

Warm – Up

1. P. 262 What do we call undersea mountain ranges through the center of which run steep, narrow valleys?

1. Mid-Ocean Ridges

2. P. 262 Rocks closer to a mid-ocean ridge are _____ than the rocks further away.

1. Younger

3. P. 263 As the ocean floor moves away from the ridge, rising magma cools and solidifies to form new rock that replaces the ocean floor. This is called...?

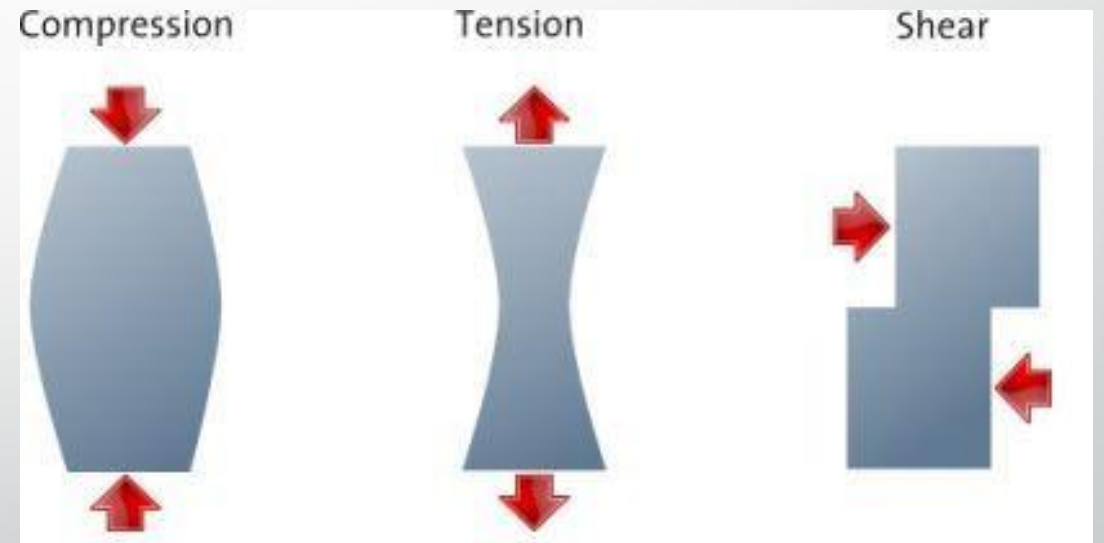
1. Sea floor spreading

Objectives

- *Students will be able to...*
- Understand and define the 3 forces that move the crust
- Explain the driving force in crustal movement
- Name the 3 boundaries connected to the 3 forces

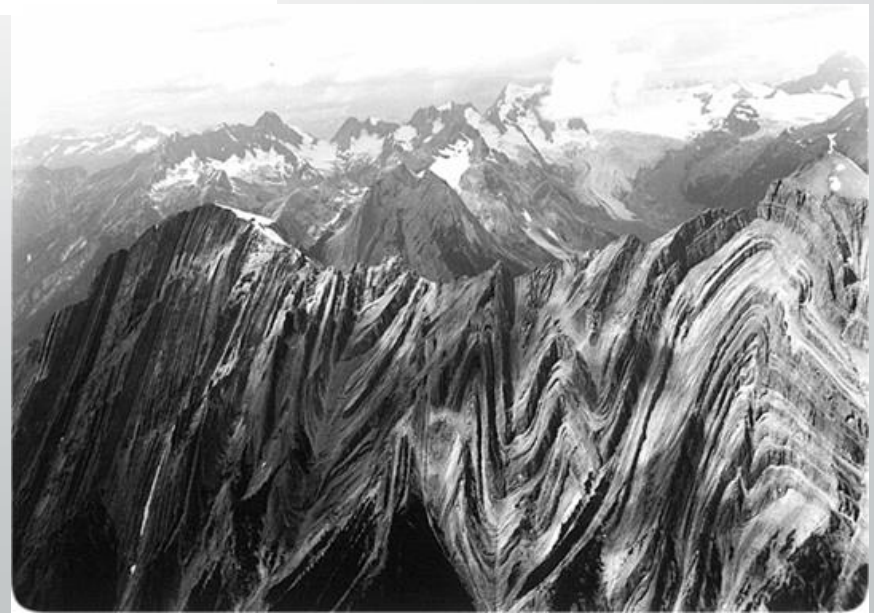
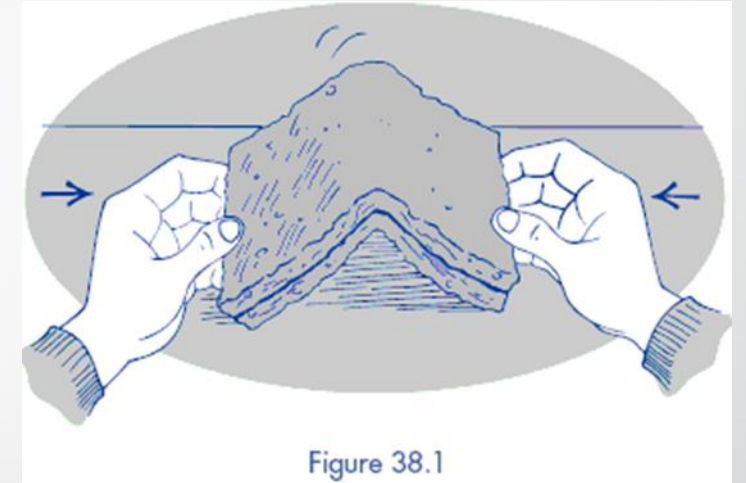
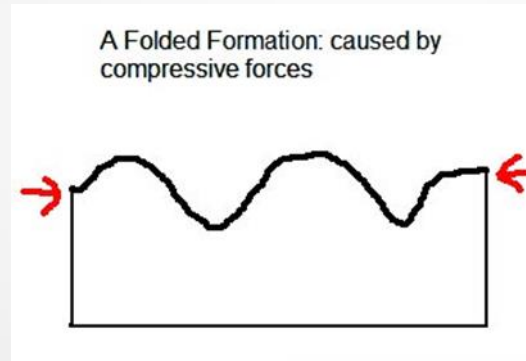
3 main forces

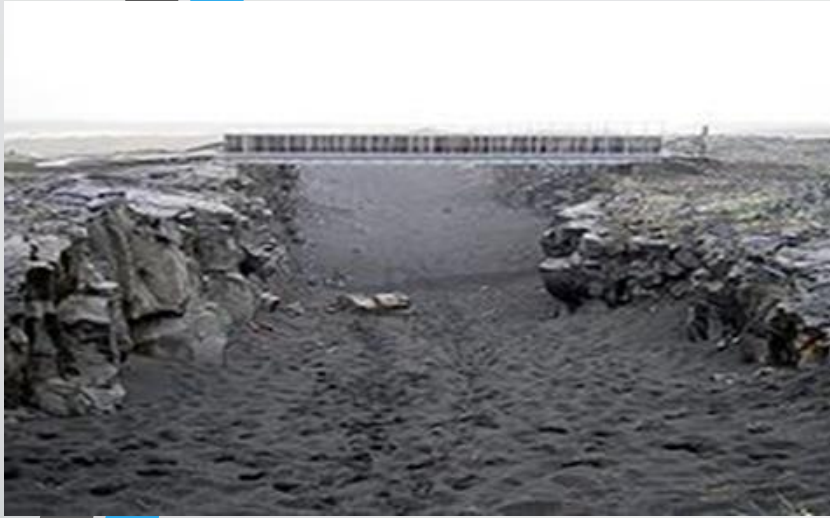
1. Compression
2. Tension
3. Shear



Compression

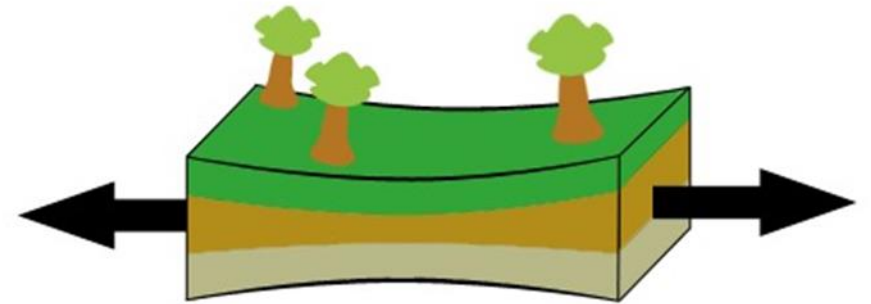
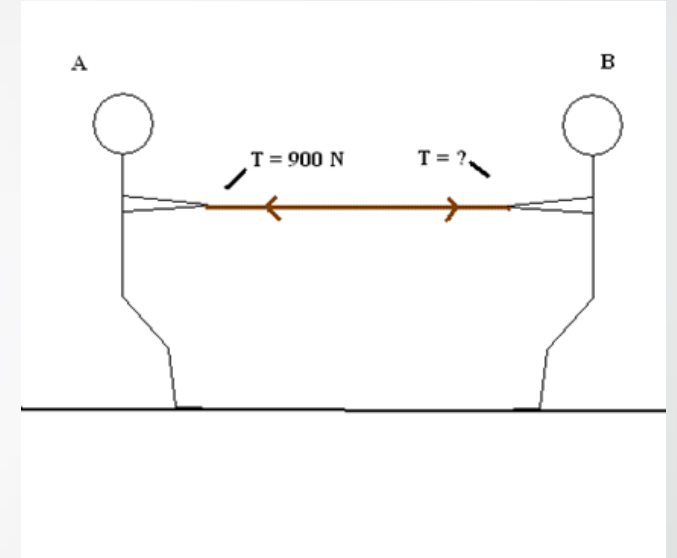
- **Definition:** forces which push toward each other along a single line of motion (*squeezing*)



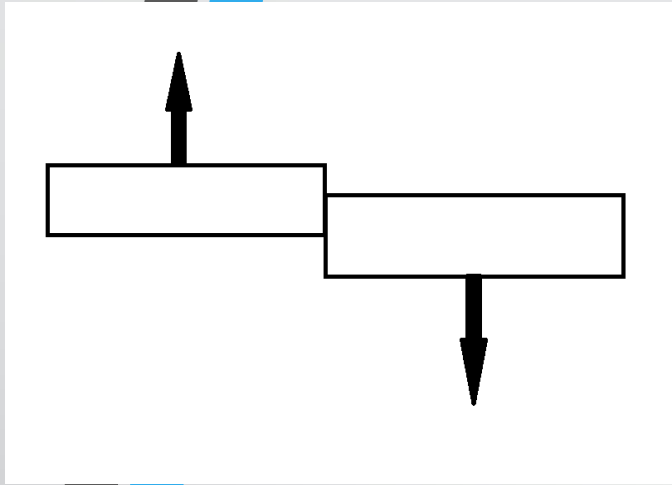


Tension

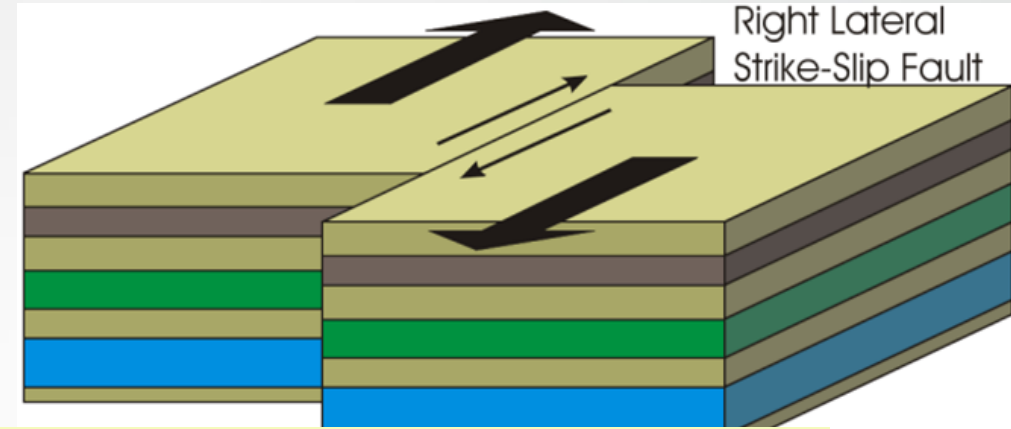
- **Definition:** the force that pulls away from each other along a single line of motion



Tension



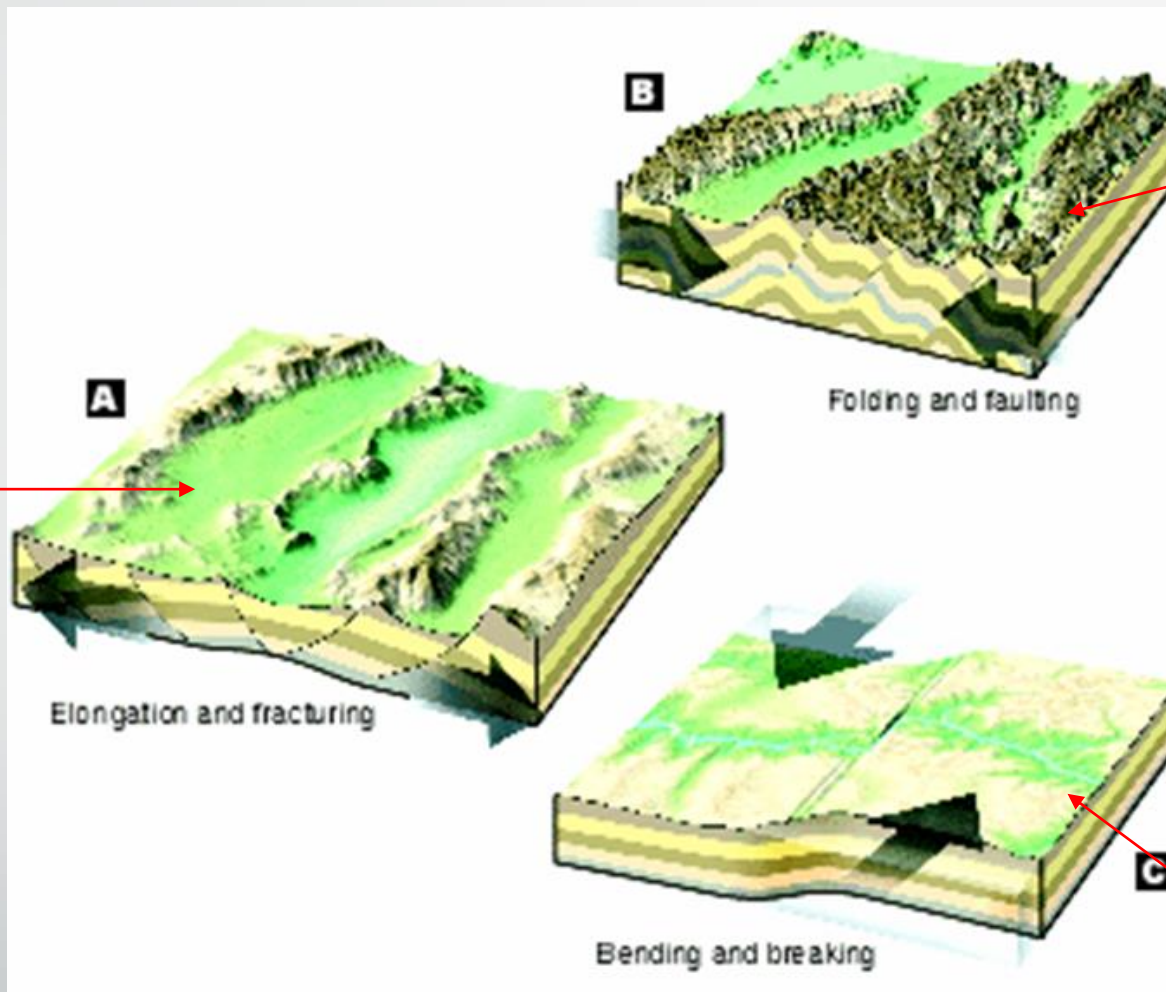
Shear



Definition: forces which act in opposite directions along different lines of motion

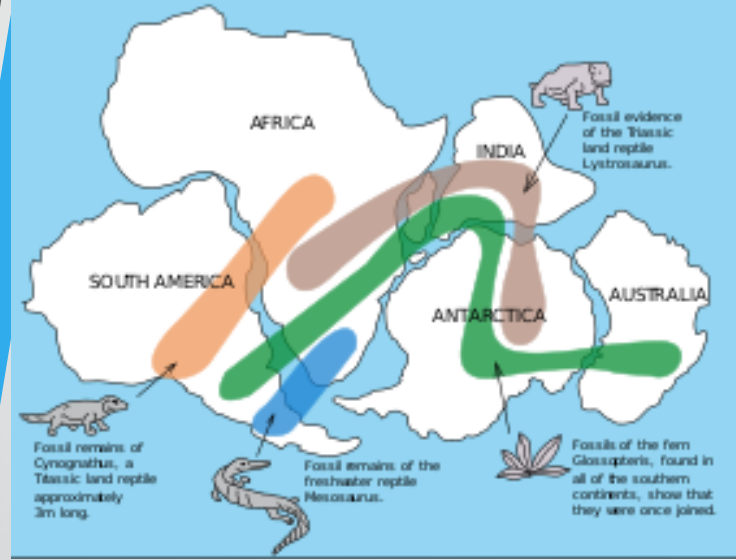


Tension



Compression

Shear



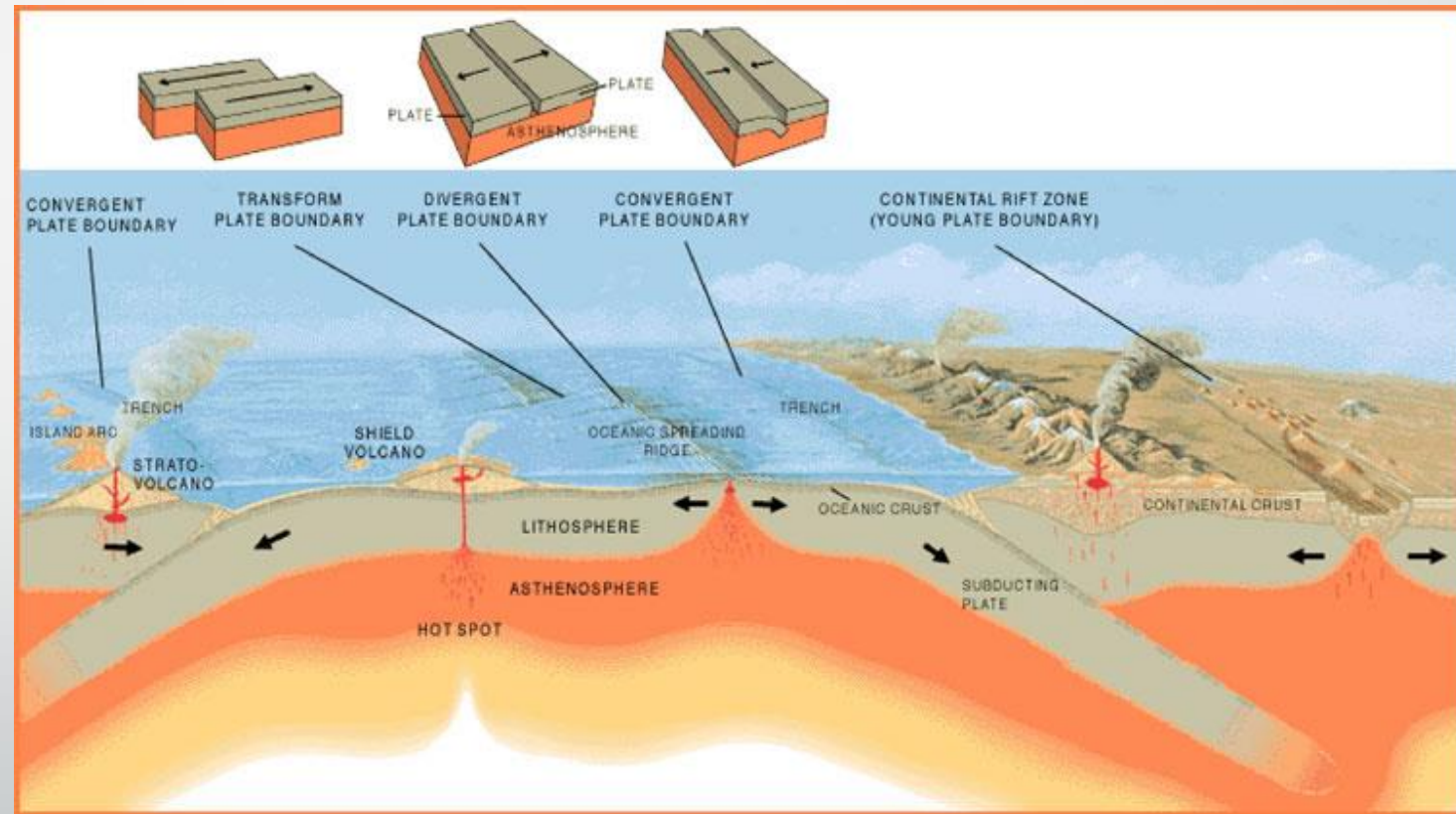
Pangaea

- Over 200 million years ago Earth's land was joined in one continental land mass called: **PANGAEA**
 - Means "all land"



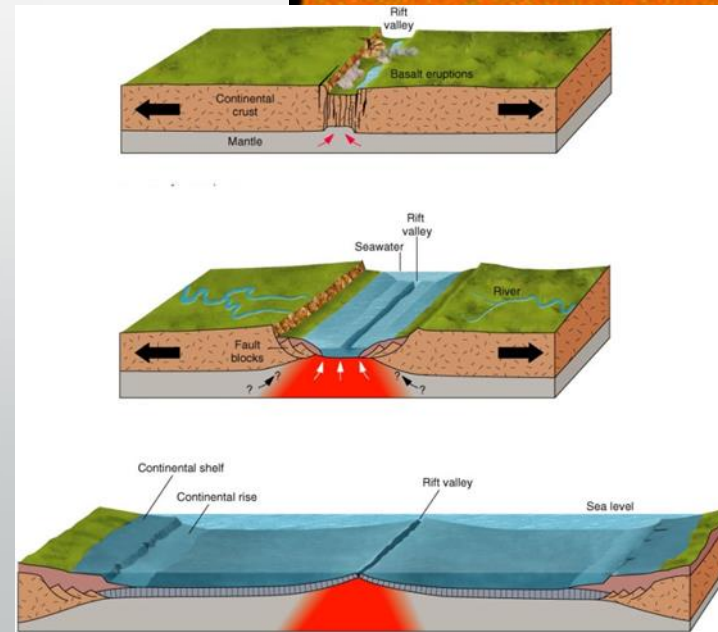
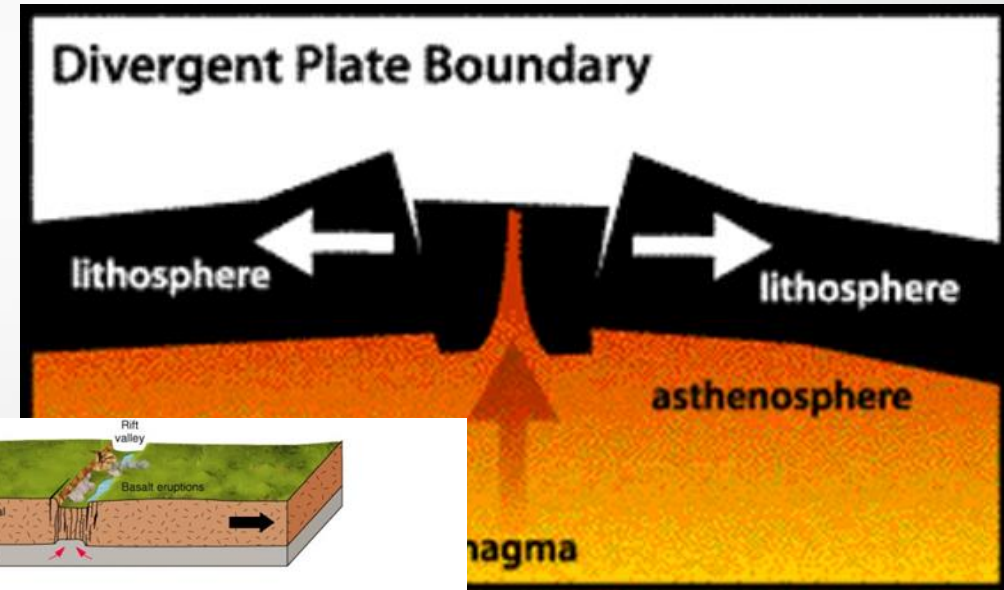
3 Plate Boundaries

- Divergent
- Convergent
- Transform (neutral)



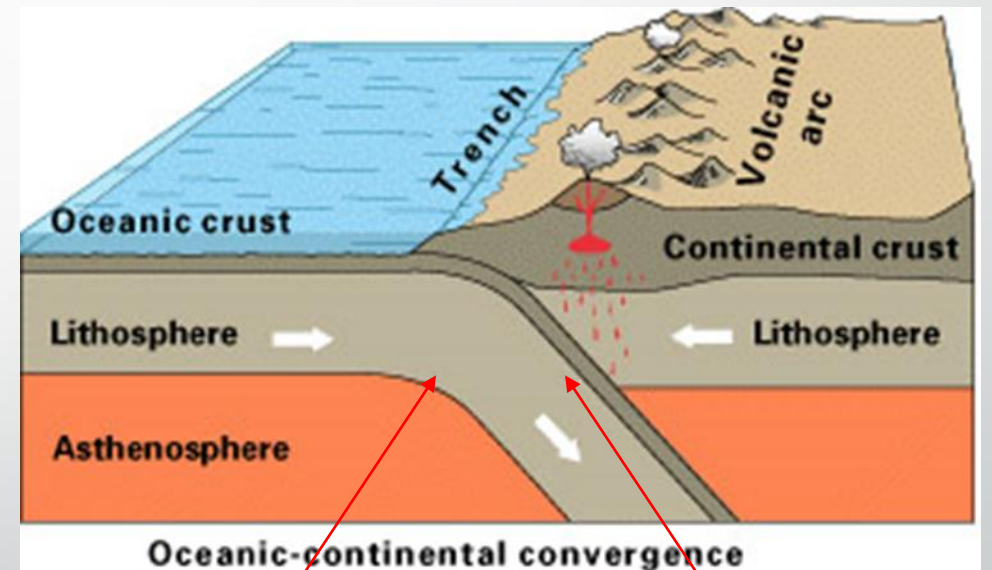
Divergent Boundary

- located where the plates are spreading apart (tension)
- Occurs at mid-ocean ridges
 - sea floor spreads apart allowing magma to rise upward

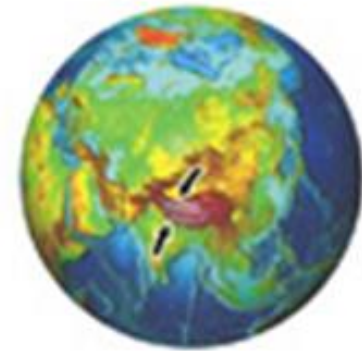
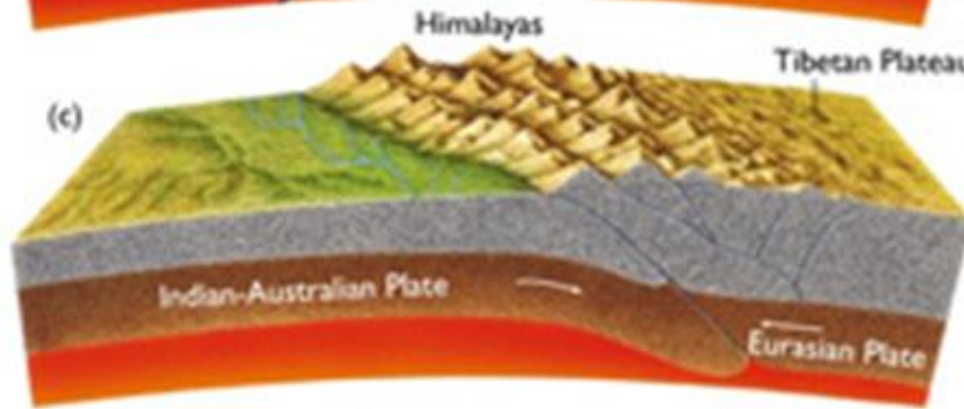
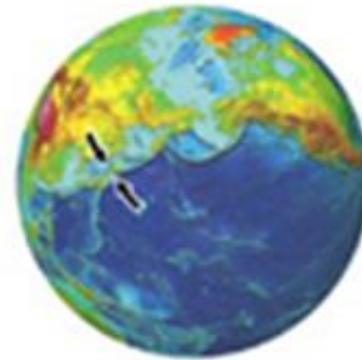
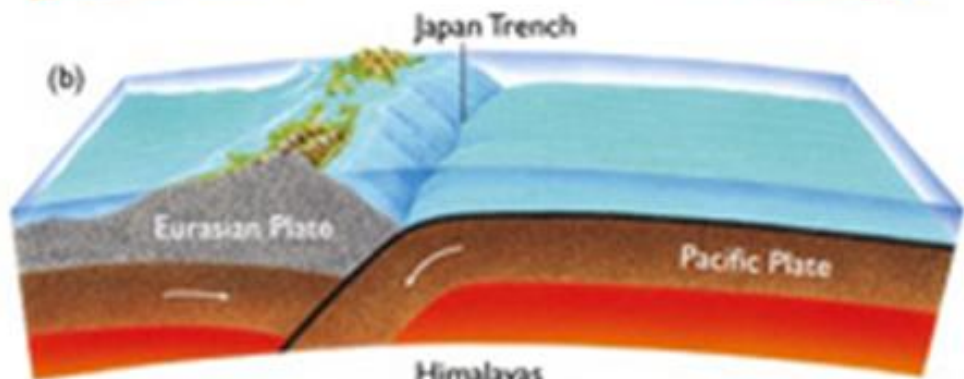
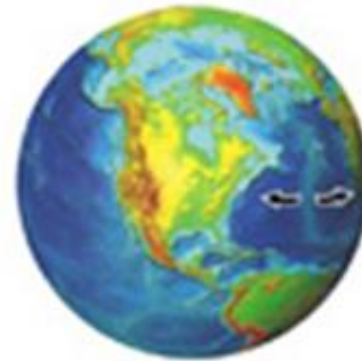
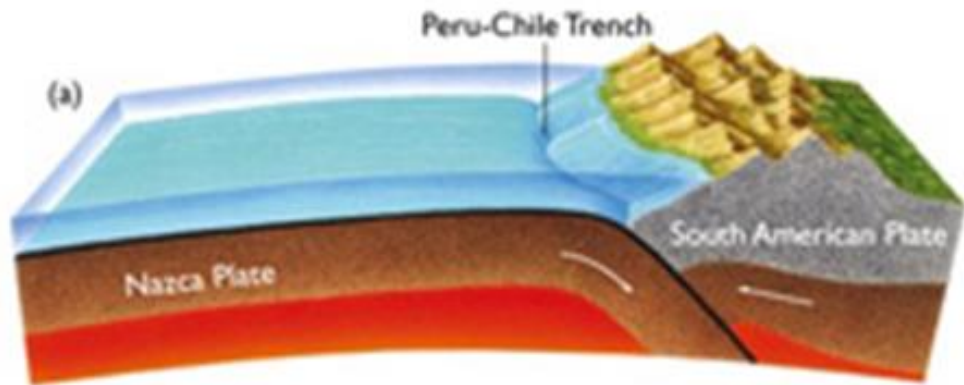


Convergent Boundary

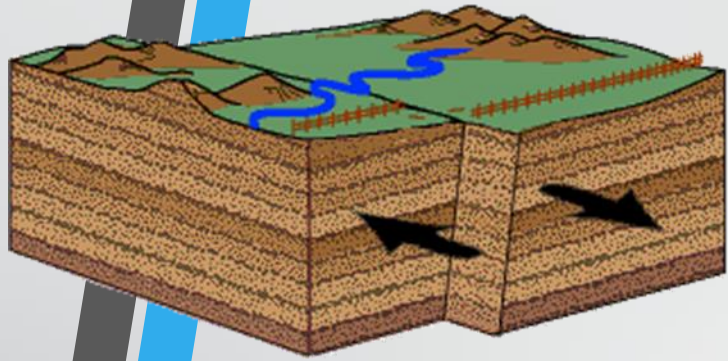
- Located where two plates collide (compression)
 - The area where the plates collide is known as a **subduction zone** where one plate “subducts” (goes under) another
 - This forms trenches and mountains



Subduction Zone



Convergent Boundaries (Subduction)



Transform Boundary

- located where the plates slide past each other (shear)
- Example: San Andreas Fault



Shear

Cool Down

Compression

Tension

Shear

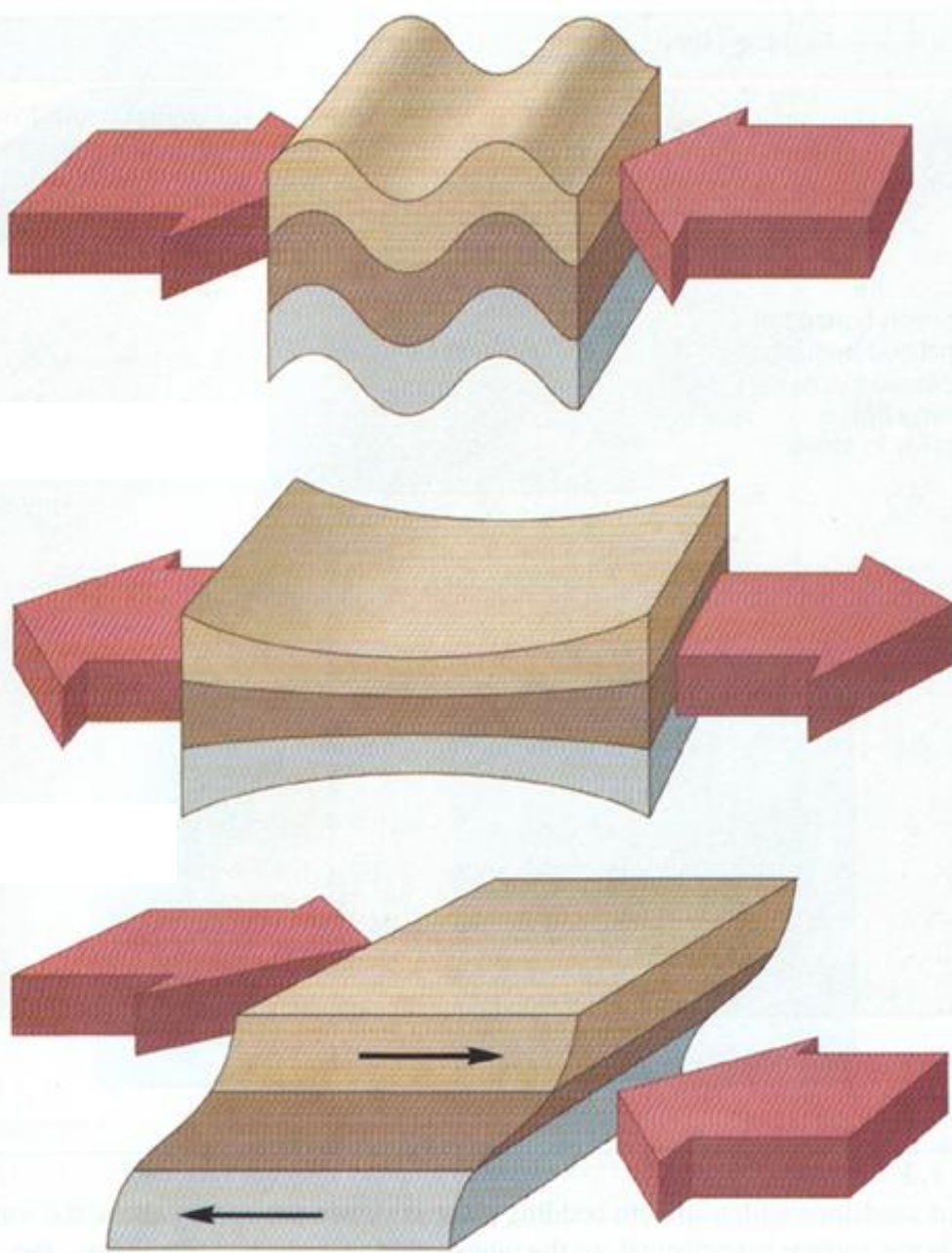


FIGURE 14.1
The three principal types of stress: A. compression; B. tension; C. shear.