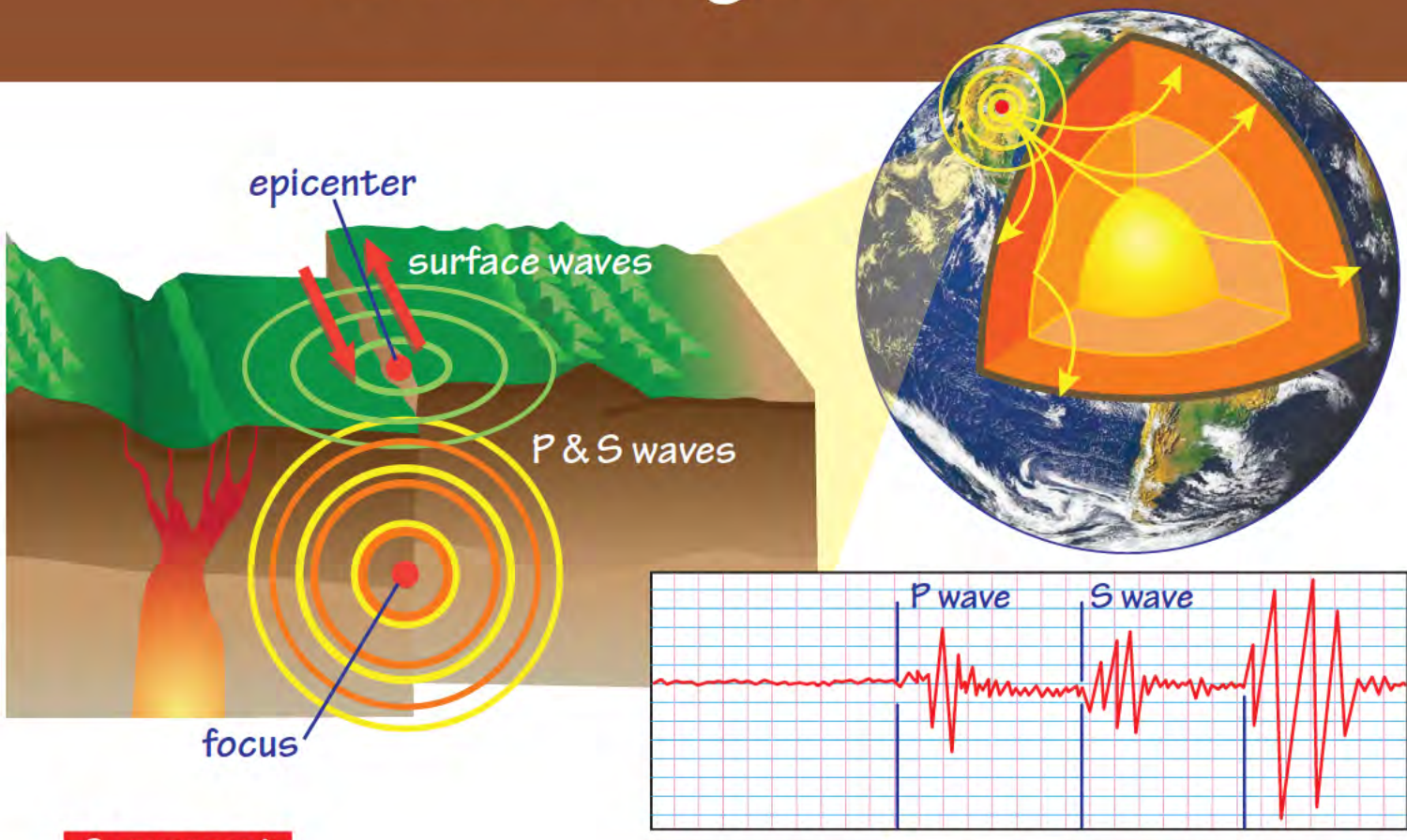
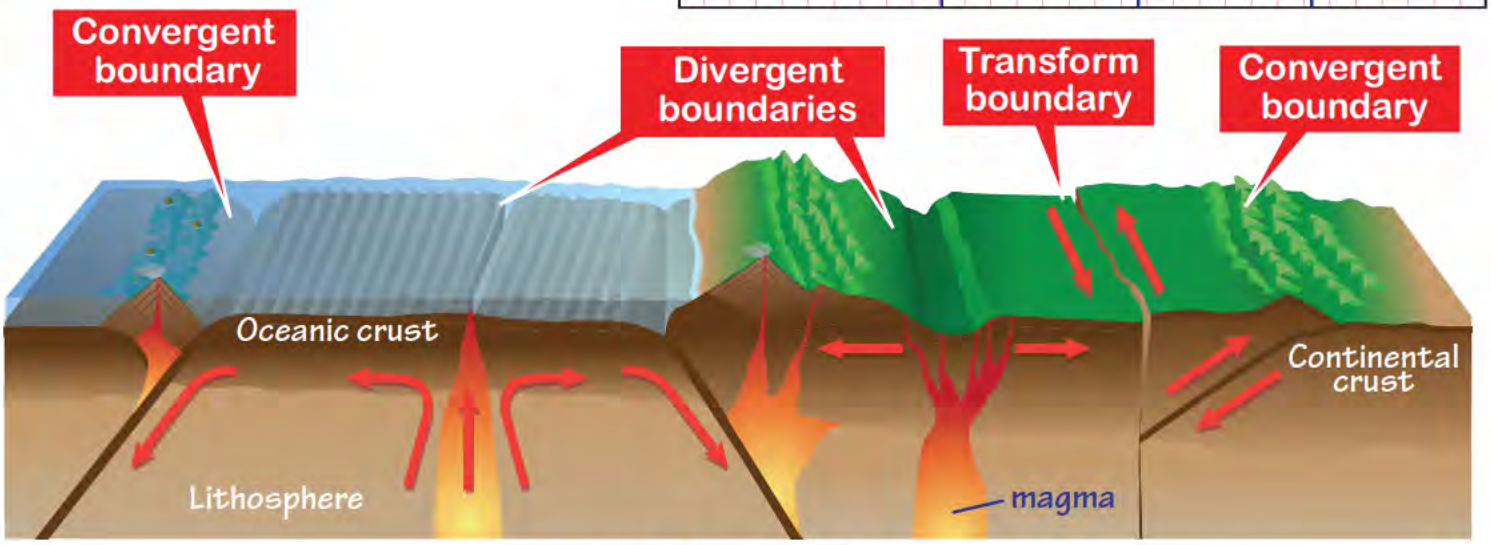
Earthquakes
Learning Guide





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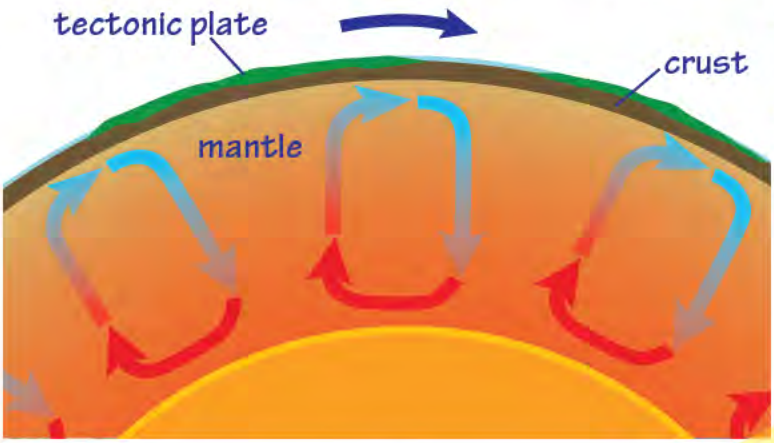
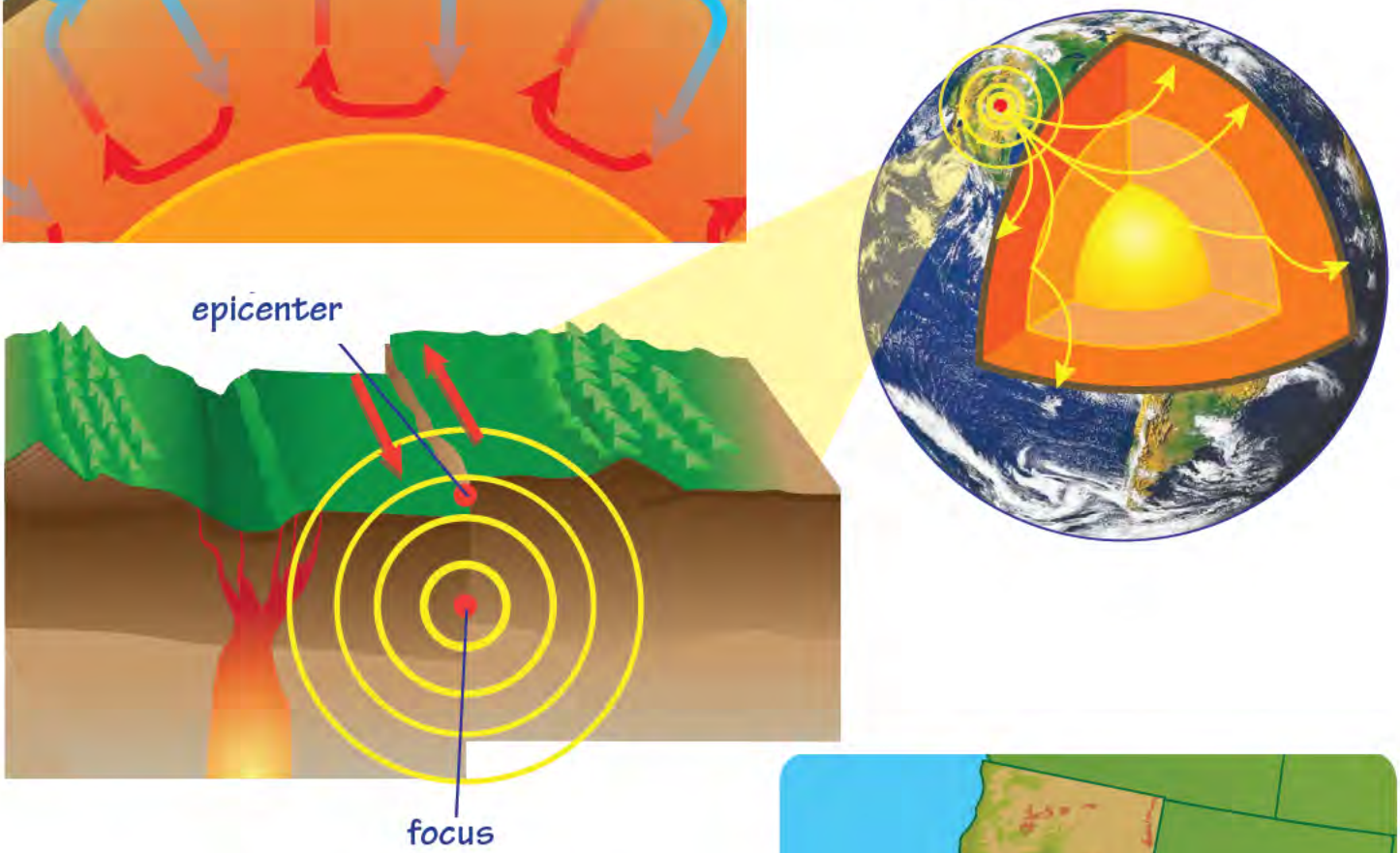
HOW AN EARTHQUAKE OCCURS

Rock Experiences Stress & Releases Energy

The Earth's **tectonic plates** are in motion. This movement creates forces called stress that push and pull the rock within the Earth's **crust**.



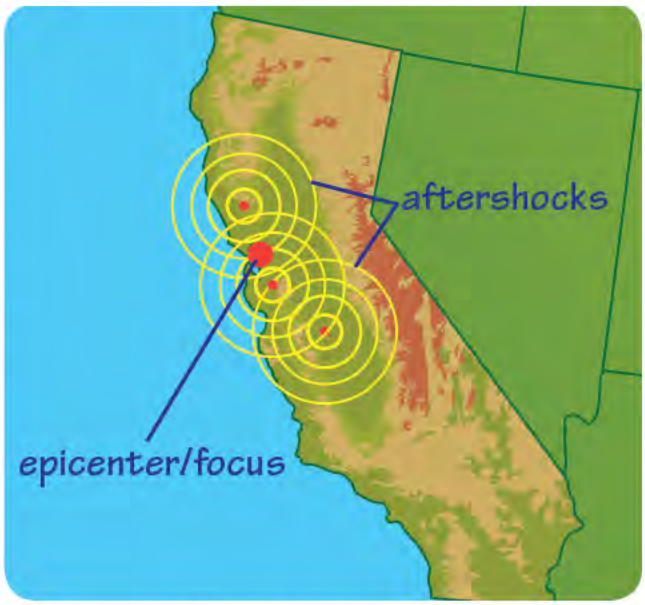
Stress can cause rock to break and **release stored energy** in the form of **seismic waves**. These waves travel through the Earth and an **earthquake** occurs.



Earthquake Focus and Epicenter

The point where the rock first breaks is called the **focus** of an earthquake. The **point directly above the focus** on the Earth's surface is the **epicenter**.

After an earthquake event, smaller earthquakes called **aftershocks** often occur near the **focus** of the original earthquake.

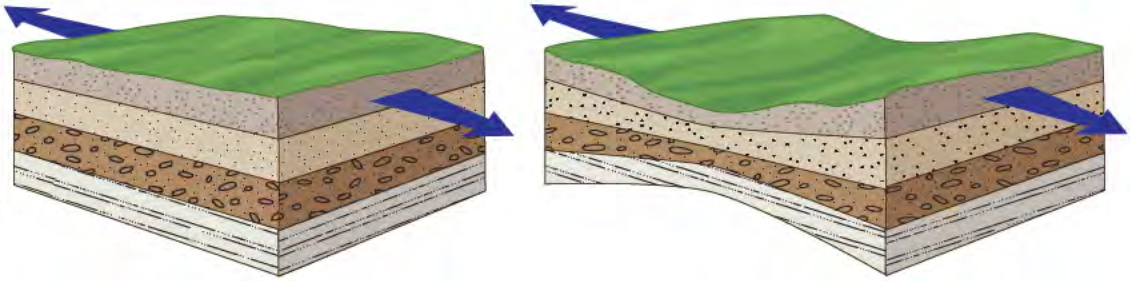


Types of Stress in Crustal Rock

There are **three types of stress** that occur in the crustal rock—**tension**, **compression** and **shearing**. Over long periods of geologic time, stress causes the Earth's surface to slowly change.

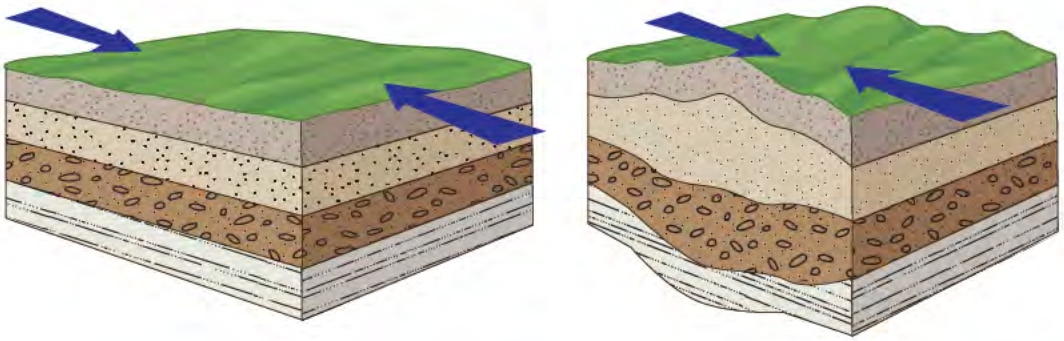
Tension

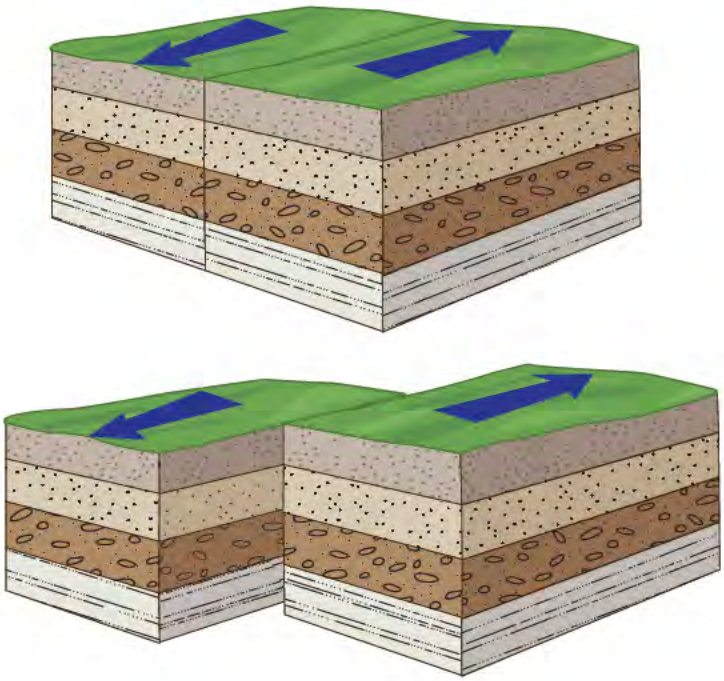
When two tectonic plates are **moving away from each other**, **tension** pulls and stretches rock.



Compression

When two tectonic plates are **pushing toward each other**, **compression** squeezes rock, causing it to fold or break.





Shearing

Shearing stress occurs when two blocks of rock are **pushing in opposite directions**. This **sliding motion** can cause rock to change shape or break.

