

# 2021 MCAS Sample Student Work and Scoring Guide

## Grade 8 Science and Technology/Engineering Question 12: Constructed-Response

**Reporting Category:** Earth and Space Science

**Practice Category:** Evidence, Reasoning, and Modeling

**Standard:** [6.ESS.2.3](#) - Analyze and interpret maps showing the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence that Earth's plates have moved great distances, collided, and spread apart.

**Item Description:** Identify the type of energy responsible for convection currents and explain why volcanoes and earthquakes occur near plate boundaries.

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

### Scoring Guide

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

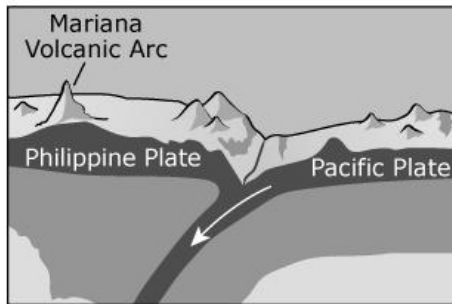
Score*	Description
<a href="#">3A</a>	The response demonstrates a thorough understanding of analyzing and interpreting maps that show Earth's plates have moved great distances, collided, and spread apart. The response correctly identifies the type of energy in the convection currents that cause the changes to Earth shown in the examples. The response clearly explains why volcanoes often form near each other. The response also clearly explains why earthquakes are evidence that Earth's plates are moving.
<a href="#">3B</a>	
<a href="#">2</a>	The response demonstrates a partial understanding of analyzing and interpreting maps that show Earth's plates have moved great distances, collided, and spread apart.
<a href="#">1</a>	The response demonstrates a minimal understanding of analyzing and interpreting maps that show Earth's plates have moved great distances, collided, and spread apart.
<a href="#">0</a>	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**

A student studied three examples of Earth's changing surface. The diagram below shows example 1, the Pacific and Philippine Plates under the Pacific Ocean.

**Example 1**



Example 2 includes parts of the Pacific and North American Plates. The Pacific Plate is oceanic and the North American Plate is continental, as shown in the diagram below.

**Example 2**



**This question has three parts.**

The three examples show how the surface of Earth changes.

**Part A**

Identify the type of energy in the convection currents that cause the changes in Earth shown in the examples.

In convection currents the energy is kinetic and thermal.

**Part B**

Explain why volcanoes often form near each other, as in example 2.

Volcanoes form near each other because They form on plate boundaries, or they form near them meaning that there can be multiple that form and they are near each other.

**Part C**

Earthquakes often occur in the same areas where volcanoes are found. Explain why earthquakes are evidence that Earth's plates are moving.

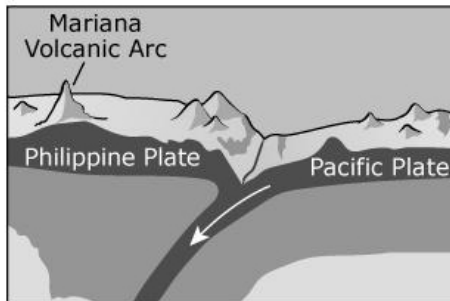
Because earthquakes occur when plate boundaries slide past each other, meaning they are moving.

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**Score Point 3B**

A student studied three examples of Earth's changing surface. The diagram below shows example 1, the Pacific and Philippine Plates under the Pacific Ocean.

**Example 1**



Example 2 includes parts of the Pacific and North American Plates. The Pacific Plate is oceanic and the North American Plate is continental, as shown in the diagram below.

**Example 2**



**This question has three parts.**

The three examples show how the surface of Earth changes.

**Part A**

Identify the type of energy in the convection currents that cause the changes in Earth shown in the examples.

Thermal energy and kinetic energy

**Part B**

Explain why volcanoes often form near each other, as in example 2.

Because they form near plate boundaries.

**Part C**

Earthquakes often occur in the same areas where volcanoes are found. Explain why earthquakes are evidence that Earth's plates are moving.

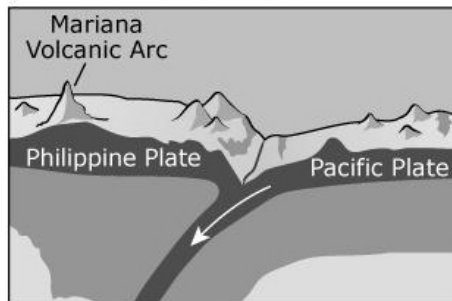
Because earthquakes are made by plates rubbing together.

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**Score Point 2**

A student studied three examples of Earth's changing surface. The diagram below shows example 1, the Pacific and Philippine Plates under the Pacific Ocean.

**Example 1**



Example 2 includes parts of the Pacific and North American Plates. The Pacific Plate is oceanic and the North American Plate is continental, as shown in the diagram below.

**Example 2**



**This question has three parts.**

The three examples show how the surface of Earth changes.

**Part A**

Identify the type of energy in the convection currents that cause the changes in Earth shown in the examples.

Thermal energy.

**Part B**

Explain why volcanoes often form near each other, as in example 2.

Volcanoes often form near each other because they often form near water.

**Part C**

Earthquakes often occur in the same areas where volcanoes are found. Explain why earthquakes are evidence that Earth's plates are moving.

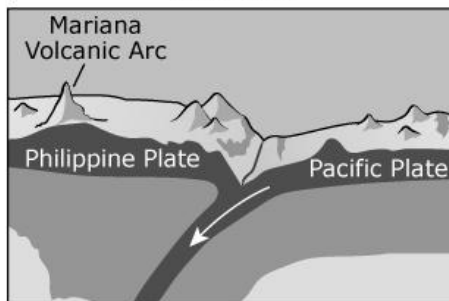
They are evidence because when the tectonic plates slide against each other it causes the earth to shake, or an earthquake.

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**Score Point 1**

A student studied three examples of Earth's changing surface. The diagram below shows example 1, the Pacific and Philippine Plates under the Pacific Ocean.

Example 1



Example 2 includes parts of the Pacific and North American Plates. The Pacific Plate is oceanic and the North American Plate is continental, as shown in the diagram below.

Example 2



**This question has three parts.**

The three examples show how the surface of Earth changes.

**Part A**

Identify the type of energy in the convection currents that cause the changes in Earth shown in the examples.

The type of energy in the convection currents that cause the changes in Earth is kinetic energy.

**Part B**

Explain why volcanoes often form near each other, as in example 2.

The volcanoes form near each other because there is a lot of tectonic activity.

**Part C**

Earthquakes often occur in the same areas where volcanoes are found. Explain why earthquakes are evidence that Earth's plates are moving.

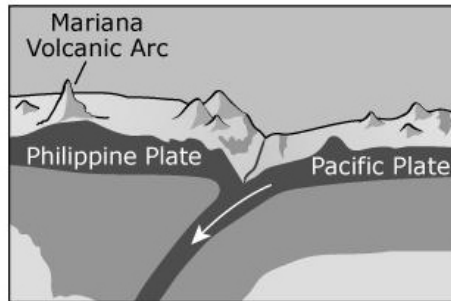
Because when an earthquake happens its the plate tectonics moving.

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**Score Point 0**

A student studied three examples of Earth's changing surface. The diagram below shows example 1, the Pacific and Philippine Plates under the Pacific Ocean.

Example 1



Example 2 includes parts of the Pacific and North American Plates. The Pacific Plate is oceanic and the North American Plate is continental, as shown in the diagram below.

Example 2



**This question has three parts.**

The three examples show how the surface of Earth changes.

**Part A**

Identify the type of energy in the convection currents that cause the changes in Earth shown in the examples.

pacific plate move and it's energy changaing the surface

**Part B**

Explain why volcanoes often form near each other, as in example 2.

the energy of the pacific plate form near each other because of the enegry of the plate makes the volcanoes form

**Part C**

Earthquakes often occur in the same areas where volcanoes are found. Explain why earthquakes are evidence that Earth's plates are moving.

the more earthquakes show more evidnce that the plates are still moving

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