

The Oceans

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World's Five Oceans

 **Atlantic**

 **Pacific**

 **Indian**

 **Arctic**

 **Antarctic**

Can you find them on a map?

Which is the largest?

Which did you swim in?

How were the Five Oceans Formed?

 **Do the shorelines of any continents match?**

 **The shorelines of the Atlantic coasts of South America and Africa match**

 **Scientists believed all the continents were joined together in a “super” continent, called Pangea**

 **The continents are drifting apart and formed the five oceans**

The Theory of Continental Drift

- **The continents are drifting apart slooowly**
- **Sometimes the continents collide and break into pieces**
- **The continents and the ocean floor are part of the crust. Both “float” on the fluid asthenosphere**
- **The basalt rock of the ocean floor is more dense than the granite rock of the continents. The ocean floor sinks into the mantle.**

How are the Continents Moving Apart?

Theory of Ocean Floor Spreading

Mid-Ocean Ridges

- undersea mountains that run down the center of nearly every ocean
- these mountains are split by a rift
- hot magma rises from mantle through the rift, creates new rock at the mid ocean ridge, and the ocean floor spreads

Rock age of ocean floor

- youngest rock is closest to ridge
- oldest rock is farthest from ridge

Theory of Plate Tectonics

- **Unites continental drift and ocean floor spreading theories**
- **The earth's crust is made of rigid slabs of rock called plates**
- **Plates float on asthenosphere**
- **Ocean floors and continents are passengers on moving plates**
- **Plates collide at converging and slide at transform boundaries**

Where is the Deepest Part of the Ocean?

- ◆ **Ocean floor is formed at the ridges and destroyed at the trenches**
- ◆ **Trenches are deep crevices in the ocean floor. The ocean floor bends sharply downward into the mantle at a convergent boundary with an adjacent plate**
- ◆ **Subduction - the process of the ocean floor sinking and melting into the mantle**

How are Oceanic Mountains Formed?

- 1. Mid-ocean ridges break the surface, example - Iceland**
- 2. Rising hot magma in the mantle:**
 - Plate moves over a hot spot, Hot magma forms a volcano at the hot spot, Plate moves and a new volcano forms at the stationary hot spot Example - Hawaiian Islands**
 - a subducting (sinking) plate grinds against an adjacent plate forming magma rises to the surface Example: volcanoes in Indonesia**

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