

Why Plates Move

Engage

What To Do:

1. Watch the video “Continental Drift from Pangea to Today” from <https://www.youtube.com/watch?v=OGdPqpzYD4o>
2. Your teacher will pause it at the times listed below.
3. Answer the questions for each section.

Start

1. What do the green areas represent? _____
2. What do the blue areas represent? _____
3. What landmasses look like some of the continents today?

150 million years ago

1. What do the light blue areas represent? _____
2. What do the white areas represent? _____
3. What landmasses look like some of the continents today?

100 million years ago

1. Describe what has happened to the large landmasses.

2. Is there more or less ice at this time? _____

50 million years ago

1. What present day continents can you find?

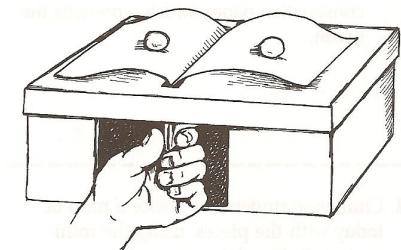
2. Locate India and watch it to the end of the animation.
What does it do? _____

Explore

Materials: Shoebox, sheet of paper, tape, 2 flat lumps of clay, colored pencils

What To Do:

1. Your teacher will show you a shoebox with a door in the side.
2. A sheet of paper is sticking out of the top of the shoebox.
3. Your teacher will place a lump of clay on the paper strip on each side.
4. The clay lumps represent continents, and the paper strip represents the plates.
5. Your teacher will put their hand inside the “door” and slowly push up the paper strip. Observe what happens.
6. Your teacher will pull down on the paper. Observe what happens.



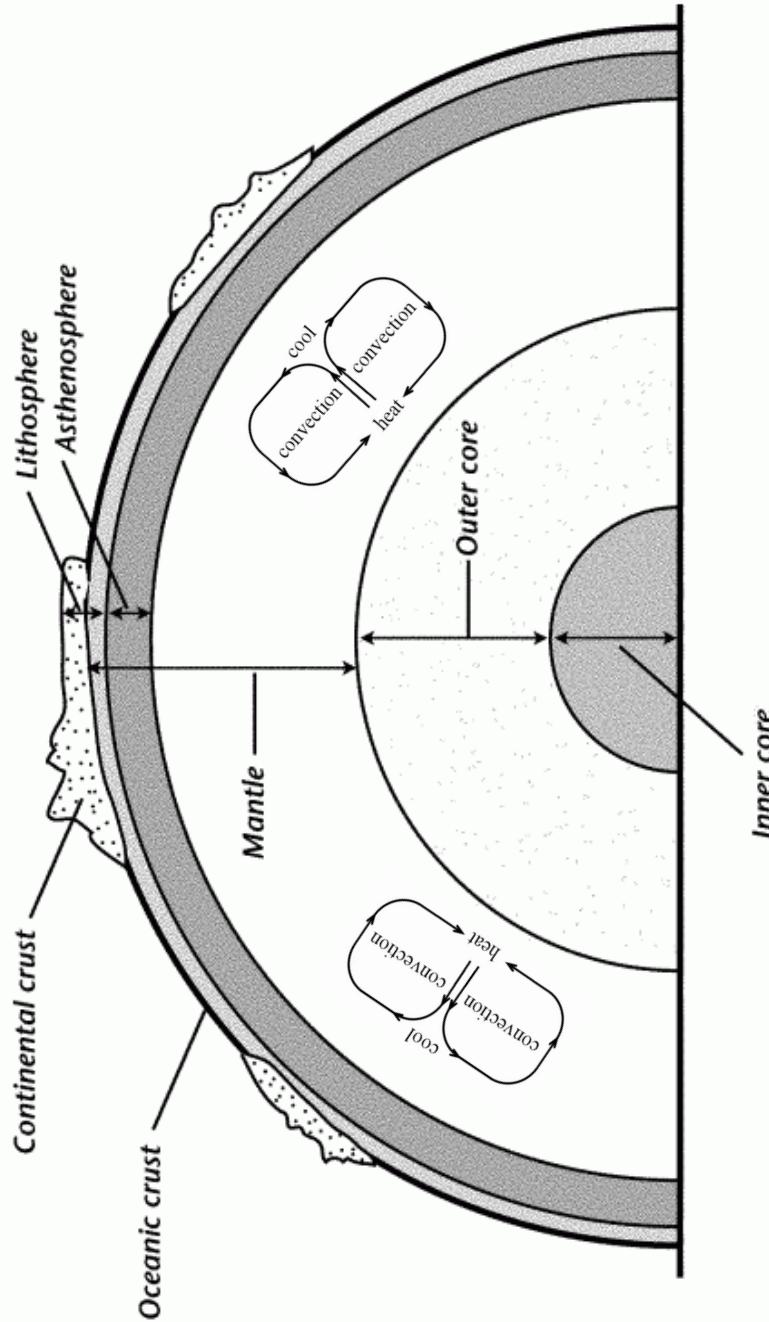
Questions:

1. What happened to the pieces of clay when your teacher pushed the paper strips up? _____
2. How did the lumps of clay change?

3. What happened when your teacher pulled the paper strips down?

4. How did the lumps of clay change?

Earth's Interior



Explain

Materials: colored pencils

What To Do:

1. Color the asthenosphere yellow.
2. Color the lithosphere brown.
3. Color the Continental crust green.
4. Color the area just above the dark line of the Oceanic crust blue.
5. Color the Inner core orange.
6. Color the Outer core purple or pink.
7. Leave the Mantle white.
8. Watch the video "Convection Currents Demo" found at <https://www.youtube.com/shorts/iBkdwZIm-sQ>

At the beginning the teacher placed a beaker of ice under one side and a beaker of hot water on the other side.

9. What happens to the red food coloring that is placed at the bottom of the container?
10. What happens to the blue food coloring that is placed on the bottom of the container?
11. What happens to the red food coloring when it gets to the cold side of the container?
12. Color convection currents in the mantle – red for warm side and blue for the cold side.
13. Indicate where the currents are rising and where they are falling.

Elaborate

1. Watch the following video, "Convections Currents Explained: at <https://www.youtube.com/watch?v=uPemeHLaxIE>
2. Use the Word Bank to help you fill in the blanks.

WORD BANK

slide currents towards millions heat boundaries
sinks rises convection drift activities away

1. The core generates _____ through radioactive decay and residual heat from the planet's formation.
2. This heat _____ towards the mantle, the layer above the core.
3. As the heat rises, it creates convection _____ in the semi-solid mantle.
4. The hot mantle material rises towards the Earth's crust while the cooler material _____ back down.
5. The _____ currents in the mantle create drag on the overlying tectonic plates causing them to move.
6. These plates can move _____ from each other, move _____ each other, or _____ past each other.
7. This movement of tectonic plates leads to continental _____.
8. Over _____ of years, continents have shifted from one massive land mass called Pangea to their current positions.
9. The movement of tectonic plates due to convection currents also result in geological _____ such as earthquakes, volcanic eruptions, and the formation of mountain ranges.
10. These activities are most prominent at the _____ of tectonic plates.

Evaluate

Name _____ period _____

EXIT TICKET**Why Plates Move**

1. Heated areas make air, water, and melted magma -
 - A. Fall
 - B. Rise
 - C. Stay in the same place
2. Cool areas make air, water, and melted magma -
 - A. Fall
 - B. Rise
 - C. Stay in the same place
3. The heat that causes convection currents in the mantle comes from-
 - A. The Sun
 - B. The Moon
 - C. The Earth's Core
4. The mechanism that causes plates to move is called -
 - A. Convection currents
 - B. Radio signals
 - C. Cloud formation
5. The top layer where the plates are located is called the -
 - A. Outer Core
 - B. Inner Core
 - C. Crust