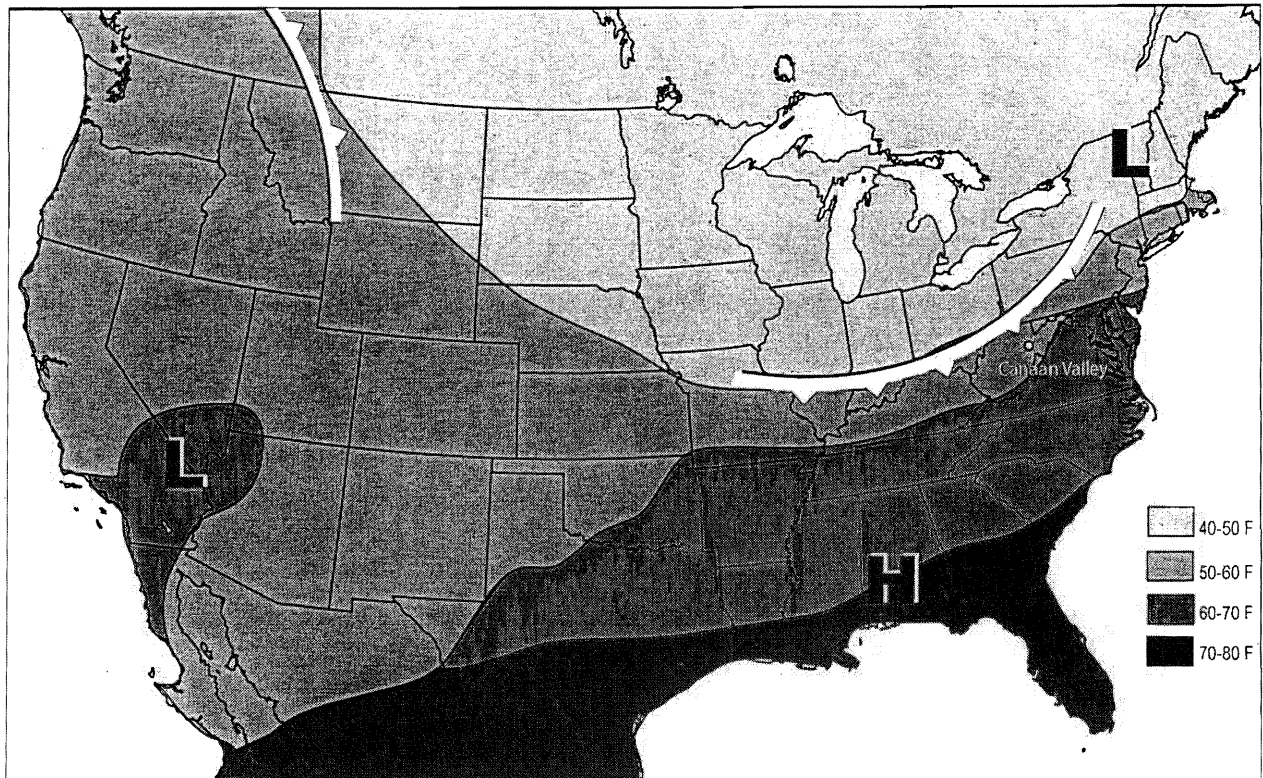
Grade Four

4.1.12 ~ draw and support conclusions, make predictions and inferences based on patterns of evidence (e.g., weather maps, variation of plants, or frequency and pitch of sound). *Depth of Knowledge 3*

Sara needs to buy a coat for her trip to Canaan Valley. The table below describes the properties of four materials often used in coats and the weather map below shows the predicted weather.

Properties of Materials Used in Coats

Material	Properties of the Material		
	Waterproof	Warm	Lightweight
A	YES	YES	NO
B	NO	NO	YES
C	YES	NO	YES
D	NO	YES	YES



Question on following page.

Her Jacket should be made of which material?

- a. A
- b. B
- c. C
- d. D

Item 9
CSO sc 4.2.4

Pat dropped her sewing needle on the floor and cannot find it. She knows that the needle is made mostly of iron.

What property of iron could she use to find the needle?

If the needle was made of aluminum, would she be able to find the needle using the same method? Explain your answer on the lines below.

<p>Key Elements</p> <p>Iron is attracted to a magnet. (Metallic)</p> <p>No AND Aluminum is not attracted to a magnet. (Metal Detector)</p> <p>Note: Do <u>not</u> accept "metal detector" as a correct response for Key Element 2, if the response for key element 1 is "magnet". Accept "metal detector" as a correct response for key element 2 <u>only</u> if the response for key element 1 is "metallic"</p>
<p>Score Points</p> <p>2 points two key elements 1 point one key element 0 points incorrect response or no response</p>

Grade Six

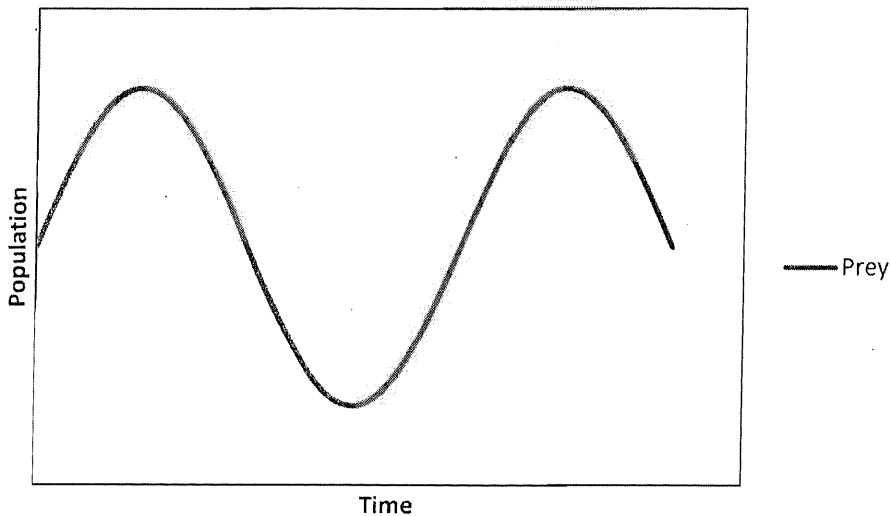
6.3.02 ~ construct a variety of useful models of an object, event, or process.

Depth of Knowledge 2

Your teacher gives you ten years of population data for two animal species in West Virginia, as shown in the chart below.

Year	1	2	3	4	5	6	7	8	9	10
Species A	50	75	25	9	8	16	25	45	73	25
Species B	6	10	25	26	19	16	13	10	8	25

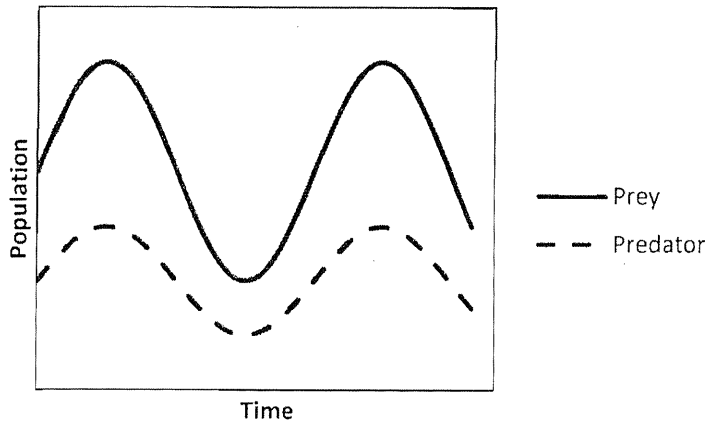
You learn one species preys on the other. Your teacher instructs you to develop a model of the population changes. You use your computer to begin creating the graph shown below.



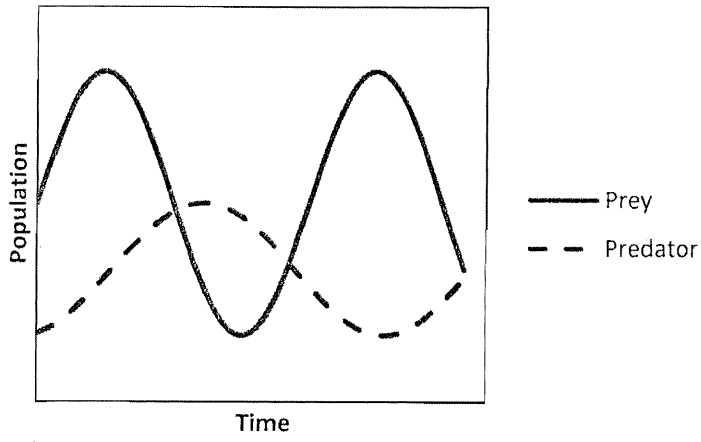
Which graph below **best** illustrates the addition of the predator population?

(Answers on next page)

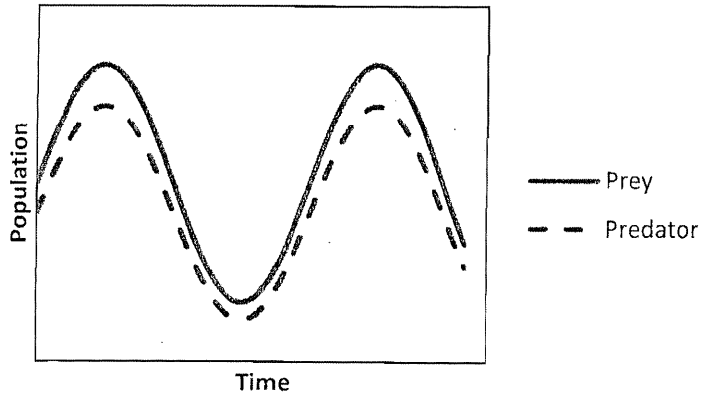
A.



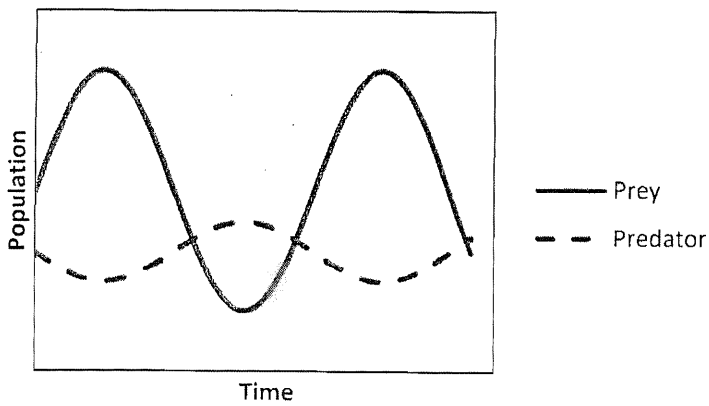
B.



C.

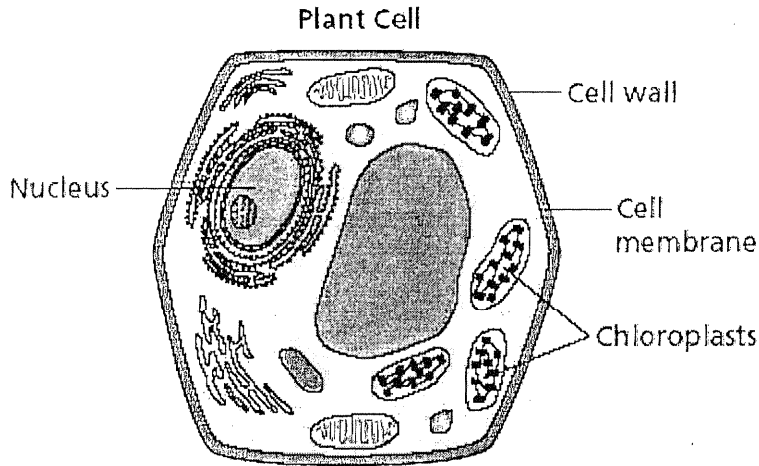


D.



Item 10
CSO sc 6.3.01

The diagram below shows a plant cell.



Identify the two structures in the diagram that are not present in an animal cell.
Explain how each of these helps the plant cell to survive.

Structure 1: _____

Structure 2: _____

Key Elements

cell wall
cell wall provides support for the cell

chloroplast
chloroplast makes food for the cell

Score Points

2 points four key elements
1 point two -three key element
0 points incorrect response or no response

Grade Nine

PS.2.09 ~ qualitatively and quantitatively describe the law of conservation of mass/energy (e.g., mechanical, thermal, chemical, electrical and nuclear) *Depth of Knowledge 2*

One at a time, you toss five balls with different masses into the air and record the results. The results of your activity are recorded in the chart below.

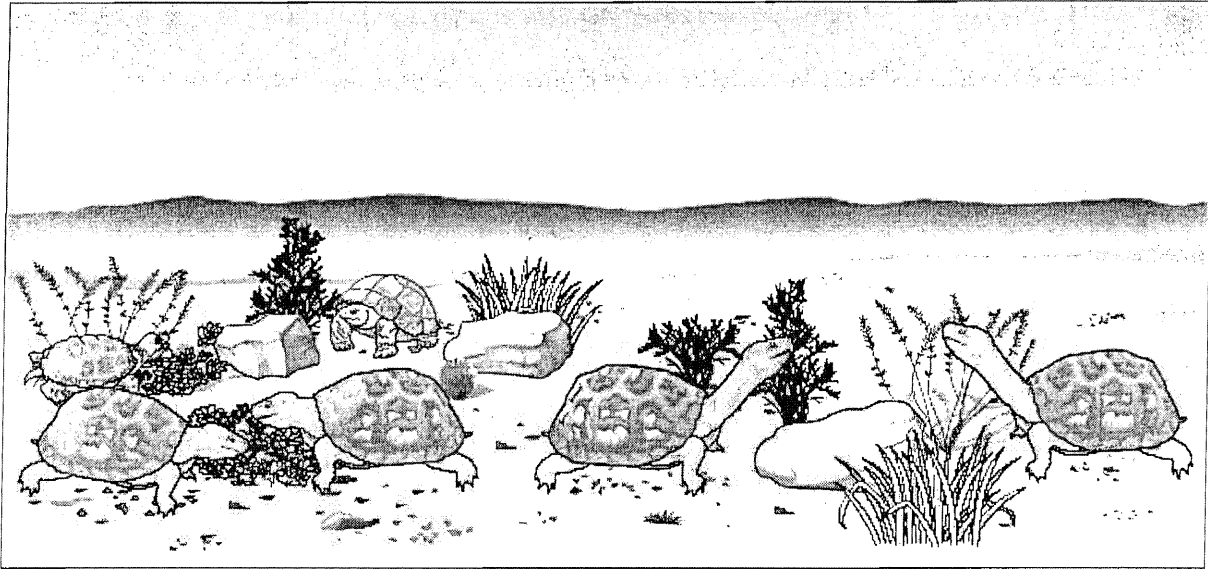
Mass (kg)	Distance (m)	Potential Energy
0.05	31	
0.10	24	
0.15	19	
0.20	15	
0.25	10	

What is the mass of the ball with the greatest potential energy at its peak?

	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Item 10
CSO sc 10.4.11

The illustration below shows two closely related species of turtle feeding on plants in an arid habitat.



Identify one way the species of turtle seem to differ in the illustration.

During a drought season, most low-growing vegetation dies out. Describe and explain what will happen to the populations of the two turtle species during the drought season.

If drought conditions continue through several seasons, predict and explain how each of the two turtle populations will be affected.

Grade 10 Science Scoring Rubrics – Constructed Response

Item 10

Key Elements	
Part 1 Any <u>one</u> of the following.	
<ul style="list-style-type: none">• some of the turtles have necks that are longer than others• they feed at different height• they feed on different plants	
Part 2 - 2 key elements The population of turtles that have longer necks should stay unchanged because these turtles will be able to get food from the taller plants and continue to live in the habitat AND The population of short-necked turtles will decrease as their food source dies out	
Part 3 The long-necked turtles will continue to survive and reproduce, so the long-necked trait will become more predominant in this habitat; the short-necked species may become extinct in this habitat	
Score Points	
4 points	4 key elements
3 points	3 key elements
2 points	2 key elements
1 point	1 key element
0 points	incorrect response or no response

WESTEST 2 Science Answer Key

Grade Four

Multiple Choice Answer ~ A

	1	2	7
0	0	0	0
1	●	1	1
2	2	●	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	●
8	8	8	8
9	9	9	9

Grade Six

Multiple Choice Answer ~ B

Grade Nine

	0	.	2	0
	/	/	/	
●	●	●	●	●
0	●	0	0	●
1	1	1	1	1
2	2	2	●	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Mass (kg)	Distance (m)	Potential Energy
0.05	31	$(0.05\text{kg} \cdot 9.8\text{m/s}^2 \cdot 31\text{m}) = 15.19\text{ J}$
0.10	24	$(0.10\text{kg} \cdot 9.8\text{m/s}^2 \cdot 24\text{m}) = 23.52\text{ J}$
0.15	19	$(0.15\text{kg} \cdot 9.8\text{m/s}^2 \cdot 19\text{m}) = 27.93\text{ J}$
0.20	15	$(0.20\text{kg} \cdot 9.8\text{m/s}^2 \cdot 15\text{m}) = 29.40\text{ J}$
0.25	10	$(0.25\text{kg} \cdot 9.8\text{m/s}^2 \cdot 10\text{m}) = 24.50\text{ J}$

Acuity Supports Science

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Grade Four

4.1.12 ~draw and support conclusions, make predictions and inferences based on patterns of evidence (e.g., weather maps, variation of plants, or frequency and pitch of sound).

Depth of Knowledge 3

Minerals are ranked according to hardness. A very soft mineral has a rank of 1. A very hard mineral has a rank of 10. To find out how hard the minerals are you scratch them against each other. You tested 4 minerals and made the following chart.

Mineral	Observations
A	Minerals B, C and D scratched Mineral A
B	Minerals C and D scratched Mineral B
C	Mineral C made scratches in Minerals A, B and D
D	Mineral D made scratches in minerals A and B

The minerals used in the experiment and their hardness ranking are listed below.

Mineral	Hardness Ranking (Mohs Scale)
Hornblende	5.5
Mica	2.5
Quartz	7.0
Pyrite	6.5

Which of these could be mineral B?

- A. Mica
- B. Hornblende
- C. Quartz
- D. Pyrite

Grade Six

6.3.02 ~ construct a variety of useful models of an object, event, or process.

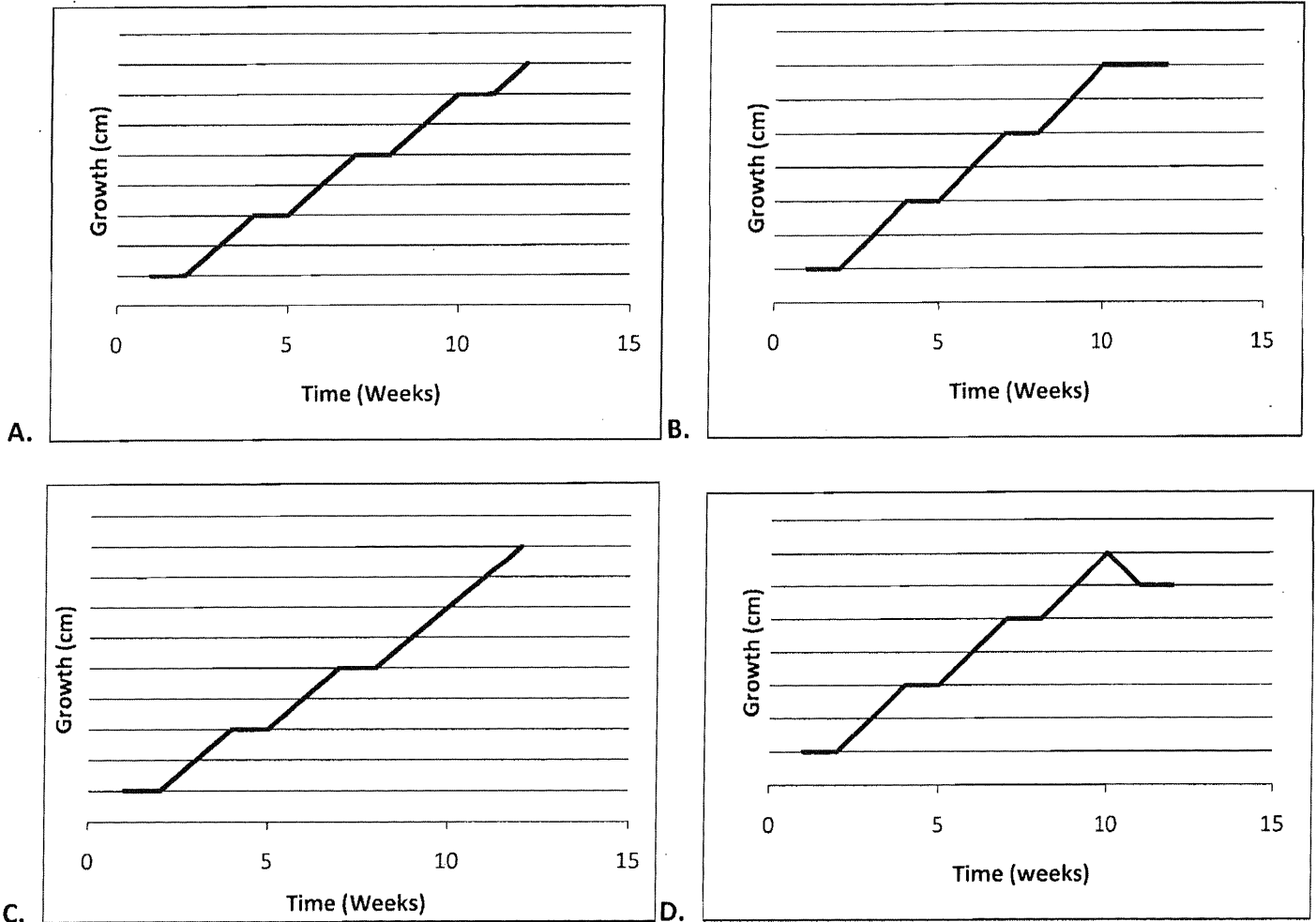
Depth of Knowledge 2

Melissa measured the growth of several apples on a tree near her home for ten weeks. Her data is found in the chart below:

Week	1	2	3	4	5	6	7	8	9	10
Average Width of 5 apples (cm)	1	1	2	3	3	4	5	5	6	7

She went to visit a relative and was unable to collect data for two weeks.

If the apples continued to grow in the same manner as before, which graph correctly models the growth of the apples during the entire 12 weeks?



Grade Nine

PS.2.09 ~ qualitatively and quantitatively describe the law of conservation of mass/energy
(e.g., mechanical, thermal, chemical, electrical and nuclear)

Depth of Knowledge 2

Four students submitted proposals for science fair projects to their teacher. The four proposals were:

Anna's project is to combine several different solutions and observe to determine if a chemical reaction takes place.

Blake's project is to measure the mass of two chemical compounds, chemically combine the two substances and measure the mass of the new compound formed.

Cindy's project is to roll two identical bowling balls on a very smooth surface toward each other and measure the distance traveled by each before and after the collision.

Drew's project is to place a piece of metal that has been heated to 200°C in a cup of water whose temperature is 20°C and measure the temperature change of the water.

Which project investigates the conservation of matter?

- A. Anna's
- B. Blake's
- C. Cindy's
- D. Drew's

Acuity Science Answer Key

Grade Four

Multiple Choice Answer ~ B

Grade Six

Multiple Choice Answer ~ A

Grade Nine

Multiple Choice Answer ~ B

WESTEST 2 Science Answer Key

Grade Four

Multiple Choice Answer ~ A

	1	2	7
0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Grade Six

Multiple Choice Answer ~ B

Grade Nine

	0	.	2	0
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Acuity Science Answer Key

Grade Four

Multiple Choice Answer ~ B

Grade Six

Multiple Choice Answer ~ A

Grade Nine

Multiple Choice Answer ~ B