

2021 MCAS Sample Student Work and Scoring Guide

Grade 5 Science and Technology/Engineering Question 15: Constructed-Response

Reporting Category: Earth and Space Science

Practice Category: Evidence, Reasoning, and Modeling

Standard: [5.ESS.2.1](#) - Use a model to describe the cycling of water through a watershed through evaporation, precipitation, absorption, surface runoff, and condensation.

Item Description: Identify, describe, and explain different parts of the water cycle in a student's model.

[View item in MCAS Digital Item Library](#)

Scoring Guide

Select a score point in the table below to view the sample student response.

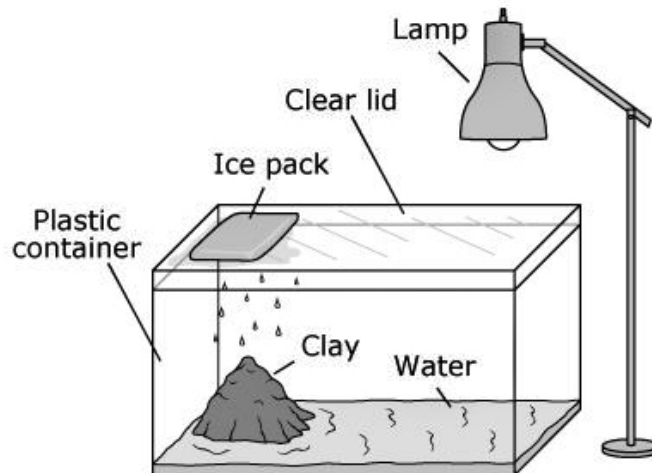
Score*	Description
3A	The response demonstrates a thorough understanding of using a model to describe the cycling of water. The response correctly identifies what the lamp represents in the model. The response clearly describes the part of the water cycle that is caused by the lamp shining on the water and clearly describes what happens to the water. The response correctly identifies the part of the water cycle that was represented by the droplets of water forming on the bottom of the lid under the ice pack and also clearly explains the reasoning.
3B	
2	The response demonstrates a partial understanding of using a model to describe the cycling of water.
1	The response demonstrates a minimal understanding of using a model to describe the cycling of water.
0	The response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

*Letters are used to distinguish between sample student responses that earned the same score (e.g., 3A and 3B).

Score Point 3A

This question has three parts.

A student used a model to show how fresh water cycles in Massachusetts. The model is shown.



In the model, the water represented a lake and the clay represented land. A lamp shined through the lid and onto the water. The student placed an ice pack on top of the clear lid. Water droplets formed under the ice pack and dripped onto the clay.

Part A

Identify what the lamp represented in this model.

The lamp represents the sun in this model. The sun gives off light and heat like the lamp.

Part B

Describe the part of the water cycle that was represented by the lamp shining on the water in the container. In your answer, be sure to describe what happened to the water.

The part of the water cycle the lamp represents is the sun shining on the water, which makes the water evaporate. The light and heat given off from the lamp is like the sunlight. When enough heat and light reach the water, the water heats up and turns into water vapor (evaporation).

Part C

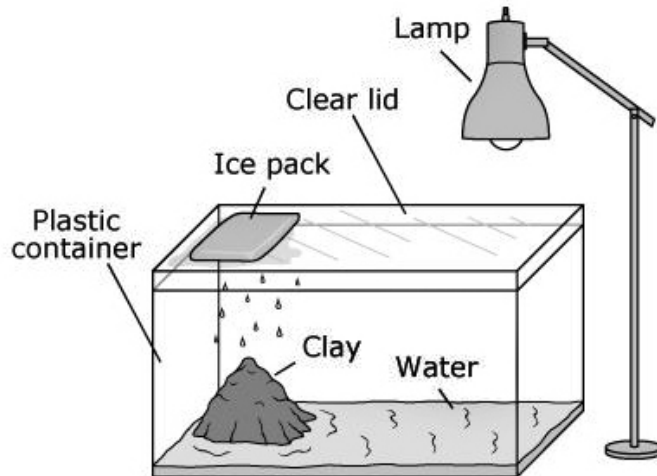
Identify the part of the water cycle that was represented by the droplets of water forming on the bottom of the lid under the ice pack. Explain your reasoning.

The part of the water cycle the droplets forming under the ice pack represents is condensation. The ice pack makes the lid colder, like on earth how an higher altitude is colder than a lower altitude. When water vapor reaches the lid it will become cold and condense into water droplets.

Score Point 3B

This question has three parts.

A student used a model to show how fresh water cycles in Massachusetts. The model is shown.



In the model, the water represented a lake and the clay represented land. A lamp shined through the lid and onto the water. The student placed an ice pack on top of the clear lid. Water droplets formed under the ice pack and dripped onto the clay.

Part A

Identify what the lamp represented in this model.

The lamp represented the sun's heat energy.

Part B

Describe the part of the water cycle that was represented by the lamp shining on the water in the container. In your answer, be sure to describe what happened to the water.

The part of the water cycle that was being represented in the lamp model was evaporation. The lamp's heat energy heated up the water molecules and made them change from a liquid to a gas. When liquid molecules are being heated, they turn into a gas. This is the process of evaporation.

Part C

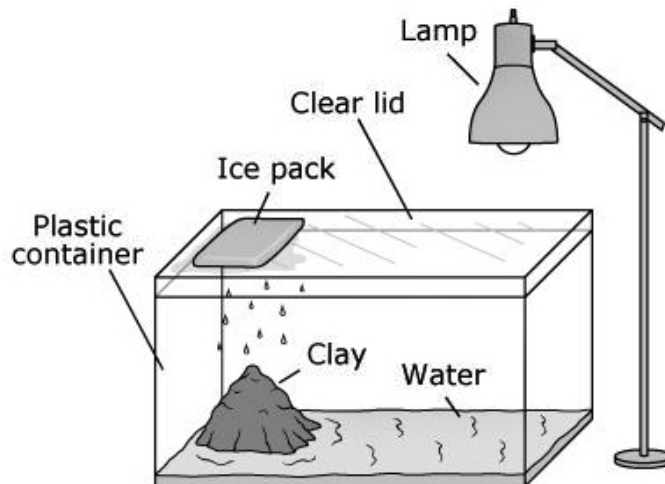
Identify the part of the water cycle that was represented by the droplets of water forming on the bottom of the lid under the ice pack. Explain your reasoning.

The part of the water cycle that was being represented when the droplets formed under the ice pack was condensation. Condensation is the gas form of water, (water vapor), is being transformed back into the liquid form of water. As water vapor collects and gets colder the result is a water droplet.

Score Point 2

This question has three parts.

A student used a model to show how fresh water cycles in Massachusetts. The model is shown.



In the model, the water represented a lake and the clay represented land. A lamp shined through the lid and onto the water. The student placed an ice pack on top of the clear lid. Water droplets formed under the ice pack and dripped onto the clay.

Part A

Identify what the lamp represented in this model.

The lamp represented the sun because it was making all of the water evaporate.

Part B

Describe the part of the water cycle that was represented by the lamp shining on the water in the container. In your answer, be sure to describe what happened to the water.

The part represented by the lamp and the water is called evaporation. The water evaporated and turned into water vapor.

Part C

Identify the part of the water cycle that was represented by the droplets of water forming on the bottom of the lid under the ice pack. Explain your reasoning.

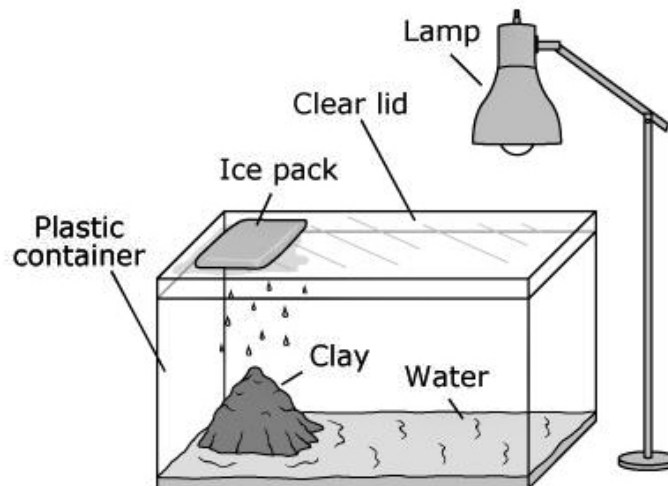
The part represented by the ice pack and the clay is called precipitation. Precipitation is when the water inside the clouds is too heavy and rain comes down onto the land.

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Score Point 1

This question has three parts.

A student used a model to show how fresh water cycles in Massachusetts. The model is shown.



In the model, the water represented a lake and the clay represented land. A lamp shined through the lid and onto the water. The student placed an ice pack on top of the clear lid. Water droplets formed under the ice pack and dripped onto the clay.

Part A

Identify what the lamp represented in this model.

The lamp represents the sun.

Part B

Describe the part of the water cycle that was represented by the lamp shining on the water in the container. In your answer, be sure to describe what happened to the water.

The cycle that was represented by the lamp shining on the water in the container is precipitation, precipitation is any form of rain, sleet, snow, or hail and the ice pack is like a cloud raining.

Part C

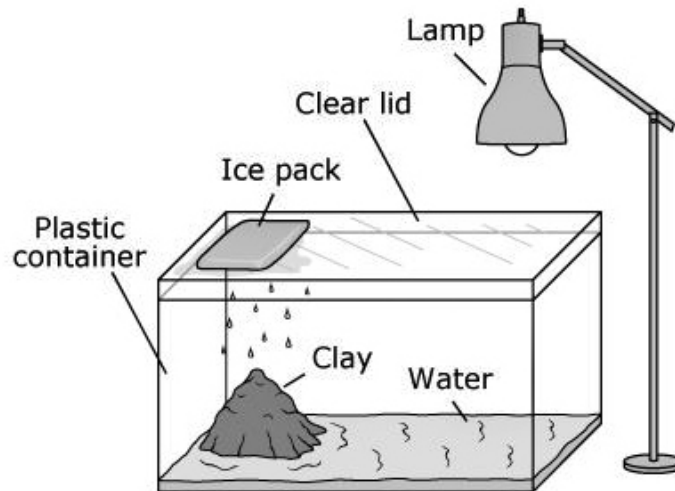
Identify the part of the water cycle that was represented by the droplets of water forming on the bottom of the lid under the ice pack. Explain your reasoning.

The part of the water cycle that was represented by the droplets of water forming on the bottom of the ice pack evaporation., because the water rises up.

Score Point 0

This question has three parts.

A student used a model to show how fresh water cycles in Massachusetts. The model is shown.



In the model, the water represented a lake and the clay represented land. A lamp shined through the lid and onto the water. The student placed an ice pack on top of the clear lid. Water droplets formed under the ice pack and dripped onto the clay.

Part A

Identify what the lamp represented in this model.

water.

Part B

Describe the part of the water cycle that was represented by the lamp shining on the water in the container. In your answer, be sure to describe what happened to the water.

the water melts and turns into water.

Part C

Identify the part of the water cycle that was represented by the droplets of water forming on the bottom of the lid under the ice pack. Explain your reasoning.

the lamp was melting the ice pack then water droplets can down thro the glass and went insied the clay and water flow out and made a small river.