

## Investigation 3: Forces that Cause Earth Movements

### This investigation will help you to:

- Convection Cells
- Convection in the Earth's Mantle
- The Lithosphere and the Asthenosphere
- Mid-Ocean Ridges

To learn more about convection cells, visit the following web sites:

#### Convection Lesson, **NASA**

The purpose of this lesson is to produce a visual convection current in the classroom and compare it to the images taken of convection cells in the Sun.

#### Educator's Guide to Convection, **Jet Propulsion Laboratory**

This page includes a brief discussion on convection and links to see photos or animations that demonstrate convection.

To learn more about convection in the Earth's mantle, visit the following web sites:

#### Some Unanswered Questions About Plate Tectonics,

#### **USGS**

What drives the plates? This article aims to explain the connection between plate movement and convection.

To learn more about the lithosphere and the asthenosphere, visit the following web sites:

#### Plate Tectonic Theory, **James Madison University**

This page shows a cross section of the lithosphere and describes the movement of the earth's crust.

#### Earth's Lithosphere, **National Air and Space Museum**

See the lithosphere in context in terms of the shape of the Earth, plate movement, and drifting continents.

#### The Earth at Work, **PBS OnLine**

This web site accompanies the PBS Series *Savage Earth* and includes background information on the structure of the Earth's interior.

To learn more about mid-ocean ridges, visit the following web sites:

#### Mid-Ocean Ridges, **UC Santa Barbara**

It is the longest mountain chain, the most active volcanic area and until recently, the least accessible region on the earth. New maps reveal striking details of how segments of the ridge form and evolve.

#### MAR: Descent to the Mid-Atlantic Ridge, **Scripps Institute of Oceanography**

Follow the exhibition by a Scripps researcher and an entire scientific team, as they guided the deep submersible Alvin to probe the depths of the North Atlantic - exploring undersea mountains of the Mid-Atlantic Ridge.

Developing the Theory, **USGS**

Learn about the the development of the theory of mid-ocean ridges.

Juan de Fuca Subduction - Juan de Fuca Ridge, **Cascade Range, CVO USGS**

Read more about the currently active Axial Seamount which lies on the Juan de Fuca Ridge off the coast of Washington.

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