



Fast Changes to Earth

Week 26 — Monday | Volcanoes, Earthquakes, and Landslides



Reading Time

Most changes to Earth happen very slowly over thousands or millions of years. Wind and water slowly wear away rocks. Rain and rivers carry soil from one place to another. But Earth can also change suddenly and dramatically. Scientists call these **fast changes** or **sudden geological events**. The three most important fast changes are **volcanoes**, **earthquakes**, and **landslides**.

A **volcano** is an opening in Earth's crust where hot molten rock called **magma** rises to the surface. When magma reaches the surface, it is called **lava**. Volcanic eruptions can blast lava, ash, and gas high into the air. Some eruptions are gentle and slow, while others are explosive and powerful. Volcanoes can create new land, change river paths, and cover entire towns with ash. The Ring of Fire is a large area around the Pacific Ocean where most of the world's volcanoes are located.

An **earthquake** is a sudden shaking of the ground caused by movement deep underground. Earth's outer shell is made of huge pieces called **tectonic plates**. These plates are always moving slowly, sometimes rubbing past each other, sometimes pushing together, and sometimes pulling apart. When plates get stuck and then suddenly release, the energy shoots out in all directions as **seismic waves**, causing the ground to shake. Scientists measure earthquakes with a **seismograph** and rate their size on the **Richter scale**.

A **landslide** is when rock, mud, and soil move rapidly down a slope. Heavy rain, earthquakes, or volcanic eruptions can trigger landslides. When the ground becomes soaked with water, it becomes heavy and loses its grip on the hillside. Landslides can move very fast and carry enormous amounts of material. They can bury roads, destroy buildings, and change the shape of the landscape in just minutes.



Reading Questions

1. What are the three main types of fast changes to Earth?

2. What is magma and what is it called when it reaches the surface?

3. What causes an earthquake?

4. Describe how a landslide is triggered and what it can do to the landscape. Explain why heavy rain can cause landslides.



Vocabulary Grid

Write a definition or draw a picture for each word.



Volcano



Lava



Earthquake



Tectonic Plates



Landslide



Seismograph

Fast Change or Slow Change?

Read each event. Write FC for fast change or SC for slow change.

Event	Fast or Slow?
A volcano erupts and sends lava flowing down a mountain.	
Wind slowly wears away a sandstone cliff over hundreds of years.	
Heavy rain causes mud and rocks to slide down a steep hillside.	
A river slowly carves a canyon through rock over millions of years.	
The ground shakes suddenly during an earthquake.	
Rain and water slowly move soil from a hillside to a valley.	

Comparing Fast Changes

Fill in the comparison chart for each fast change.

Type	What Causes It?	What Happens?	How Quickly?
Volcano			
Earthquake			
Landslide			

Draw Each Fast Change

Draw a volcano, an earthquake, and a landslide. Label each drawing.

Volcano — show lava and ash.

Earthquake — show buildings shaking.

Landslide — show material moving downhill.

Think About It

Which fast change do you think would be the most dangerous to someone living nearby? Explain your reasoning.

✓ True or False — Circle Your Answer

- ☐ 1. Most changes to Earth happen slowly over long periods of time.
- ☐ 2. Magma is called lava when it reaches the surface.
- ☐ 3. Earthquakes are caused by wind blowing across the surface.
- ☐ 4. Tectonic plates are huge pieces of Earth's outer shell.
- ☐ 5. A seismograph measures the size of earthquakes.
- ☐ 6. Landslides can be triggered by heavy rain or earthquakes.
- ☐ 7. The Ring of Fire is located around the Atlantic Ocean.
- ☐ 8. Volcanoes can create new land and change the landscape.

Fill in the Blanks

Word Bank: volcano lava earthquake landslide tectonic plates seismograph seismic waves magma

- 1. An opening in Earth's crust where molten rock rises is a _____.
- 2. Molten rock is called _____ before it reaches the surface.
- 3. When magma reaches the surface, it is called _____.
- 4. A sudden shaking of the ground is an _____.
- 5. Earth's outer shell is made of huge pieces called _____.
- 6. Energy that travels through the ground during an earthquake are _____.
- 7. A tool that measures earthquakes is a _____.
- 8. When rock and soil move rapidly down a slope, it is called a _____.

Observe Earth Changes

Look for signs of both fast and slow changes in your area. Write down what you find.

What You Looked For	Fast or Slow Change?	What You Found
Cracks in the ground or pavement		
Eroded hillsides or gullies		
Weathered rocks or crumbling walls		
Any other Earth changes		

Think About It

Imagine you live near an active volcano. What are some things you might see or feel before or during an eruption? What could you do to stay safe?
