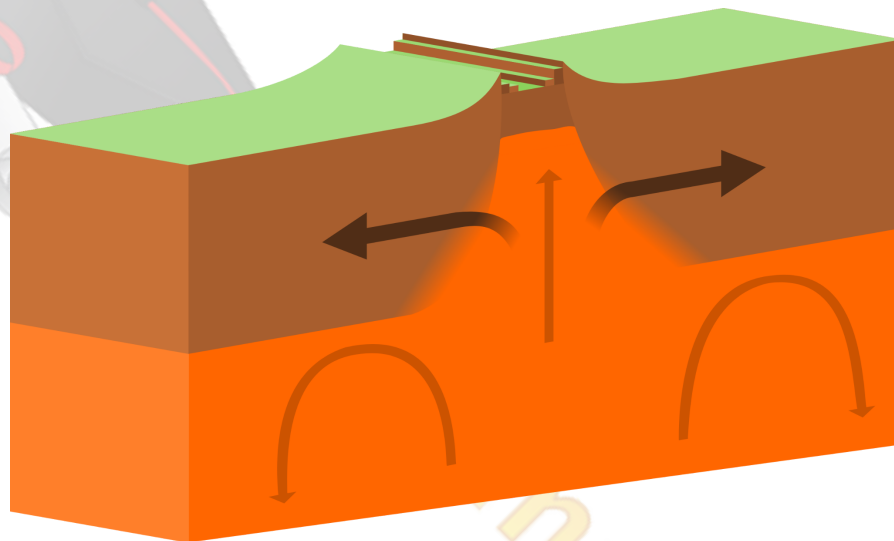


B3. Divergent Plates

Divergent Plates

Imagine that the Earth's surface is like a giant puzzle made up of huge, moving pieces. These pieces are called tectonic plates. Tectonic plates are like massive rafts floating on the semi-liquid layer of the Earth's mantle. These plates are constantly shifting and moving, and sometimes they move apart from each other. When tectonic plates move away from each other, it is called divergent plate boundary. Let's learn more about divergent tectonic plates!



The Earth's Puzzle

The Earth's outermost layer, called the crust, is divided into several large and small tectonic plates. These plates fit together like a jigsaw puzzle, covering the entire surface of the Earth. There are several types of plate boundaries, including convergent, divergent, and transform boundaries. Divergent plate boundaries are one of the most interesting ones!

Moving Apart

At divergent plate boundaries, tectonic plates move away from each other. This movement is caused by the upwelling of hot mantle material beneath the Earth's crust. As the hot material rises, it creates pressure, pushing the tectonic plates apart.

Mid-Ocean Ridges

One of the most famous examples of divergent plate boundaries is the mid-ocean ridges. These are long underwater mountain ranges that run through the middle of the oceans. The mid-ocean ridges are formed by the movement of tectonic plates away from each other.

Seafloor Spreading

At the mid-ocean ridges, magma from the mantle rises to the surface and cools down, creating new crust. This process is known as seafloor spreading. As more and more magma comes up, the plates on either side of the mid-ocean ridge move farther apart.

Volcanoes and Earthquakes

Divergent plate boundaries are also associated with volcanic activity and earthquakes. As the tectonic plates pull apart, the Earth's crust becomes thinner. This thinning allows magma to reach the surface, leading to volcanic eruptions. Additionally, as the plates move, they sometimes get stuck against each other, causing stress to build up. When this stress is released, it creates earthquakes.

The Birth of Oceans

Divergent plate boundaries play a crucial role in the formation of new ocean basins. As tectonic plates move apart, magma fills the gap, creating new oceanic crust. Over millions of years, this process has led to the opening of new oceans on our planet.

1. What are tectonic plates?
 - A) Huge mountains on the Earth's surface
 - B) Large rafts floating on the Earth's mantle
 - C) Small rocks on the ocean floor
 - D) Thin layers of soil on the Earth's crust
2. What do we call it when tectonic plates move away from each other?
 - A) Convergent plate boundary
 - B) Divergent plate boundary
 - C) Transform plate boundary
 - D) Subduction zone
3. What causes tectonic plates to move apart at divergent boundaries?
 - A) The sinking of hot mantle material
 - B) The collision of two plates
 - C) The upwelling of hot mantle material
 - D) The cooling of magma
4. Which feature is formed by divergent plate boundaries underwater?
 - A) Mountains
 - B) Volcanoes
 - C) Mid-ocean ridges
 - D) Canyons
5. What is the process of creating new crust at mid-ocean ridges called?
 - A) Seafloor spreading
 - B) Subduction
 - C) Plate collision
 - D) Mountain formation

6. What geological features are commonly associated with divergent plate boundaries?
- A) Earthquakes and canyons
 - B) Volcanoes and trenches
 - C) Mid-ocean ridges and earthquakes
 - D) Mountains and canyons
7. How do divergent plate boundaries contribute to the formation of new oceans?
- A) They push tectonic plates together, creating deep ocean basins.
 - B) They allow magma to rise, forming new oceanic crust.
 - C) They erode the continents, filling the gaps with water.
 - D) They cause volcanic eruptions that lead to ocean formation.
8. What is the role of upwelling hot mantle material in the movement of tectonic plates?
- A) It causes tectonic plates to collide with each other.
 - B) It pushes tectonic plates apart at divergent boundaries.
 - C) It pulls tectonic plates together at convergent boundaries.
 - D) It causes tectonic plates to slide past each other at transform boundaries.
9. What type of boundary is formed when two tectonic plates push against each other?
- A) Convergent plate boundary
 - B) Divergent plate boundary
 - C) Transform plate boundary
 - D) Subduction zone
10. How do divergent plate boundaries contribute to volcanic activity?
- A) They allow magma to reach the surface, leading to volcanic eruptions.
 - B) They create deep ocean trenches where volcanoes form.
 - C) They cause the Earth's crust to thicken, leading to volcanic eruptions.
 - D) They do not contribute to volcanic activity.

ANSWERS & EXPLANATIONS

1. B - Large rafts floating on the Earth's mantle.
 - Tectonic plates are like massive rafts floating on the semi-liquid layer of the Earth's mantle.
2. B - Divergent plate boundary.
 - Divergent plate boundaries occur when tectonic plates move away from each other.
3. C - The upwelling of hot mantle material.
 - Tectonic plates move apart at divergent boundaries due to the upwelling of hot mantle material.
4. C - Mid-ocean ridges.
 - Mid-ocean ridges are long underwater mountain ranges formed by divergent plate boundaries.
5. A - Seafloor spreading.
 - The process of creating new crust at mid-ocean ridges is called seafloor spreading.
6. C - Mid-ocean ridges and earthquakes.
 - Divergent plate boundaries are associated with mid-ocean ridges and earthquakes.
7. B - They allow magma to rise, forming new oceanic crust.
 - Divergent plate boundaries contribute to the formation of new oceans by allowing magma to rise and create new oceanic crust.
8. B - It pushes tectonic plates apart at divergent boundaries.
 - Upwelling hot mantle material pushes tectonic plates apart at divergent boundaries.
9. A - Convergent plate boundary.
 - When two tectonic plates push against each other, it forms a convergent plate boundary.
- 10.A - They allow magma to reach the surface, leading to volcanic eruptions.
 - Divergent plate boundaries allow magma to reach the surface, causing volcanic eruptions.