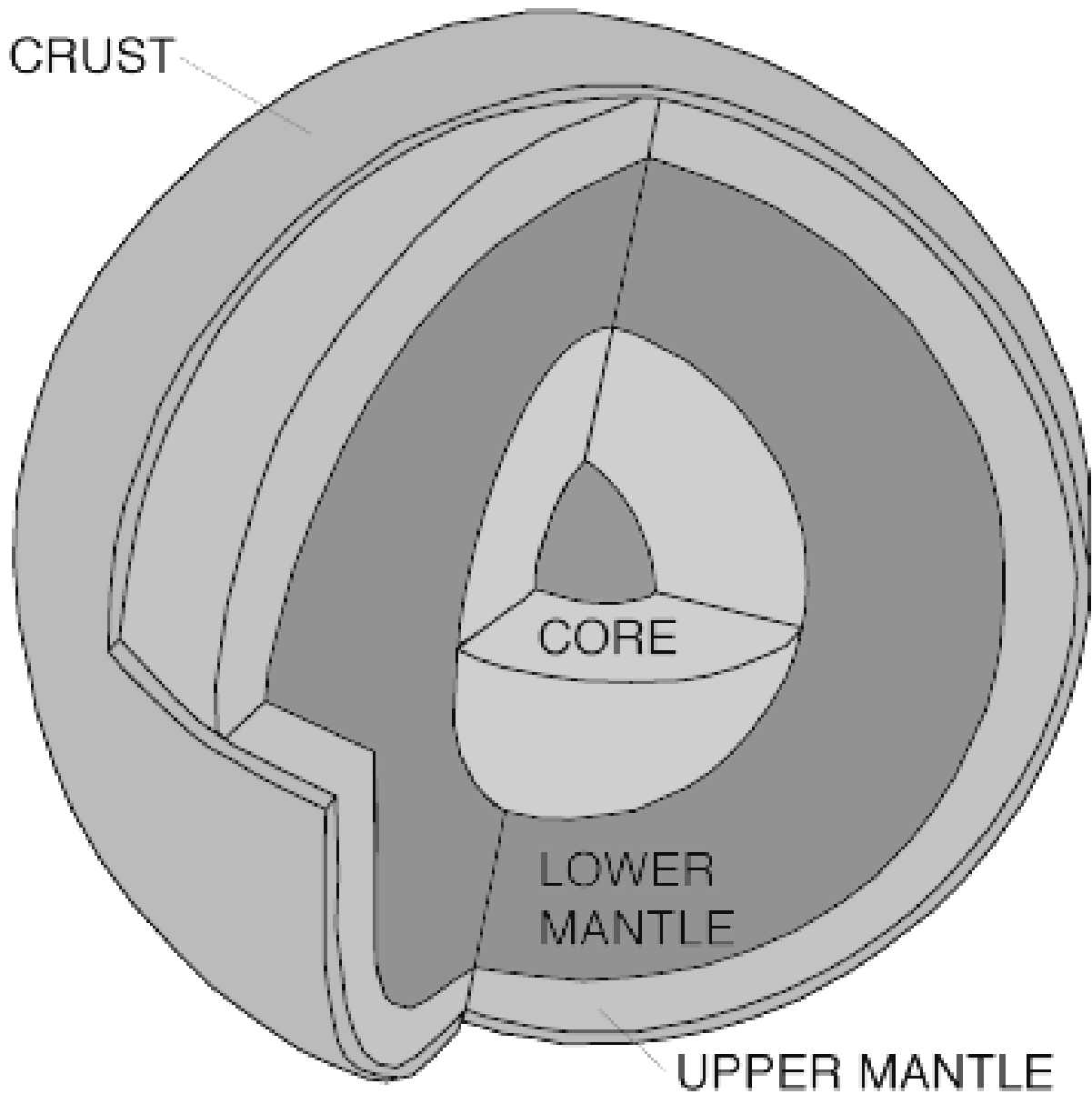


Earth's Layers



This diagram is from *A Teacher's Guide to the Geology of Hawaii Volcanoes National Park*, a book published and copyrighted by the Hawaii Natural History Association. It is used by permission courtesy of Hawaii Natural History Association.

Continent Puzzle



Ring of Fire

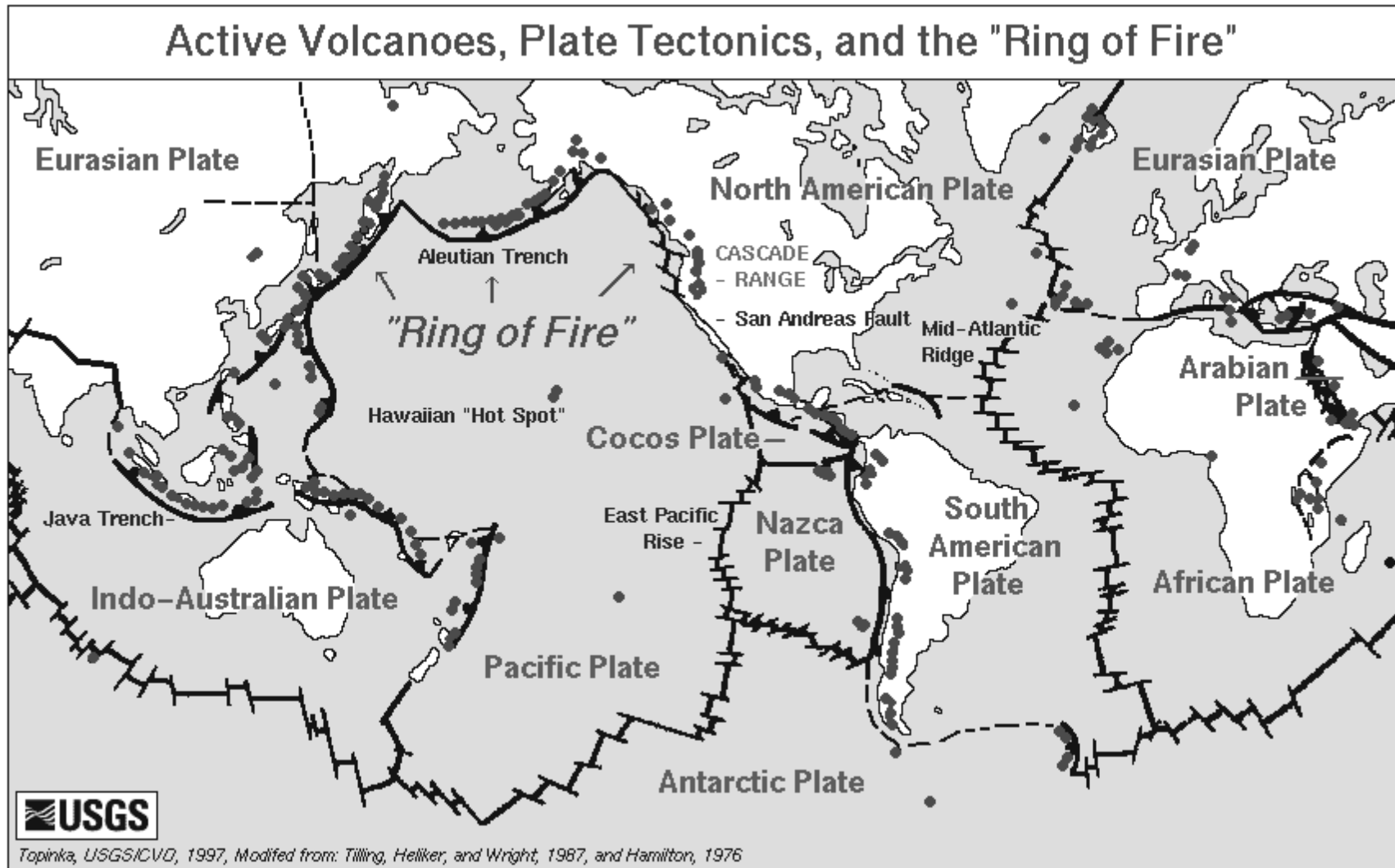
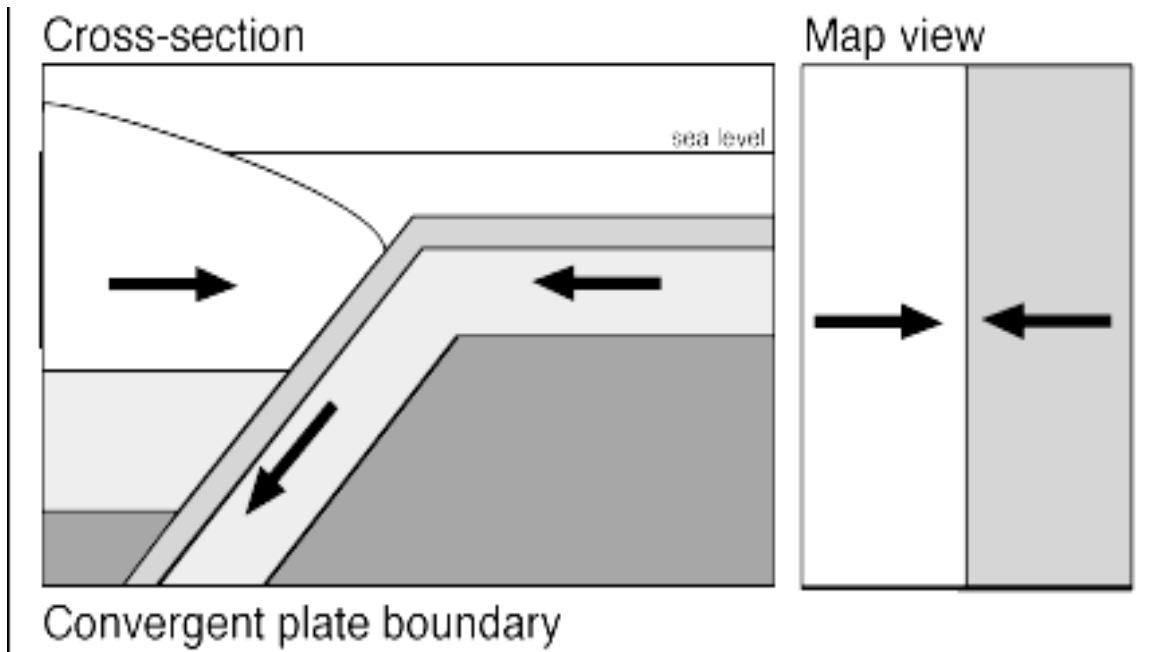


Image courtesy of USGS/Cascades Volcano Observatory, Vancouver, Washington

Diagrams of Plate Movements

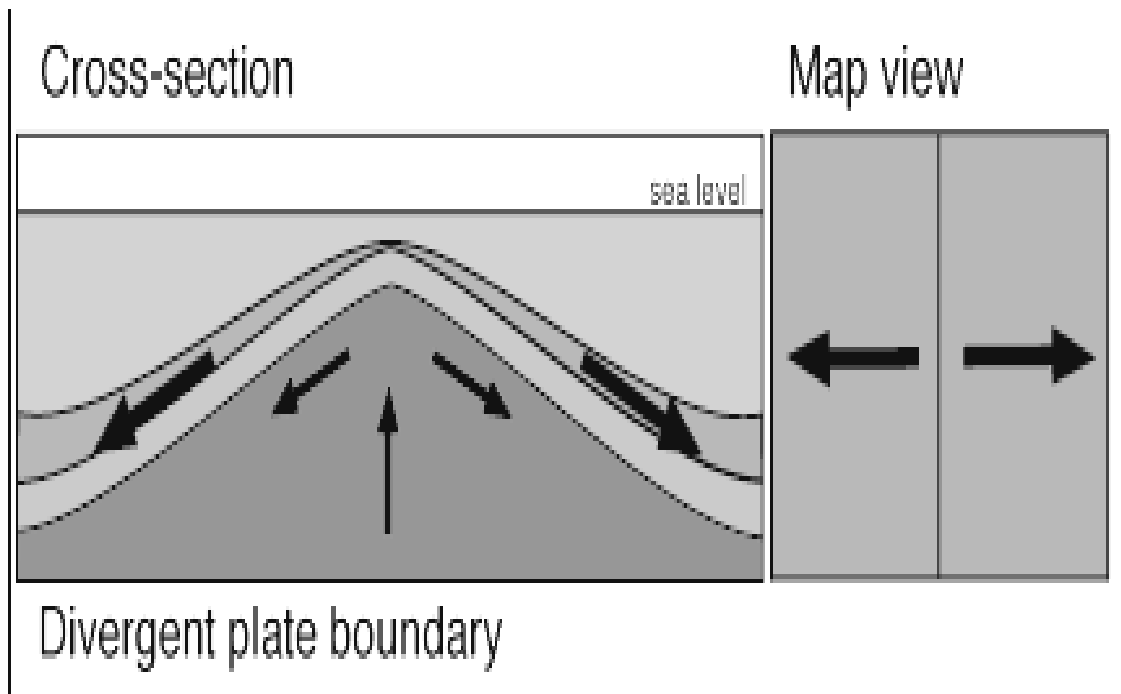


With this type of plate boundary, the two plates move toward each other. When dense oceanic plates are forced under lighter continental plates the oceanic plate sinks and is melted into magma. Later the magma can erupt from a volcano and cause landform changes.

Sometimes two plates push together and crumple up the land between them. Fold mountains are formed this way. The Alps, Rocky Mountains, and Himalayas were formed this way.

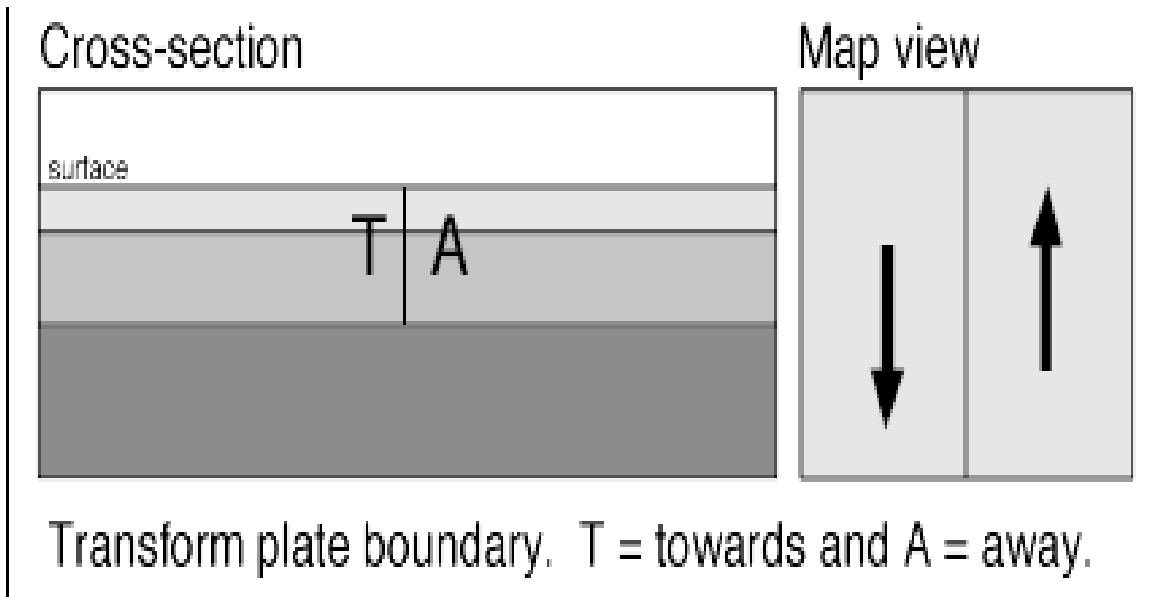
You can see how fold mountains are formed by doing an experiment with a paper towel. Put a large paper towel on a flat surface. Put your hands on the left and right edges of the paper towel. Gently push down and move your hands closer together. What happens in the middle of the paper towel?

This diagram is from *A Teacher's Guide to the Geology of Hawaii Volcanoes National Park*, a book published and copyrighted by the Hawaii Natural History Association. It is used by permission courtesy of Hawaii Natural History Association.



With this type of boundary, the two plates move away from each other. In some cases magma rises and forms new oceanic crust. The mid-Atlantic Ridge, near the middle of the Atlantic Ocean, is an example of a divergent plate boundary.

This diagram is from *A Teacher's Guide to the Geology of Hawaii Volcanoes National Park*, a book published and copyrighted by the Hawaii Natural History Association. It is used by permission courtesy of Hawaii Natural History Association.



Plates slide past each other at a transform plate boundary. An example of this is the San Andreas Fault in California. There the Pacific Plate slid past the North American Plate causing a big crack in the Earth. The crack is called a fault.

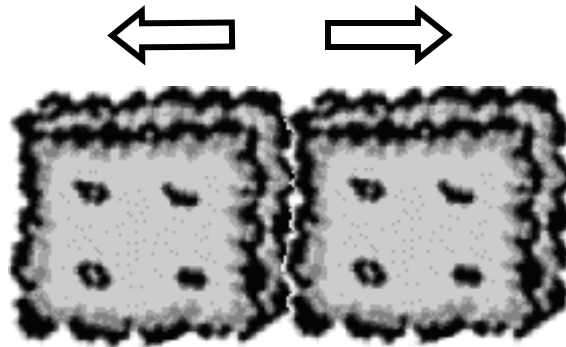
This diagram is from A Teacher's Guide to the Geology of Hawaii Volcanoes National Park, a book published and copyrighted by the Hawaii Natural History Association. It is used by permission courtesy of Hawaii Natural History Association.

Plates on the Move!

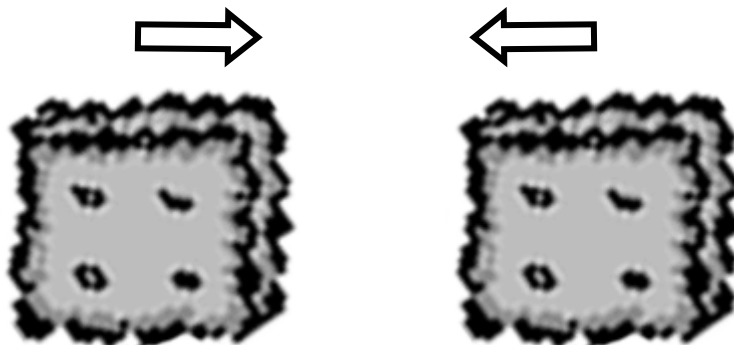
Use saltine crackers and peanut butter to model how the Earth's plates move, causing changes in landforms.

Spread a thick layer of peanut butter on a piece of waxed paper. Then move the crackers in the following ways to show plate movements.

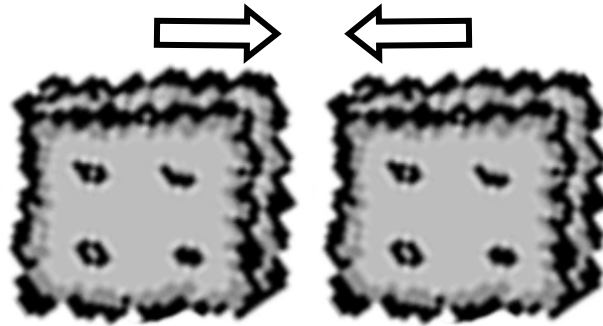
1. Place two saltine crackers next to each other on top of the peanut butter. Slowly move the crackers in opposite directions away from each other. A rift or big crack is formed in between the crackers. This is similar to a rift that forms in the ocean floor when two plates move away from each other. Over time, magma moves up from below and creates new ocean floor or underwater mountains.



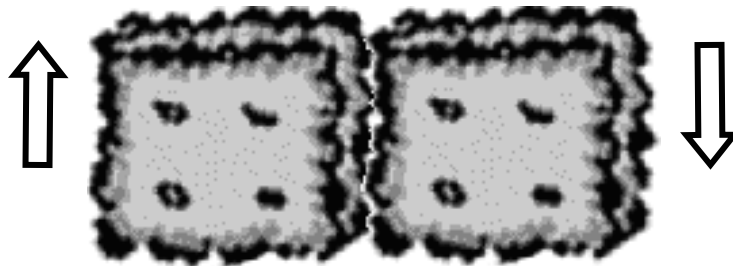
2. Place two saltine crackers about three inches apart from each other on top of the peanut butter. Slowly push them together, easing one under the other. This is similar to plate action on earth. The plate that slides under slowly melts due to the heat and pressure in the mantle and becomes new magma. This new magma eventually rises to the Earth's crust and erupts from a volcano.



3. Get two saltine crackers. Briefly dip one edge of one of the crackers in water. Then place the two crackers on the peanut butter with the wet edge of the one cracker touching an edge of the other. Gently push the crackers together. See how the ridge is pushed up? This is how some mountains are formed. The Himalayas, Rocky Mountains, and Alps were formed this way.



4. Place two saltine crackers side by side in the center of the peanut butter. Slowly push one up and away from you and the other down and toward you. When this happens with plates on the Earth they sometimes get stuck. When forces within the Earth cause the plates to become unstuck the Earth's crust cracks causing vibrations. This is called an earthquake.



Idea from "Push Those Plates!" in *Geology Rocks* by Cindy Blobaum.