

Ohio's State Tests

PRACTICE TEST

**GRADE 8
SCIENCE**

Student Name

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Directions:

Today you will be taking the Ohio Grade 8 Science Practice Assessment.

There are several important things to remember:

1. Read each question carefully. Think about what is being asked. Look carefully at graphs or diagrams because they will help you understand the question. Then, choose or write the answer you think is best in your Answer Document.
2. Use only a #2 pencil to answer questions on this test.
3. For questions with bubbled responses, choose the correct answer and then fill in the circle with the appropriate letter in your Answer Document. Make sure the number of the question in this Student Test Booklet matches the number in your Answer Document. If you change your answer, make sure you erase your old answer completely. Do not cross out or make any marks on the other choices.
4. For questions with response boxes, write your answer neatly, clearly and only in the space provided in your Answer Document. Any responses written in your Student Test Booklet will not be scored. Make sure the number of the question in this Student Test Booklet matches the number in your Answer Document.
5. If you do not know the answer to a question, skip it and go on to the next question. If you have time, go back to the questions you skipped and try to answer them before turning in your Student Test Booklet and Answer Document.
6. Check over your work when you are finished.

1.

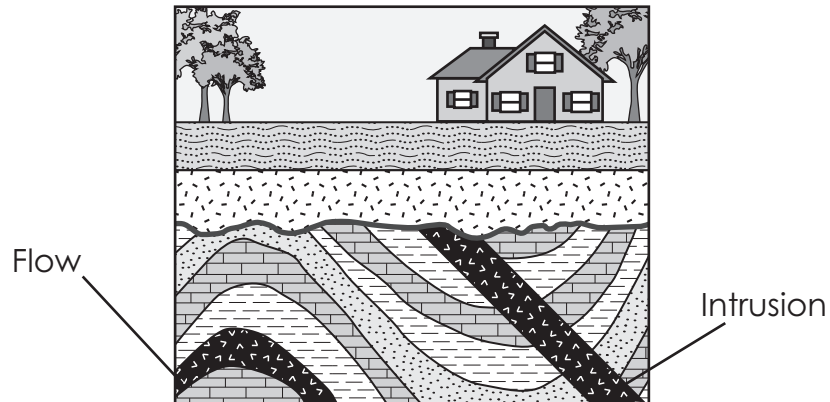
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2.

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3. A geologist is investigating the history of an area that has experienced various geological events, including sedimentation, erosion, tectonic deformation, and volcanic eruptions. The diagram shows the cross section produced from her study.

Geological Cross Section



Key		
Sedimentary Formations		Igneous Formation
	Gravel	 Basalt
	Limestone	
	Sandstone	
	Volcanic Ash	
	Shale	

Using the cross section, explain how the geologist knows the relative age of the intrusion compared with that of the gravel.

Then, explain how the geologist knows that the flow is older than the intrusion.

Write your answer in the **Answer Document**.



Grade 8 Science—Part 1

4. Several fish species became extinct millions of years ago. The graphs below show the distribution of fossils of these fishes as they occur in several undisturbed layers of sedimentary rock observable in a cliff face.

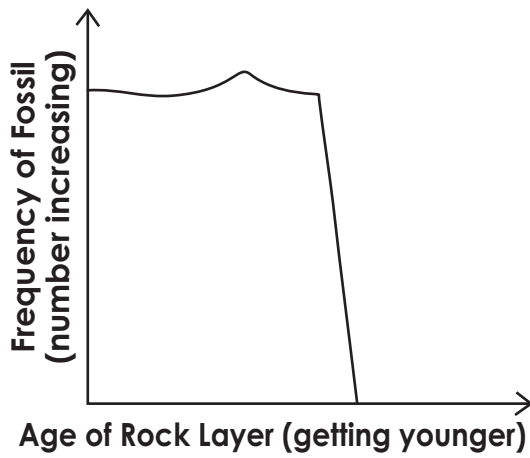


Figure 1. Fossil distribution is evidence of a sudden environmental change

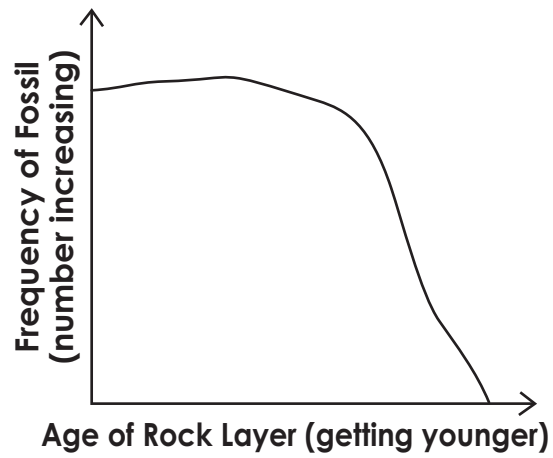


Figure 2. Fossil distribution is evidence of a gradual environmental change

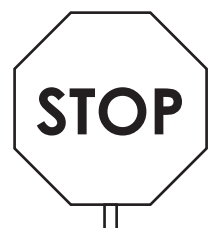
Explain why the distribution of the fossils in figure 1 supports the hypothesis that the extinction of these species was a result of a sudden environmental change.

Describe an environmental change that could have produced this kind of fossil distribution.

Explain why the distribution of the fossils in figure 2 supports the hypothesis that the extinction of these species was a result of a gradual environmental change.

Describe an environmental change that could have produced this kind of fossil distribution.

Write your answer in the **Answer Document**.



Do not go on

Do not go on

Do not go on

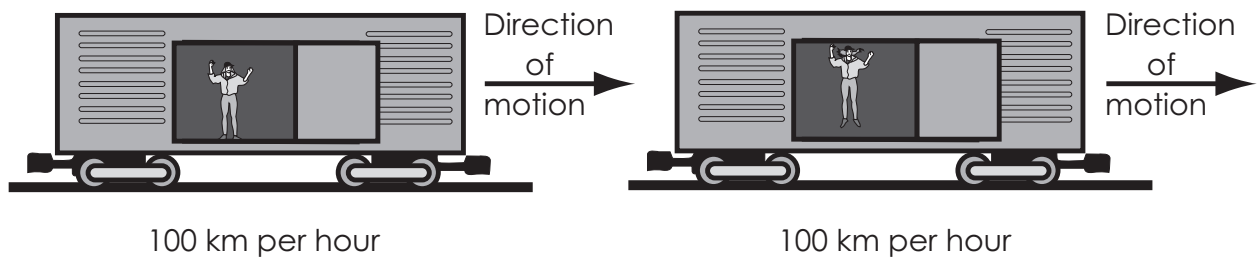
Grade 8 Science—Part 2

1. What are the two sources of thermal energy in Earth's interior?

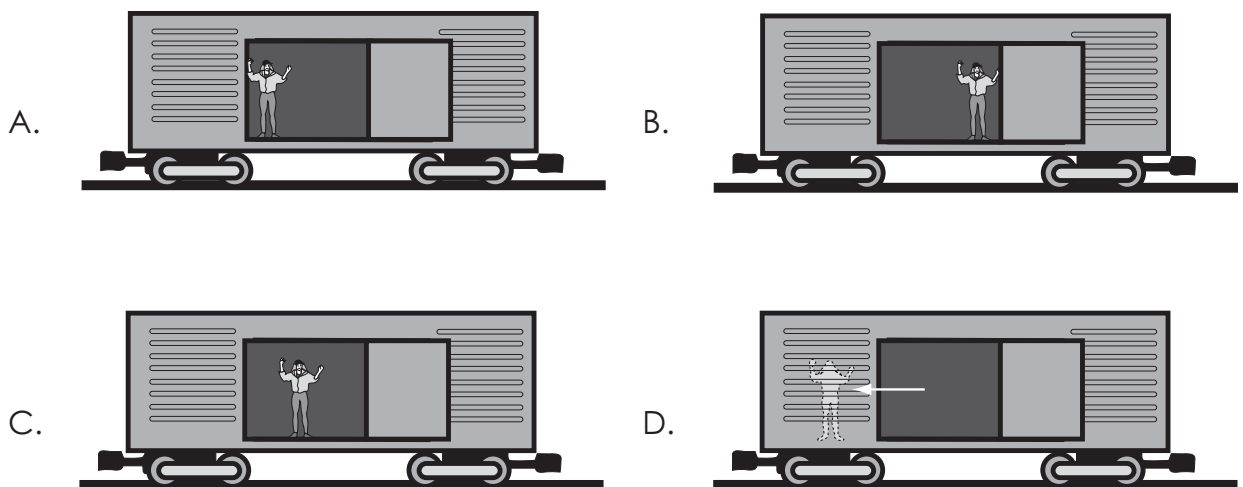
- A. solar heating and gravity
- B. combustion and solar heating
- C. gravity and radioactive decay
- D. radioactive decay and combustion

2.

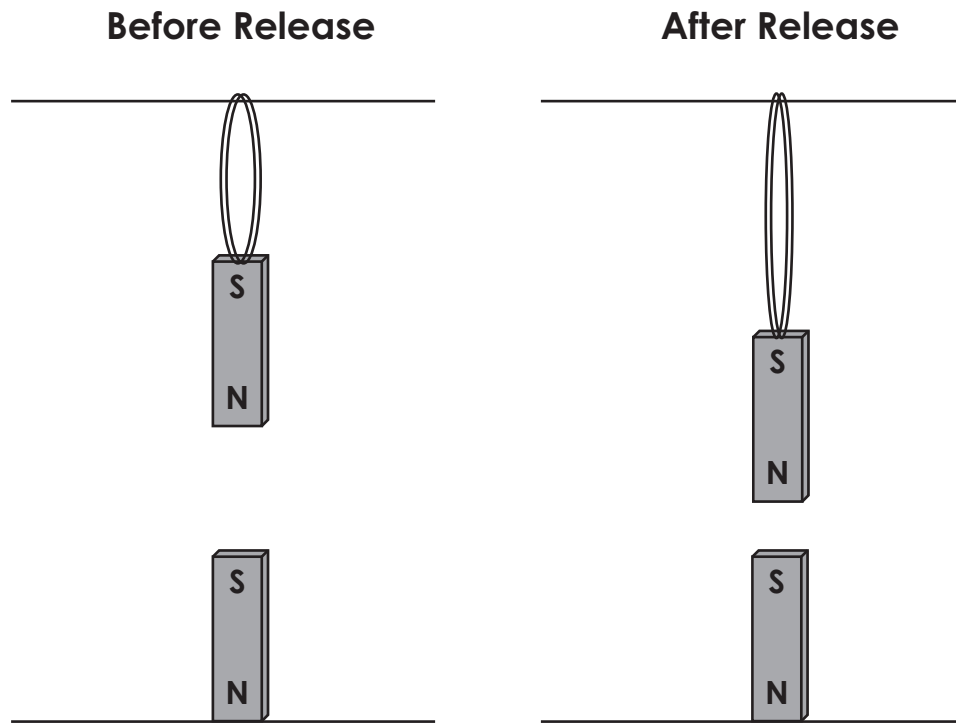
Train Ride



A person is standing in the middle of a boxcar on a train moving 100 km per hour. If the motion of the boxcar remains constant, where in the boxcar will the person most likely land after he jumps straight up?



3. One bar magnet sits on a table, and a rubber band suspends another magnet above it. In the view on the left, the upper magnet is held in place and cannot move. In the view on the right, the upper magnet has been released.



How did the potential energy change when the upper magnet was released?

- A. Magnetic, elastic and gravitational potential energy increased.
- B. Magnetic, elastic and gravitational potential energy decreased.
- C. Magnetic and elastic potential energy increased, and gravitational potential energy decreased.
- D. Magnetic and gravitational potential energy decreased, and elastic potential energy increased.

4.

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5. Which term is an example of force?

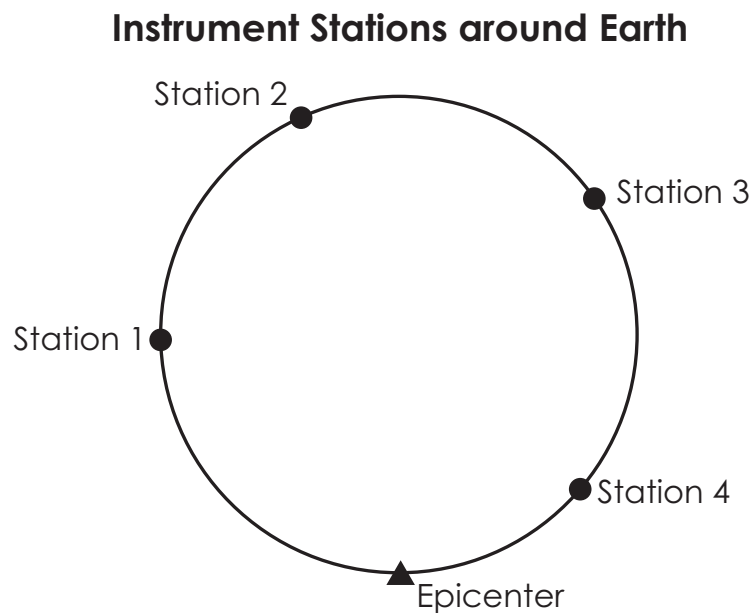
- A. energy
- B. mass
- C. weight
- D. work

Go to the next page

6. The following question has two parts. In the **Answer Document**, first, answer Part A. Then, answer Part B.

Part A

Instruments located around Earth record seismic wave activity during an earthquake. The epicenter of the earthquake and locations of four instrument stations around Earth are shown.



Which stations will record fewer waves than the others?

- A. Stations 1 and 4
- B. Stations 2 and 3
- C. Stations 3 and 4
- D. Stations 1 and 2



Part B

Select the **two** statements that explain why fewer waves were recorded at some stations.

- A. Part of Earth's interior bent some of the waves.
- B. Different materials in Earth reflect some of the waves.
- C. Some waves are blocked by water on the Earth's surface.
- D. Weather events near the stations can prevent waves from being recorded.



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8.

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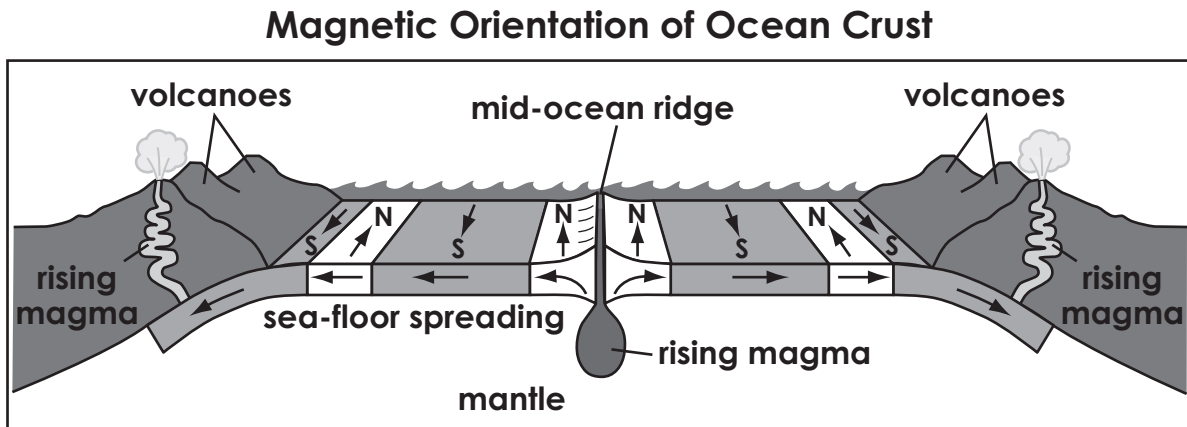
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10.

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11. As magma rises from the mid-ocean ridge, it cools and solidifies. As this magma solidifies, some of the minerals align with Earth's magnetic field. Every few million years, Earth's magnetic field reverses. This reversal is recorded in the magma that solidified after leaving the mid-ocean ridge. In the picture, these magnetic reversals are indicated by dark and light bands.



Courtesy of Kenneth R. Lang, *The Cambridge Guide to the Solar System*,
Second Edition 2011.

How can scientists tell when the reversals of the magnetic field occurred?

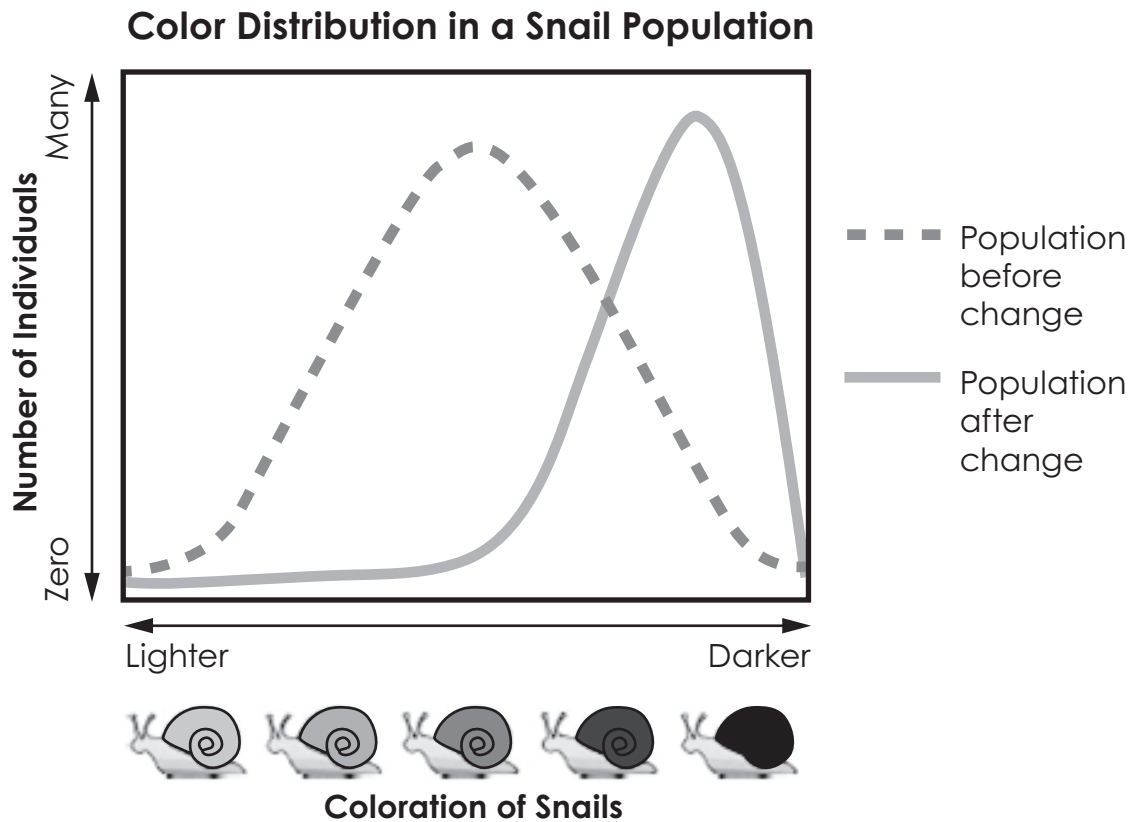
- A. by measuring the thickness of the different bands of the oceanic crust
- B. by measuring the distance between the mid-ocean ridge and the ocean floor band
- C. by measuring the amounts of minerals that aligned to Earth's magnetic field in the different bands
- D. by measuring the strength of Earth's magnetic field recorded in the solidified magma of the oceanic crust

12.

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13. An environmental change occurs, causing a change in the color of snails present in an ecosystem. The graph shows the color distribution in a snail population at two different times.



In the **Answer Document**, select the **four** possible explanations for the results shown in the graph.

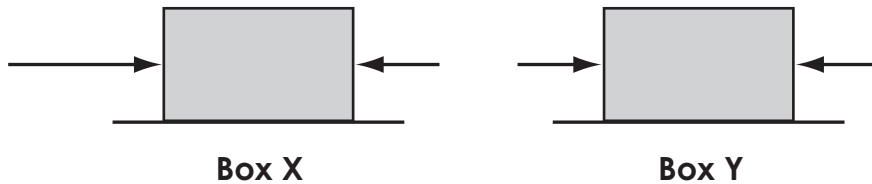
- A. The lighter-colored snails are all extinct.
- B. Snails with darker coloration left the ecosystem.
- C. Predators could more easily catch lighter-colored snails.
- D. The lighter-colored snails had few offspring to pass the trait along.
- E. The darker coloration was an existing trait in the original population.
- F. Snails with the lighter coloration moved into another ecosystem to survive.



14.

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15. Horizontal forces act on two boxes, initially at rest, as shown. The magnitude and direction of the horizontal forces are also shown.



What happens to Box X and Box Y as a result of the forces?

- A. Box X starts moving, speeding up, and Box Y remains at rest.
- B. Box X starts moving at constant speed, and Box Y remains at rest.
- C. Box X starts moving at constant speed, and Box Y starts moving, speeding up.
- D. Box X starts moving, speeding up, and Box Y starts moving at a constant speed.



16. A scientist is studying a chemical reaction. She predicts that after the reaction the products will have less chemical potential energy than the reactants had originally.

The scientist observes the reaction, and notes that no light or sound is produced. However, other observations support the scientist's prediction that the total chemical potential energy has decreased.

Describe one observation that would support her prediction.

Write your answer in the **Answer Document**.



17. The table describes several methods scientists can use to date rock layers and fossils.

Dating Methods

Dating Method	Description
Method 1	<ul style="list-style-type: none"> • Uses carbon from organic matter • Can determine ages from rocks or directly from fossils • Used on samples up to about 100,000 years old
Method 2	<ul style="list-style-type: none"> • Used on samples more than 100,000 years old • Determines ages of igneous rocks
Method 3	<ul style="list-style-type: none"> • Uses the number and patterns of tree rings to find the age of the tree • Used on samples less than 11,000 years old
Method 4	<ul style="list-style-type: none"> • Determines the last date a sediment sample was exposed to sunlight

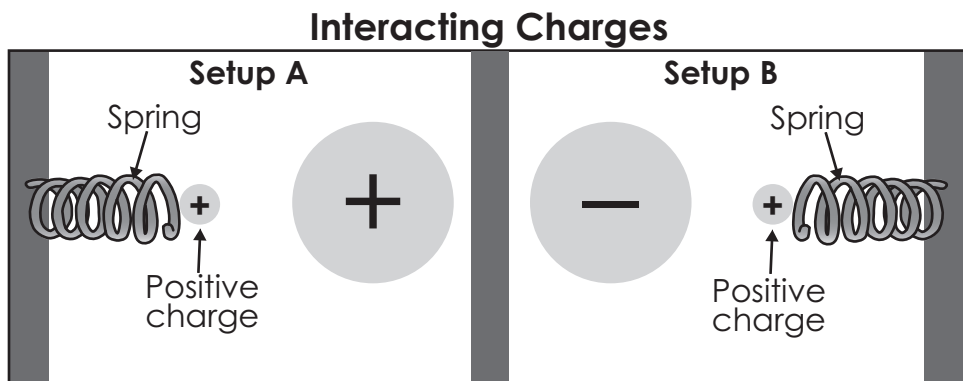
A geologist wants to date several samples. Descriptions are provided for each sample. Because sampling can be expensive and time consuming, the geologist only wants to use the dating methods that are likely to provide a reliable date.

In the **Answer Document**, select the boxes to show all methods that can be used to date each sample.

	Method 1	Method 2	Method 3	Method 4
A deeply buried sample of limestone	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D
A piece of wood from a Native American cliff dwelling	<input type="checkbox"/> E	<input type="checkbox"/> F	<input type="checkbox"/> G	<input type="checkbox"/> H
A shallowly buried sample of shale that contains oyster and snail fossils	<input type="checkbox"/> I	<input type="checkbox"/> J	<input type="checkbox"/> K	<input type="checkbox"/> L
A dinosaur bone found in a sandstone layer that sits between two layers of basalt	<input type="checkbox"/> M	<input type="checkbox"/> N	<input type="checkbox"/> O	<input type="checkbox"/> P



18. Two positively charged particles are attached to springs. A metal sphere is placed near each charged particle, as shown in the diagram.



Positive charge is slowly added to Sphere A. An equal amount of negative charge is slowly added to Sphere B. Assume the two systems are isolated from each other.

How does the elastic potential energy change for each of the springs?

- A. The elastic potential energy of both springs will increase.
- B. The elastic potential energy of both springs will decrease.
- C. The elastic potential energy of the spring in set-up A will decrease and the elastic potential energy of the spring in setup B will increase.
- D. The elastic potential energy of the spring in set-up A will increase and the elastic potential energy of the spring in setup B will decrease.

