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Divergent
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Divergent boundaries Regions where two tectonic plates are moving apart are called **divergent boundaries**. Most divergent boundaries are found along the seafloor in rift valleys. It is in this central rift that the process of seafloor spreading begins. Magma rising through the rift's faults forms a mid-ocean ridge. The mid-ocean ridge appears as a continuous mountain chain on the ocean floor. The formation of new ocean crust at most divergent boundaries accounts for the high heat flow, volcanism, and earthquakes associated with these boundaries.

Reading Check Identify the cause of volcanism and earthquakes associated with mid-ocean ridges.

Throughout millions of years, the process of seafloor spreading along a divergent boundary can cause an ocean basin to grow wider. Although most divergent boundaries form ridges on the ocean floor, some divergent boundaries form on continents. When continental crust begins to separate, the stretched crust forms a long, narrow depression called a **rift valley**. **Figure 17.17** shows the rift valley that is currently forming in East Africa. The rifting might eventually lead to the formation of a new ocean basin.

MiniLab

Model Ocean-Basin Formation

How did a divergent boundary form the South Atlantic Ocean? Around 150 mya, a divergent boundary split an ancient continent. Over time, new crust was added along the boundary, widening the rift between Africa and South America.

Procedure

1. Read and complete the lab safety form.
2. Use a **world map** to create **paper templates** of South America and Africa.
3. Place the two continental templates in the center of a **large piece of paper**, and fit them together along their Atlantic coastlines.
4. Carefully trace around the templates with a **pencil**. Remove the templates and label the diagram **150 mya**.
5. Use an average spreading rate of 4 cm/y and a map scale of 1 cm = 500 km to create six maps that show the development of the Atlantic Ocean at 30-million-year intervals, beginning 150 mya.

Analysis

1. **Compare** your last map with a world map. Is the actual width of the South Atlantic Ocean the same on both maps?
2. **Consider** why there might be differences between the width in your model and the actual width of the present South Atlantic Ocean.

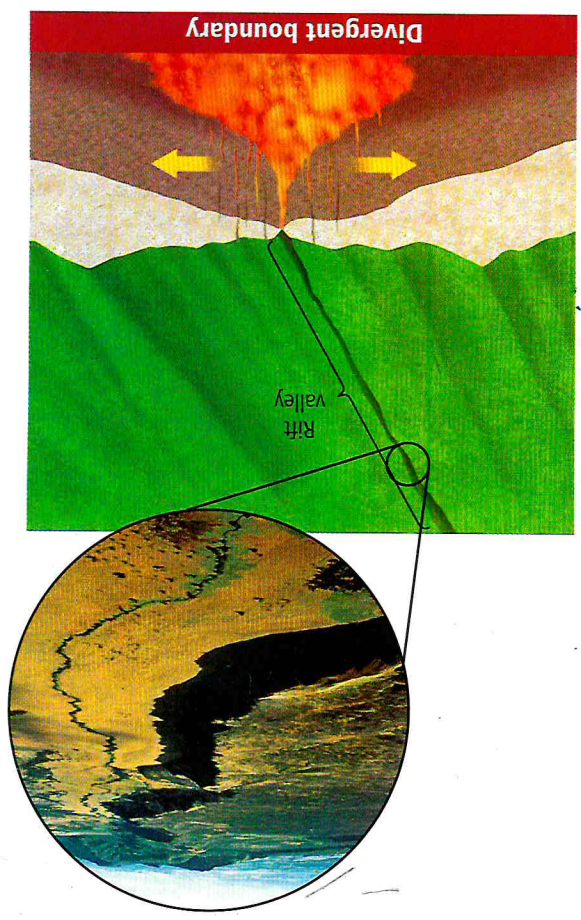


Figure 17.17 Divergent boundaries are places where plates separate. An ocean ridge is a divergent boundary on the ocean floor. In East Africa, a divergent boundary has also created a rift valley.