

Earth Science Activity Bag

Plate Tectonics: Student Activity Guide

The ground around us looks like it's all in one piece, but if you look at the Earth from far away, the surface of our planet is broken into pieces. The pieces are big, the size of whole countries. The pieces are called tectonic plates and those plates move around. They move very slowly, and in the process, they do a lot of interesting things that we are about to explore.

These directions will get you started. Your teacher will be in contact to guide you and provide information.

Materials from the bag

- 1 Plates Puzzle Pieces, punch-out
- 1 Tectonic Plates Document

Part 1: The Puzzle

1. Get your puzzle sheet from the bag and punch the puzzle pieces out of the sheet.
2. Place all of your pieces face-up on a table. The backside of each piece is labeled "back."
3. Put the puzzle together as best you can. *What do you notice about the puzzle? Does it look like anything you recognize?*
4. Take the Tectonic Plates document from the bag. Look at the side labeled, "**Tectonic Plates with Continents.**" *What do you notice about the pieces and the continents?*

What's happening...

The puzzle pieces represent the tectonic plates. Tectonic plates are pieces of the surface of the earth that can move around independently.

Part 2: Moving Plates

1. Take the Tectonic Plates sheet from the bag. Look at the side labeled, "**Tectonic Plates with Mountains and Ridges.**" This sheet shows where some of the Earth's mountain ranges and ridges are. *What do you notice about where they are?*
2. Look at your assembled puzzle and the "**Tectonic Plates with Continents**" sheet.
3. Find the part of the **Pacific Plate** that runs along the west coast of the US. The Pacific Plate is moving northwest and the **North American Plate** is moving southwest.
4. Push the Pacific and the North American Plates together.
5. Slide the Pacific Plate north and the North American Plate south. *What happens to the edges where the plates grind together?*
6. Find the **South American** and **African Plates**. These two plates are moving apart in the middle of the Atlantic Ocean.
7. Move these two plates slightly apart. *What is happening to the far sides of these plates?*
8. Find the **Nazca Plate** and the **South American Plate**. The Nazca Plate is sliding under the South American Plate and causing the Andes Mountains to form.
9. Slide the Nazca Plate under the South American Plate. *What happens to the South American Plate?*

10. Find the **Eurasian Plate** and the **Indo-Australian Plate**. These two plates collide **without** one plate sliding under the other. Both plates push each other up to form the Himalaya Mountains.
11. Push the edges of the two puzzle pieces together without one sliding under the other. *What do you notice?*

What's happening...

The tectonic plates that make up the earth are moving. They have been moving for millions of years. Amazing things happen where they come in contact with one another. This YouTube video shows what is moving them around: <https://www.youtube.com/watch?v=ryrXAGY1dmE>

Many geologic features come from the tectonic plates' movement. Melted rock called magma swirls below the surface, and it slowly moves the plates. The magma rises and falls under the surface, making slow currents. As the plates move, some separate; some collide; some slide over or under one another; and some rub sideways against each other. Around the earth, we find volcanoes where magma comes through the crust. Moving plates also lift mountains and move continents. Where plates collide, slide under one another, or slip from side to side, we sometimes find volcanoes. As plates move against each other, they up pressure until they suddenly shift to release the pressure. That quick movement causes earthquakes and tsunamis.