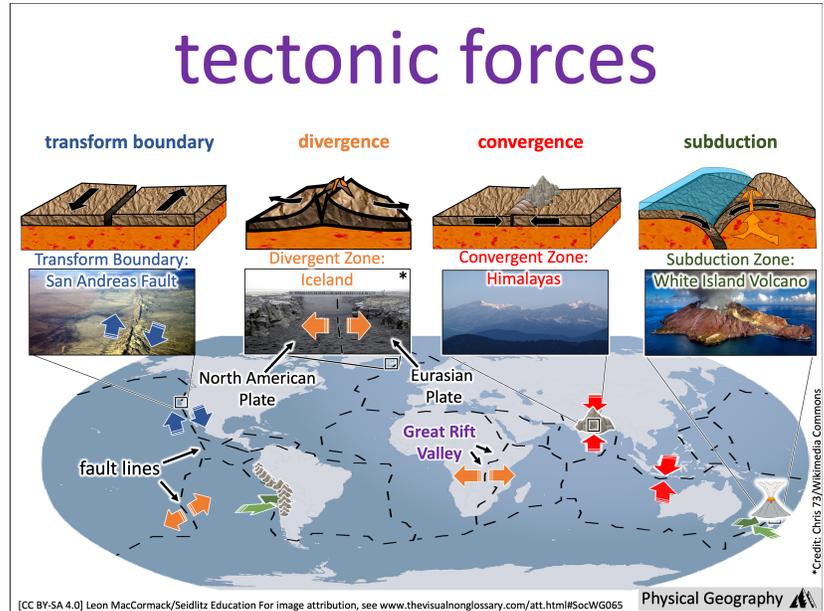


## Earth on the Move

*The purpose for reading is to learn how different tectonic forces shape the Earth's surface and how those changes affect people.*

### Pay Attention To:

- Different types of tectonic forces
- Landforms like mountains, valleys, trenches, and volcanoes
- Places where tectonic forces are happening (e.g., Great Rift Valley, Himalayas, Andes, San Andreas Fault)
- How people might be affected by these landforms or events (e.g., earthquakes, tsunamis, volcanoes)



The outer layer of Earth is called the **lithosphere**, and it is broken into large pieces called tectonic plates. These plates move slowly, but their movement causes powerful **tectonic forces** that change the shape of the land. Over time, these forces can create mountains, valleys, ocean trenches, and ridges.

These movements happen in the **asthenosphere**, a soft, flowing part of the upper **mantle** just below the **lithosphere**. Heat from the Earth's **core** causes **convection** currents in the **mantle**. Hot material rises, and cooler material sinks. This cycle pushes and pulls the plates above, creating different types of **tectonic forces**.

There are several kinds of **tectonic forces**. When plates pull apart, it's called a divergent force. This happens at places like the **Great Rift Valley** in Africa. Divergent boundaries under the ocean can also lead to **volcanoes**. When plates push together, it's called a convergent force. This type of force created the **Himalayas**, where two plates crashed into each other and formed mountains. When one plate slides under

another, it's called subduction. This formed the **Andes** mountains in South America. Subduction zones can also lead to **earthquakes, volcanoes**, and large ocean waves called **tsunamis**. Some plates move side by side. These **transform boundaries** can cause strong earthquakes, like along the **San Andreas Fault** in California.

This whole system is part of **continental drift**, which explains how continents move slowly over time. As the plates shift, they change the land around them. **Tectonic forces** help shape the surface of Earth and affect how people live in different regions.

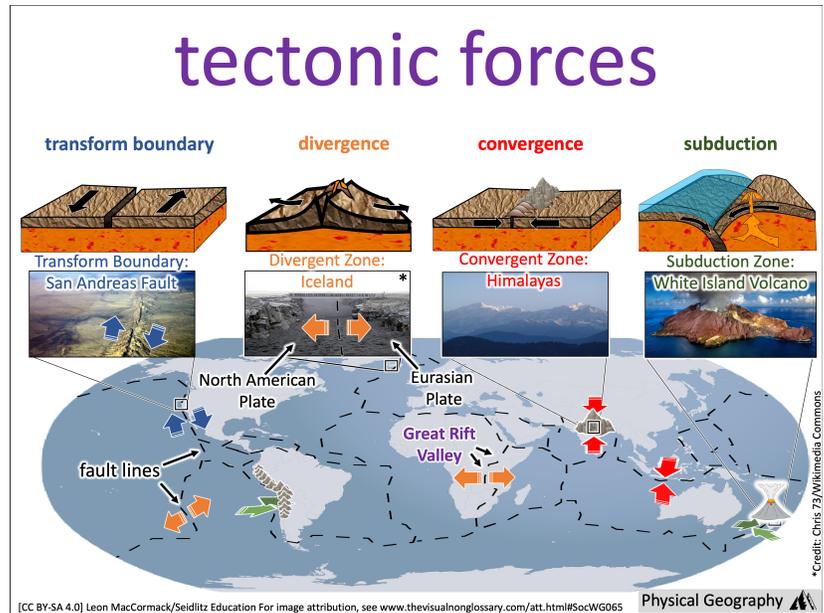


## Forces That Shape the Earth

*The purpose for reading is to learn how different tectonic forces shape the Earth's surface and how those changes affect people.*

### Pay Attention To:

- Different types of tectonic forces
- Landforms like mountains, valleys, trenches, and volcanoes
- Places where tectonic forces are happening (e.g., Great Rift Valley, Himalayas, Andes, San Andreas Fault)
- How people might be affected by these landforms or events (e.g., earthquakes, tsunamis, volcanoes)



The surface of the Earth is constantly changing, even if we don't always notice it. These changes are caused by powerful movements deep within the Earth's outer shell, called the **lithosphere**. The **lithosphere** is broken into large slabs of rock known as tectonic plates. The movement of these plates creates **tectonic forces**—natural processes that build up and reshape the land over time.

These movements occur in the **asthenosphere**, a flowing layer of the upper mantle beneath the **lithosphere**. Heat from the Earth's **core** causes **convection** currents in the **mantle**, where hot material rises and cooler material sinks. These slow, flowing movements push and pull the tectonic plates above, creating different types of **tectonic forces**.

There are several types of **tectonic forces** that shape the Earth's surface. Divergent forces pull plates apart. This type of force is responsible for creating the **Great Rift Valley** in East Africa, where land is slowly splitting into separate sections.

Divergent boundaries can also form under the ocean and lead to volcanic activity as magma rises through the gap. Convergent forces push plates together, causing land to rise and form mountain ranges like the **Himalayas**, where two continental plates are colliding. Subduction occurs when one plate slides beneath another. In South America, this force created the **Andes** mountains, where an oceanic plate sinks under a continental one. Subduction zones are also known for powerful earthquakes, **volcanoes**, and even **tsunamis** when undersea plates shift suddenly. Another type, called a **transform boundary**, happens when plates slide past each other. This kind of motion formed the **San Andreas Fault** in California, where frequent **earthquakes** occur due to the grinding motion of the plates.

The movement of tectonic plates is part of a larger process known as **continental drift**. This idea explains how continents slowly move across Earth's surface over millions of years. As the plates shift, they create new landforms such as mountains, valleys, trenches, **volcanoes**, and ocean ridges. These changes shape the physical environment of regions all over the world.

Understanding **tectonic forces** helps geographers explain why Earth's surface looks the way it does. From the valleys of Africa to the peaks of Asia and South America, these forces continue to reshape our world today.

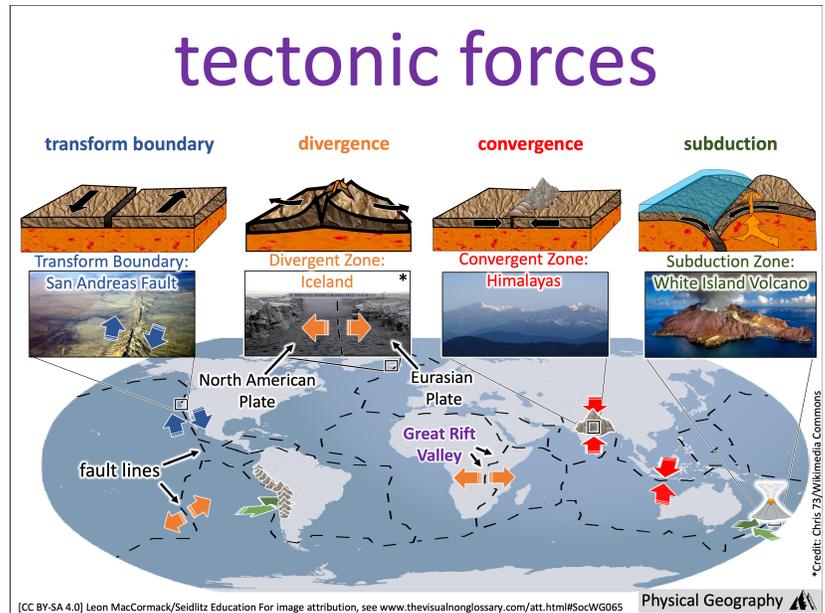


## Deep Earth Dynamics

*The purpose for reading is to learn how different tectonic forces shape the Earth's surface and how those changes affect people.*

### Pay Attention To:

- Different types of tectonic forces
- Landforms like mountains, valleys, trenches, and volcanoes
- Places where tectonic forces are happening (e.g., Great Rift Valley, Himalayas, Andes, San Andreas Fault)
- How people might be affected by these landforms or events (e.g., earthquakes, tsunamis, volcanoes)



Earth's crust and uppermost mantle together form the rigid **lithosphere**, which is broken into tectonic plates. These plates drift slowly across the planet's surface due to powerful internal forces. The interactions between these plates generate **tectonic forces** that sculpt Earth's surface over time.

These interactions are driven by motion in the **asthenosphere**, a ductile layer in the upper **mantle** beneath the **lithosphere**. Heat from the Earth's **core** causes **convection** currents in the **mantle**, with hotter materials rising and cooler materials sinking. These currents drive the motion of the plates above, leading to several distinct types of **tectonic forces**.

At divergent boundaries, plates move apart. This process created the **Great Rift Valley** in East Africa and causes volcanic activity along mid-ocean ridges. Convergent boundaries occur when plates collide, forming massive landforms like the **Himalayas**, where two continental plates meet. In subduction zones, an oceanic plate is forced

beneath another plate, forming trenches and mountain chains like the **Andes** in South America. These zones also generate **volcanoes**, deep **earthquakes**, and the potential for devastating **tsunamis**. **Transform boundaries**, where plates slide past each other horizontally, produce intense seismic activity, such as along California's **San Andreas Fault**.

All of these movements are part of **continental drift**, the theory that explains how landmasses have shifted across geologic time. **Tectonic forces** not only shape landscapes but also influence climate, ecosystems, and human settlement. The study of these forces reveals the dynamic nature of our planet's surface and the interconnected systems beneath it.

