

ISLANDS BORN OF FIRE

ACTIVITY 1

As you saw in the film *Galapagos: Nature's Wonderland*, the Galapagos Islands were formed by volcanoes at the bottom of the Pacific Ocean. Over millions of years, as they grow older, each of these volcanoes slowly moves toward the southeast, making room for a new volcano to arise out of the ocean to the west.

The volcanoes move because they are part of the Earth's surface, which is made up of gigantic slabs of rock, called *tectonic plates*, that fit together like the pieces of a puzzle. Unlike puzzle pieces, however, tectonic plates slowly shift position by pushing into and pulling away from each other over millions of years. The Galapagos Islands sit on a plate that is slowly pushing southeastward, toward South America, at a speed of about 2 inches per year. At that rate, the volcanoes that make up the islands move only about 30 miles in a million years!

All the volcanoes of the Galapagos Islands were formed by a "hot spot" where molten rock from the center of the Earth has broken through the surface. This hot spot does not move, because it lies below the Earth's surface. As the tectonic plate moves over

it, the hot spot keeps breaking through in a different place, creating new volcanoes as the older ones keep moving away toward the southeast.

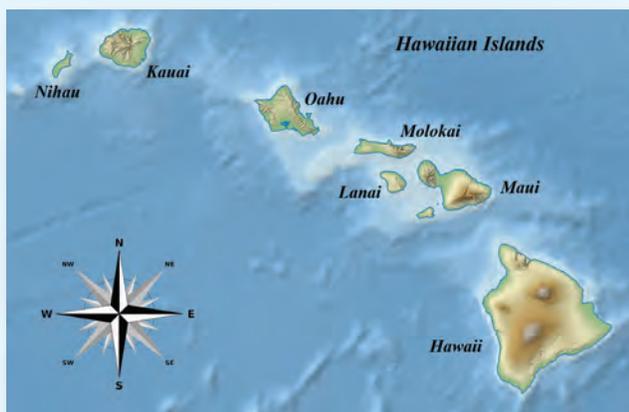
You can see this process at work on the map below. Use the map to create a timeline of these three islands: **Fernandina**, **Santa Cruz**, and **San Cristóbal**. Write the islands' names into the spaces to show which is oldest, which is middle-aged, and which is youngest.



Oldest

Middle-Aged

Youngest



Now use what you have learned about tectonic plates to compare the Galapagos Islands map with this map of the Hawaiian Islands, which were also formed by volcanoes erupting from a hot spot at the bottom of the Pacific Ocean.

- Which is probably the youngest of the Hawaiian Islands? Which are the oldest? How can you tell?
- Do you think the Hawaiian Islands are on the same tectonic plate as the Galapagos Islands? What direction are they moving?