

Plate Boundaries - Earth's Bumper Cars

By Patti Hutchison

¹ Have you ever ridden the bumper cars at the amusement park? You drive around on a slippery floor in a car with a huge rubber bumper around it. You move forward and backward, bumping into anyone in your way. The earth's crust is a lot like those bumper cars.

² The earth's crust is made up of several large plates and some smaller ones. They all float along on the asthenosphere. This is a layer of partly molten rock. It lies under the upper mantle. As these plates move, they bump into one another. Sometimes they move away from each other. The places where they meet are called plate boundaries.

³ There are several types of plate boundaries. Most are found on the ocean floor. The first type is a divergent boundary. This is where two plates move away from each other. A mid-ocean ridge is an example of this type of boundary.

⁴ When the plates move apart, magma flows up between them. It cools and forms new crust. This is why divergent boundaries are also called constructive boundaries.

⁵ Another type of boundary is called a convergent boundary. This is where plates come together. One plate is pushed under another. These boundaries are also called destructive boundaries. Plate material is destroyed by subduction here. It is melted into the mantle. A deep-sea trench is an example of a convergent boundary.

⁶ As plates collide along convergent boundaries, there is much friction and pressure. Earthquakes often occur. They can be severe. As the plate material is subducted, some of it flows upward and produces volcanoes.

⁷ The Ring of Fire lies along the Pacific plate. This is the largest plate on the earth's surface. The Ring of Fire is a line of volcanoes that are found along major trenches in that area. Many of these volcanoes are active.

⁸ Other boundaries are called transform faults. A fault is a deep crack in the earth's surface. At these boundaries, the plates slide past each other. Crust is neither produced nor destroyed at these boundaries. Most of these boundaries are found on the ocean floor.

⁹ However, there is a famous transform boundary found on land. This is the San Andreas fault zone in California. This fault zone is about 1,300 kilometers long and more than ten kilometers wide in some places. It runs through about two-thirds of the state. Here the Pacific Plate grinds past the North American Plate. They move about five centimeters per year. There are often earthquakes along this fault.

¹⁰ As we stand on the earth's crust, we are actually riding on a giant raft. The earth's surface is made up of huge plates that float on molten material. Most of the time, we can't feel the motion because it happens very slowly. If these plates collide, however, we feel and see the effects. Earthquakes and volcanic eruptions are the result of these rafts bumping into each other. These events change the surface of the earth.



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<p>1. A boundary where plates move away from each other is called _____.</p> <p><input type="radio"/> A Convergent</p> <p><input type="radio"/> B Divergent</p> <p><input type="radio"/> C Transform</p>	<p>2. Why is a divergent boundary also called a constructive boundary?</p> <p>_____</p> <p>_____</p>
<p>3. An example of a convergent boundary is a _____.</p> <p><input type="radio"/> A Mid-ocean ridge</p> <p><input type="radio"/> B Volcano</p> <p><input type="radio"/> C Deep-sea trench</p>	<p>4. A deep crack in the earth's surface is called a _____.</p> <p><input type="radio"/> A Fault</p> <p><input type="radio"/> B Ridge</p> <p><input type="radio"/> C Plate</p>
<p>5. How do the plates move at a transform boundary?</p> <p>_____</p> <p>_____</p>	<p>6. Earthquakes and volcanoes occur at plate boundaries.</p> <p><input type="radio"/> A False</p> <p><input type="radio"/> B True</p>

Name _____



Date _____



