Plate Tectonics and Pangaea

Evidence indicates that around 250 million years ago, all the continents were welded together into one landmass. Geologists use the name Pangaea (pan-JEE-uh) to refer to this giant landmass.

Formation of Pangaea

How did Pangaea form? Geologists must study data from the continents to make models of what Earth may have looked like before the formation of Pangaea. They cannot use data from the ocean floor, because the oldest oceanic crust is less than 200 million years old. Subduction has destroyed older oceanic crust.

One proposal is that, before the formation of Pangaea, a large continental mass stretched between the south pole and the equator. Geologists use the name Gondwana (gahnd-WAH-nuh) for this landmass. Gondwana was made up of smaller landmasses that would eventually become South America, southern Europe, Africa, the Near East, India, Australia, New Zealand, and Antarctica. Other, smaller landmasses ranged over the rest of the globe. Eventually Gondwana moved northward and converged with other landmasses to form Pangaea, as shown in the map at the far left on page 182.

Breakup of Pangaea

Over time, the landmasses that had formed Pangaea began to break apart. As shown in the diagrams on page 182 and below, they broke into two separate landmasses, Gondwana and Laurasia (law-RAY-zhuh). Over time, Gondwana and Laurasia broke into smaller landmasses whose shapes began to resemble the shapes of the continents today.

Pangaea is still breaking up, and the process by which landmasses have broken apart and converged may have happened many times before the formation of Pangaea.

Vocabulary Strategy

The word Pangaea comes from the Greek words pan and gaia. Pan means “all,” and gaia means “Earth.”

Observe an animation of the breakup of Pangaea.
Keycode: ES0806

65 MILLION YEARS AGO The positions of the continents were beginning to resemble their modern-day positions.

MODERN DAY The breakup of Pangaea continues today.