Science Face-Off

Grade 4 Name: _____

Read the science passage comparing two topics. Then use evidence from the text to answer the questions.

Science facts: use exact numbers, names, and examples from the passage as your evidence.

Volcanoes vs Earthquakes: Earth's Powerful Forces

Volcanoes and earthquakes are two of Earth's most powerful natural phenomena, **both** shaped by the movement of tectonic plates. These massive pieces of Earth's crust are constantly shifting, causing dramatic changes on the surface.

An earthquake is the sudden shaking of the ground caused by the release of energy in the Earth's crust. This energy builds up as tectonic plates grind past each other. When the stress becomes too great, the plates slip, sending seismic waves through the ground. The strength of an earthquake is measured using the Richter scale. A magnitude 7 earthquake, **for example**, is considered a major event.

A volcano, **in contrast**, is a mountain or hill with a vent through which lava, rock fragments, hot vapor, and gas are ejected from the Earth's crust. Volcanoes are often found where tectonic plates collide or pull apart, allowing molten rock (magma) to rise to the surface. **Unlike** earthquakes, which are sudden, some volcanoes show signs of activity for days or weeks before an eruption.

Both volcanoes and earthquakes can cause significant destruction. Earthquakes can collapse buildings and trigger tsunamis. Volcanic eruptions can release ash clouds that block sunlight, destroy landscapes with lava flows, and cause mudslides. **However**, they also play a role in shaping our planet, creating new land and releasing minerals.

> Did you know that about 90% of all earthquakes and 75% of all volcanoes occur along the "Ring of Fire," a horseshoe-shaped zone in the Pacific Ocean? This area is where many tectonic plates meet.

COMPREHENSION QUESTIONS

(1) Which phenomenon is caused by the sudden slipping of tectonic plates?

(A) Volcanoes (B) Earthquakes (C) Both (D) Neither

(2) Which phenomenon involves molten rock rising to the Earth's surface?

(A) Volcanoes (B) Earthquakes (C) Both (D) Neither

(3) "Both volcanoes and earthquakes are shaped by the movement of tectonic plates." Is this a SIMILARITY or DIFFERENCE?

(A) Similarity (B) Difference

(4) "Earthquakes are sudden, while volcanoes can show signs of activity for days or weeks before an eruption." Is this a SIMILARITY or DIFFERENCE?

(A) Similarity (B) Difference

(5) Use a detail from the passage to explain ONE way volcanoes and earthquakes are similar.

(6)

Which concept do you think is more important for life on Earth: volcanoes or earthquakes? Use TWO facts from the passage to support your answer.