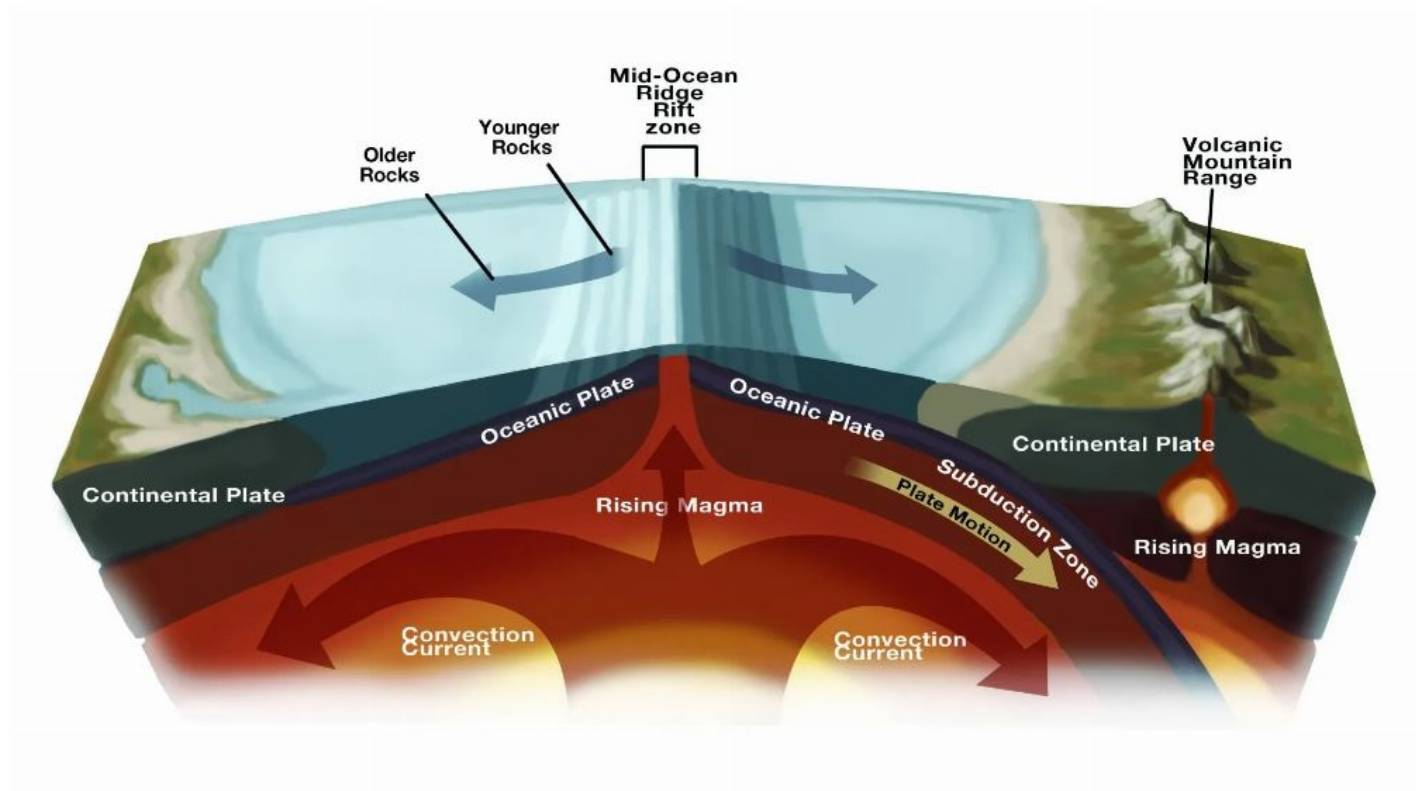


What is a Subduction Zone?

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About Subduction Zone

- A subduction zone is a spot where two of the planet's tectonic plates collide and one dives, or subducts, beneath the other.
 - Tectonic plates are pieces of the Earth's rigid outer layer that slowly move across the planet's surface over millions of years.
 - This is the main tenet of plate tectonics, the theory that portions of Earth's shell glide over the lower mantle, taking continents with them.
 - That outer layer, known as the lithosphere, consists of the Earth's crust and the upper section of the mantle, a dense, hot layer beneath the crust.
 - When two tectonic plates meet at a subduction zone and one slides underneath the other, this lithosphere material curves down into the hot mantle.
- This tectonic process can produce some of the planet's most powerful earthquakes, tsunamis, and volcanoes.
- This subduction process frequently occurs because of the two different types of lithospheres that make up tectonic plates: Continental and oceanic.
 - Because oceanic material is denser than continental lithosphere, when the two collide at a subduction zone, the oceanic portion sinks into the mantle beneath the more buoyant continental lithosphere.

- Subduction zones can also occur when both colliding plate sections consist of oceanic material. In these cases, older, denser oceanic lithosphere sinks below younger, more buoyant oceanic lithosphere.
 - A new oceanic lithosphere forms at the spots where plates separate, allowing hot mantle material to rise to the surface. As it moves away from those boundaries, this lithosphere cools and gets denser. Thus, older oceanic lithosphere can more easily sink.
 - The sinking plate, or “slab,” at a subduction zone tends to bend at an angle of about 30 degrees from Earth’s surface, though some angles are flatter or steeper than this.
 - Sometimes, subduction can begin spontaneously, without the forces of collision between plates. This happens as the lithosphere becomes unstable and sinks under the force of gravity. The oceanic lithosphere may grow so old and dense that it collapses and spontaneously forms a subduction zone.
 - Subduction zones occur in a horseshoe shape around the edge of the Pacific Ocean, offshore of the USA, Canada, Russia, Japan, and Indonesia, and down to New Zealand and the southern edge of South America.
 - Called the “Ring of Fire,” these subduction zones comprise “the most seismically and volcanically active zone in the world,” responsible for more than 80% of the world’s biggest earthquakes and most of the planet’s active volcanoes.
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Q1) What is a Strait?

A strait is a narrow waterway between two pieces of land that connects two large bodies of water. Well-known straits include the Bering Strait, which links the Arctic Ocean with the Bering Sea and separates the continents of Asia and North America at their closest point. The Strait of Gibraltar, located between Spain and Africa, connects the Mediterranean Sea with the Atlantic Ocean. The Strait of Magellan lies between the southern tip of South America and the islands of Tierra del Fuego and links the Atlantic and Pacific oceans.

Source: [Subduction zone discovered beneath Gibraltar Strait: Concerns raised over future of Atlantic ocean](#)

Source: <https://vajiramandravi.com/current-affairs/subduction-zone/>

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