Plate Tectonics

When you walk down the street it seems as though the ground beneath your feet isn't moving — but it is. The ground you're walking on is like a giant raft, a huge piece of Earth's surface crust that's floating on top of a layer of hot, dense rock material called the mantle.

Earth's crust is divided into gigantic pieces, called plates. Over time, these crustal plates move around on top of the mantle. Some plates are pulling away from each other, some are pushing toward each other, and some are sliding past each other. Have you ever noticed that the coastlines of South America and Africa look like they fit together? Scientists think they were connected about 200 million years ago, along with what is now North America, Asia, and Australia, in one huge continent called Pangaea (pan-GEE-ah). Over millions of years, the land that made up Pangaea slowly drifted apart to form the continents and ocean basins we know today. And the continents are still drifting! In another 200 million years, the map of the world will probably look very different. This slow movement of Earth's crustal plates over millions of years is called plate tectonics.

Mountain ranges like the ones in Vastland show that plate tectonics is happening. Mountains form when two crustal plates push toward each other. The rock at the front edge of one or both plates crumples up, creating mountains and hills of broken and folded rock. This is called uplift because it creates landforms that are raised up from the surface. It can take millions of years for a mountain range to form since Earth's crustal plates move only a few inches each year.

Volcanoes are another type of landform created by the movement of Earth's crustal plates. When the edge of one plate is forced under the edge of another plate, rock deep beneath the surface where the two plates are coming together begins to melt. This forms hot liquid rock which sometimes forces its way upward through cracks in the overlying plate and finally erupts from a volcano.

Satellite Tip

Satellites can show us what Earth looks like from above. In this satellite image of Hawaii's biggest volcano, Mauna Loa, you can see the circular opening (caldera) at the top of the volcano and the dark lava that has flowed out of it.