

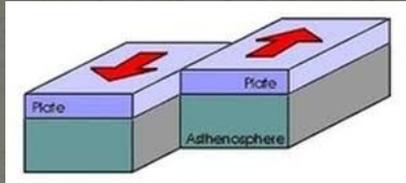
# Pair-Share

Why do plates move?

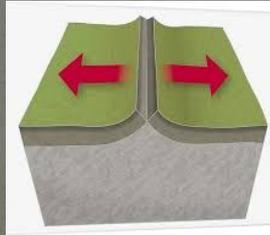
Convection currents in the mantle



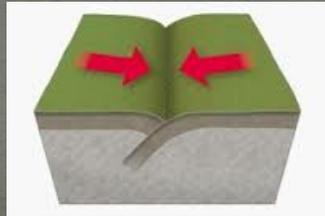
# Identify each type of plate boundary



Transform



Divergent



Convergent

# Pair-Share

What types of plate boundaries cause earthquakes?

Transform

Divergent

Convergent

A landscape photograph showing a blue sky, green hills, and a body of water. A white arrow points from the left towards the center of the image. The text "When those titanic forces reach the breaking point ..." is overlaid in the center.

When those titanic forces  
reach the breaking point ...

# Warm-Up: How Does Stress affect Earth's Crust?



THINK IT OVER:

What do you think eventually happens when plate movement bends the crust?

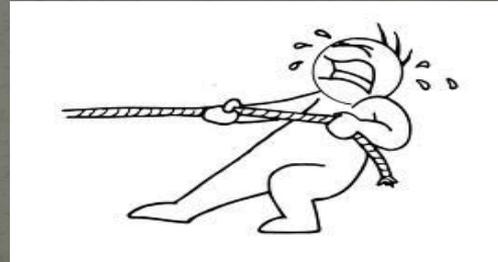
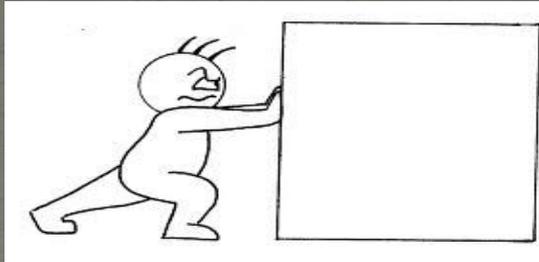
# Learning Objective

Today, we will explain how stress in the crust affects the Earth's surface.

# Pair-Share Review

What is force?

Force is a push or pull



push or pull

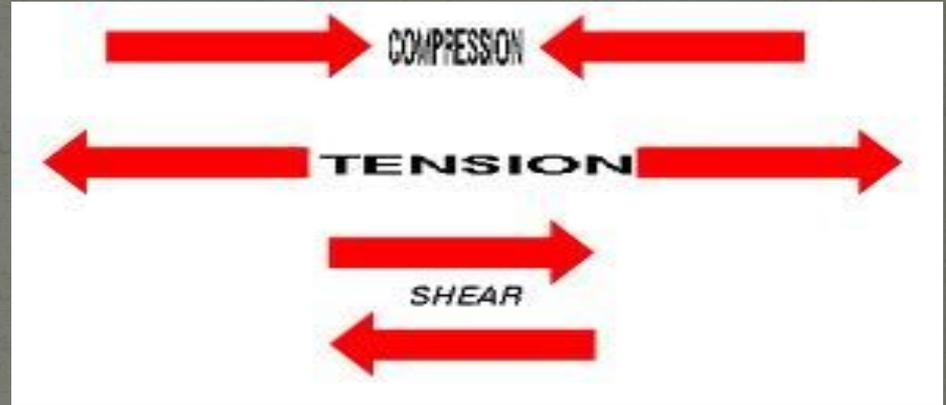
- Stress is a force that acts on an area of rock to change its shape or volume (how much space it takes up)



Highlight the words “force” and “stress” in your notebook.

There are three types of stress:

1. Tension
2. Compression
3. Shearing

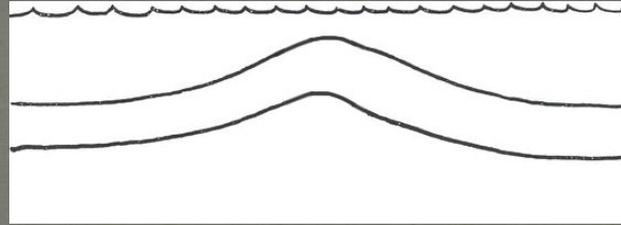


✧ Tension, compression, and shearing work together over millions of years to change the shape and volume of rock.

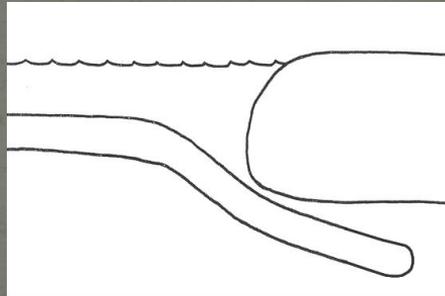
# Pair-Share Review

What are the three types of plate boundaries?

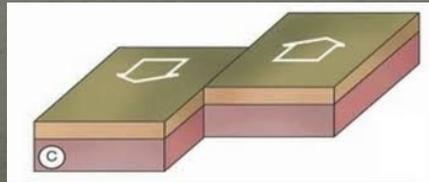
Divergent



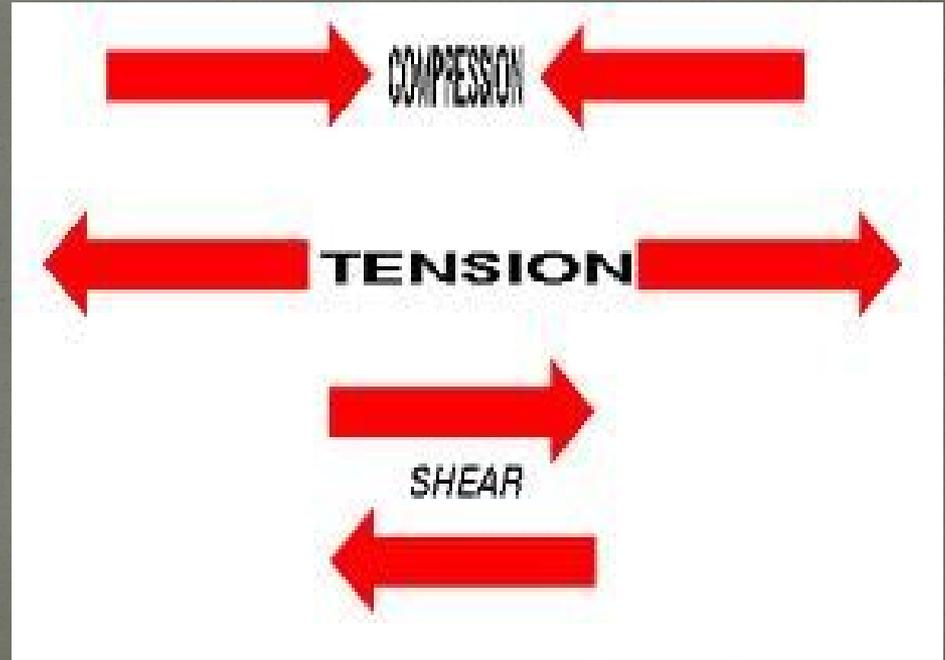
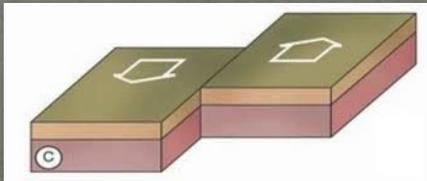
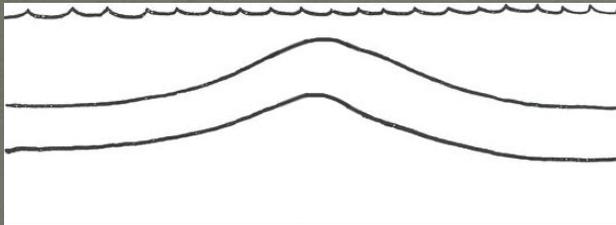
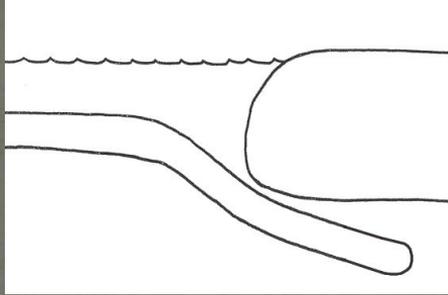
Convergent



Transform



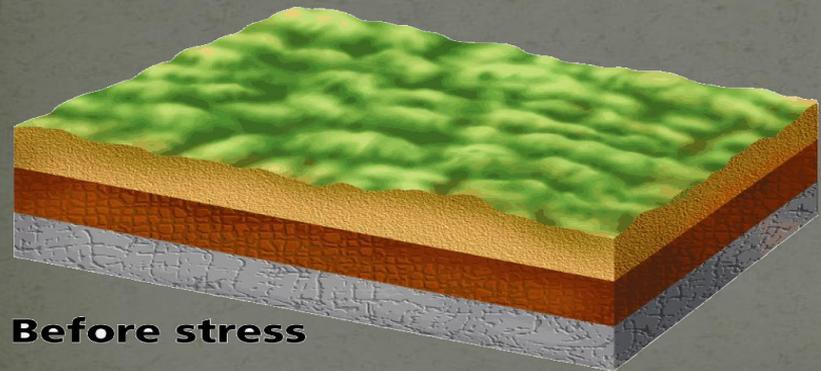
Each plate boundary causes a different type of stress.



1. Tension - stretches rock so that it becomes thinner in the middle.

– Tension occurs where two plates move apart.

( \_\_\_\_\_ )



**Before stress**



**Tension**  
Tension stretches rock.

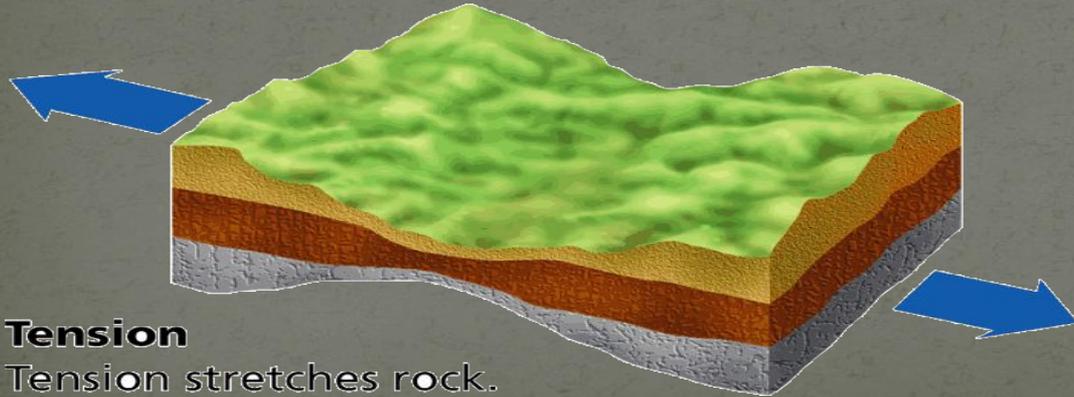


Highlight the word “tension” in your notebook.

# Pair-Share

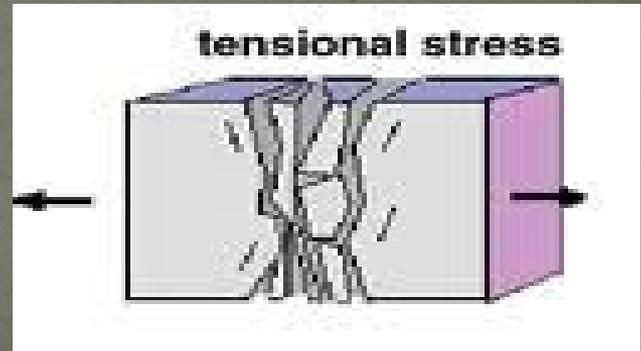
What type of plate boundary stretches rock and causes tension?

A divergent boundary causes tension.



**Tension**

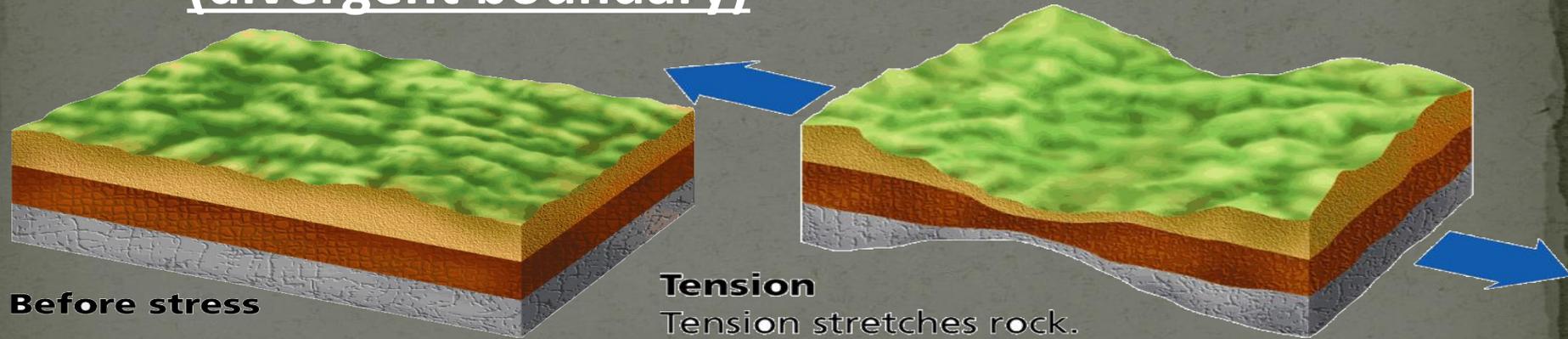
Tension stretches rock.



1. Tension stretches rock so that it becomes thinner in the middle.

– Tension occurs where two plates move apart.

(divergent boundary)

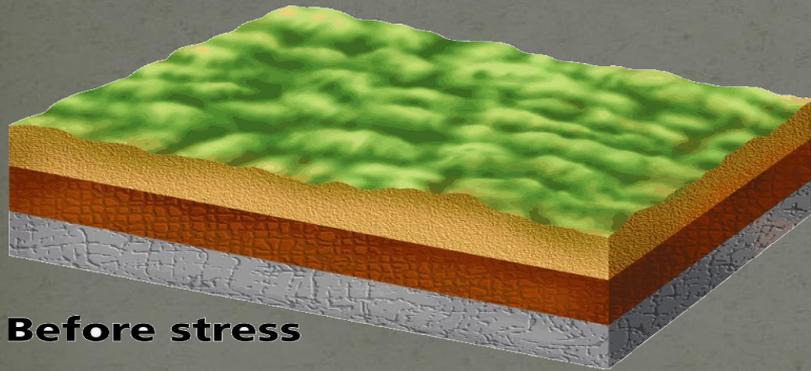


Draw this in your notebook!

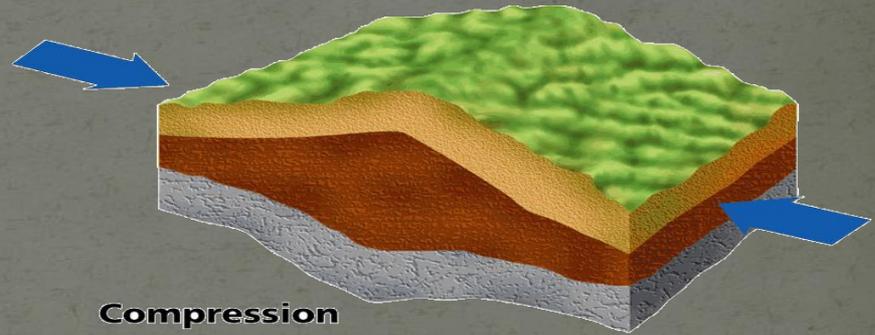
2. Compression - pushes rock together until it folds or breaks.

– It occurs when one plate pushes against another.

( \_\_\_\_\_ )



**Before stress**



**Compression**

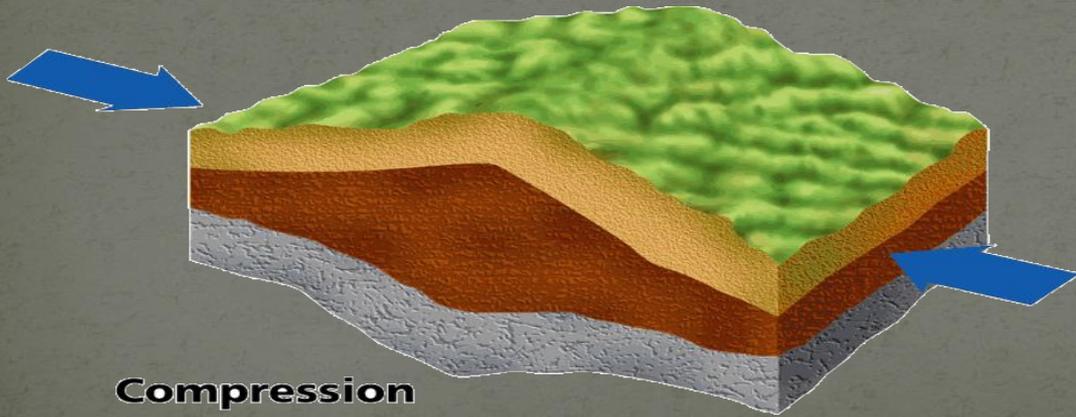
Compression pushes rock together.



Highlight the word “compression” in your notebook.

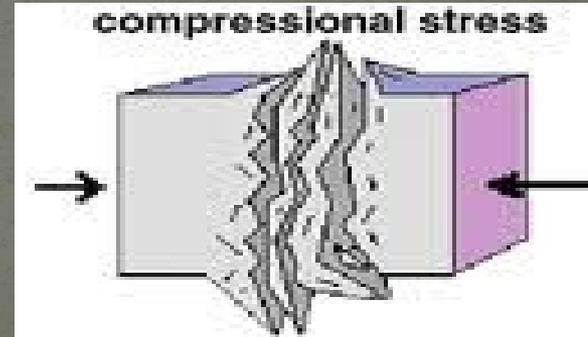
What type of plate boundary pushes rock together and causes compression?

A convergent boundary causes compression.



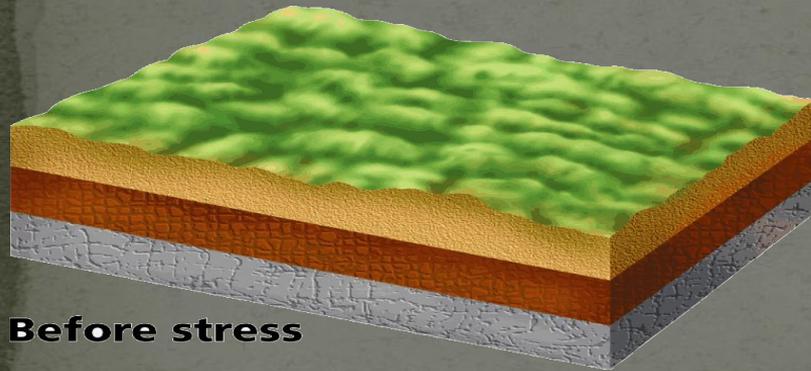
**Compression**

Compression pushes rock together.

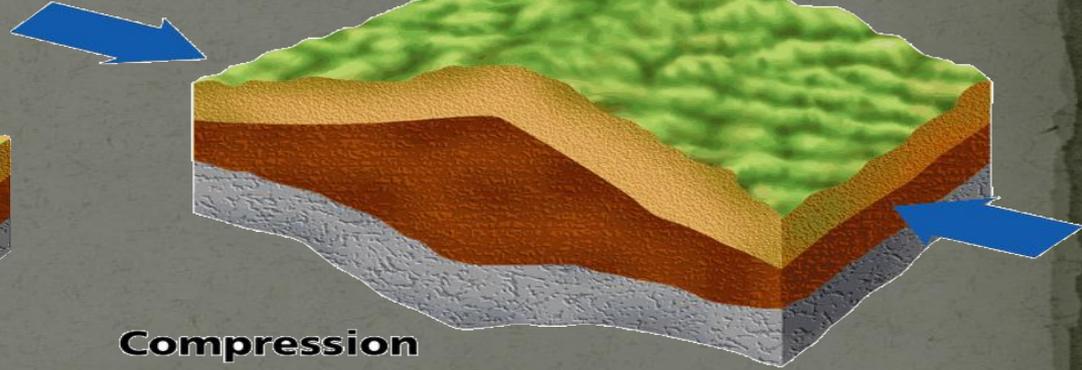


2. Compression pushes rock together until it folds or breaks.

- It occurs when one plate pushes against another.  
(convergent boundary)



**Before stress**



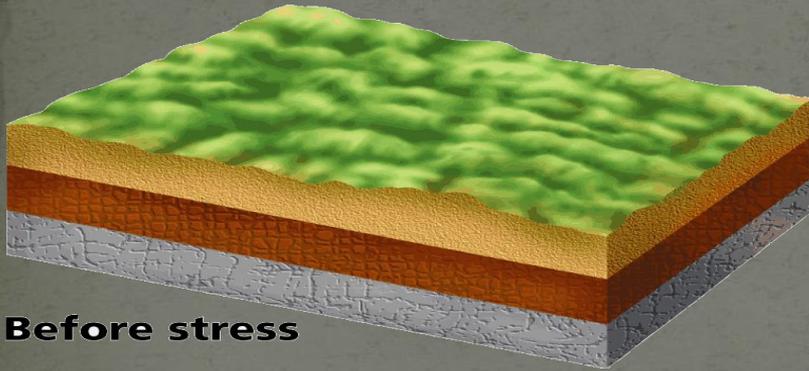
**Compression**

Compression pushes rock together.

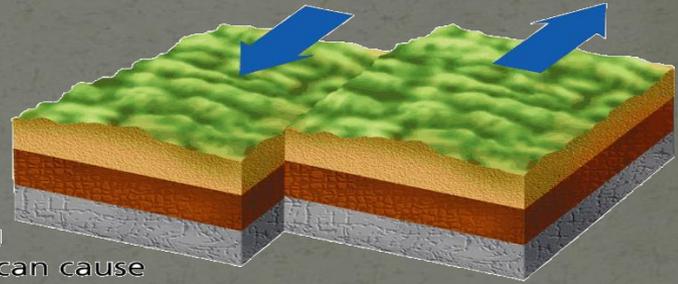
Draw this in your notebook!

### 3. Shearing - pushes chunks of rock in opposite directions.

- It can cause rocks to break or slip apart and change shape. (\_\_\_\_\_)



**Before stress**



**Shearing**

Shearing can cause masses of rock to slip.

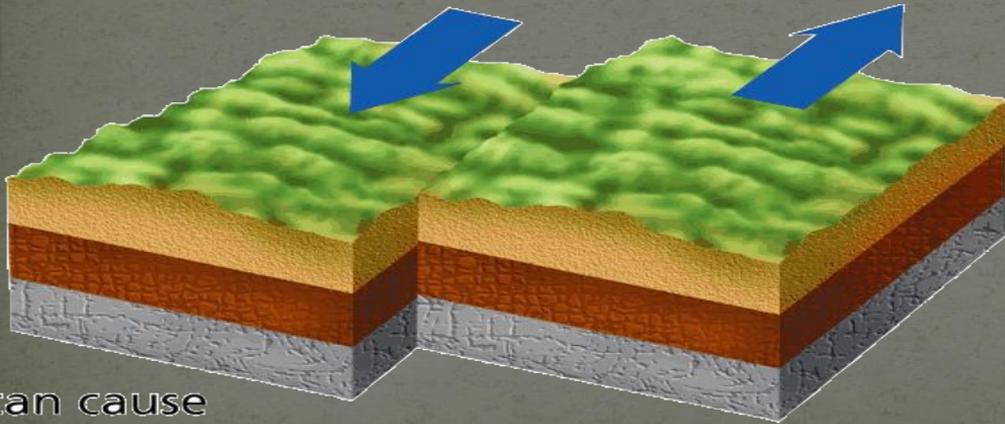


Highlight the word “shearing” in your notebook.

# Pair-Share

What type of plate boundary causes shear stress?

A transform boundary causes shear stress.

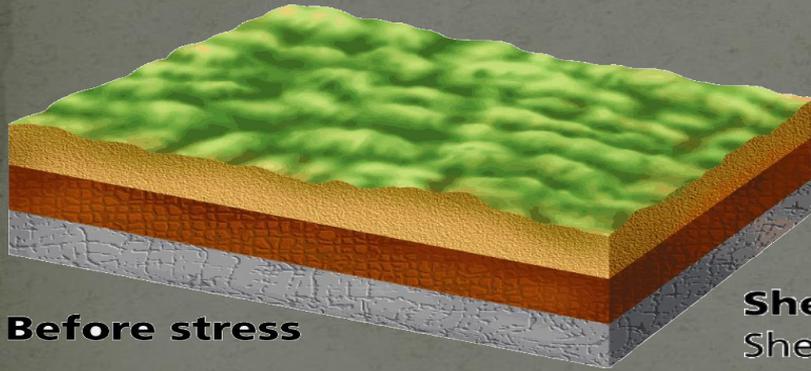


can cause  
rock to slip.

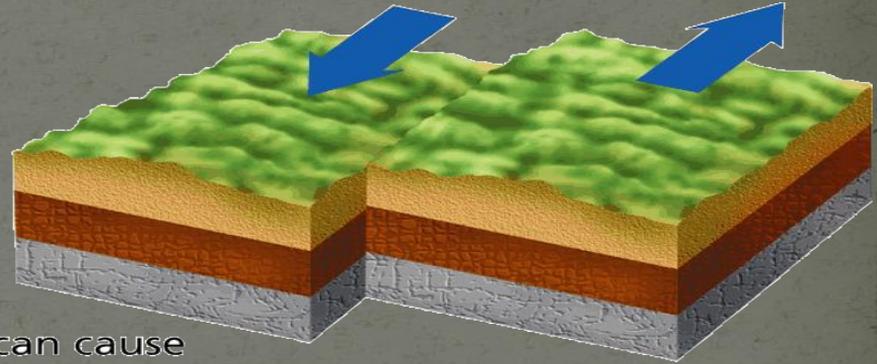


### 3. Shearing pushes chunks of rock in opposite directions.

- Shearing can cause rocks to break or slip apart and change shape. (transform boundary)



**Before stress**



**Shearing**

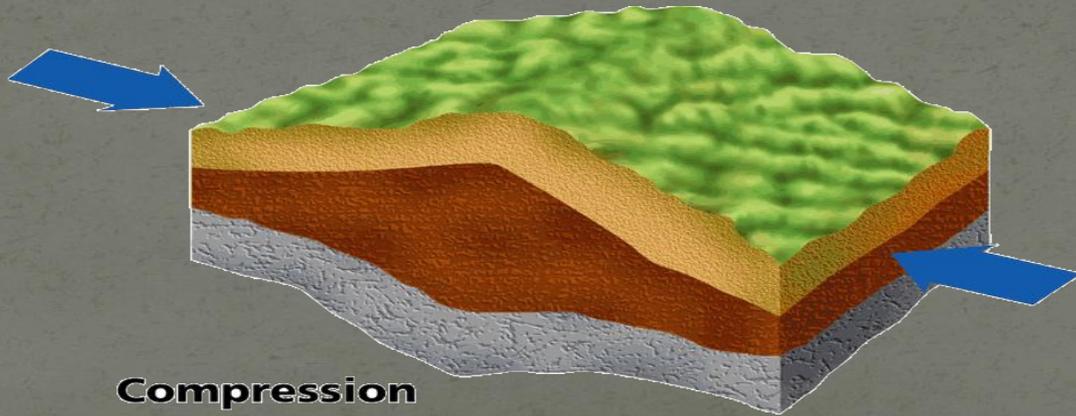
Shearing can cause masses of rock to slip.

Draw this in your notebook!

# Pair-Share

What type of stress shortens the crust?

Compression shortens the crust.



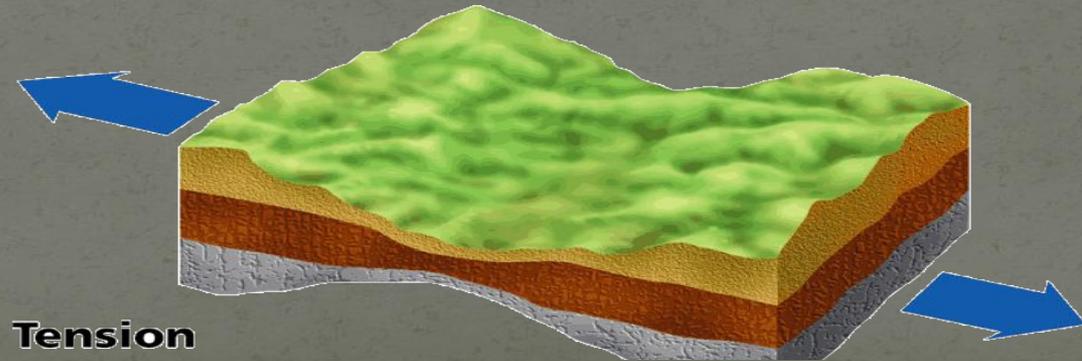
## **Compression**

Compression pushes  
rock together.

# Pair-Share

What type of stress lengthens or stretches the crust?

Tension stretches the crust.

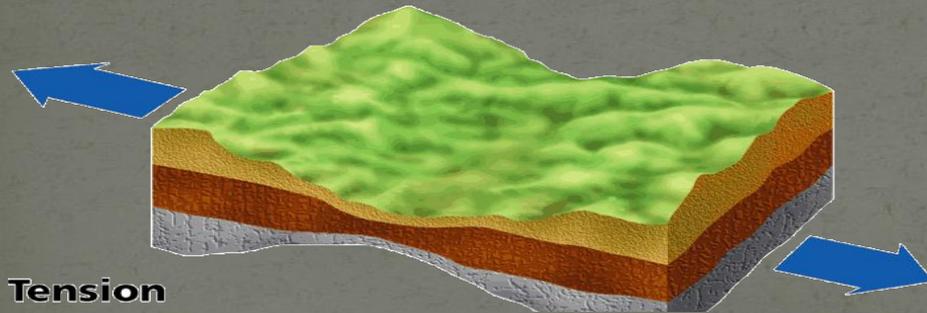




# Pair-Share

What landforms result from tension?

Valleys



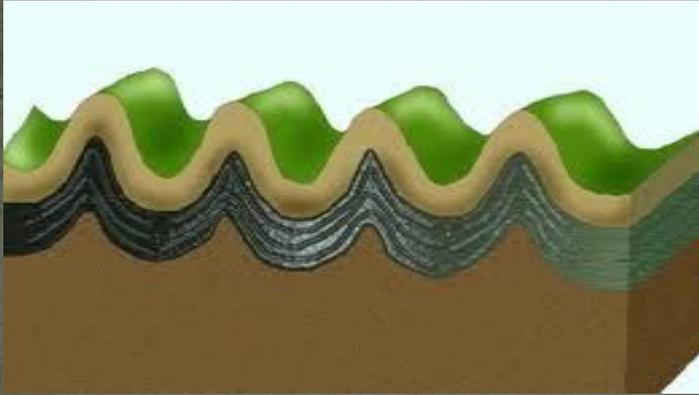
# Changing Earth's Surface

- The forces produced by the movement of Earth's plates can **fold**, **stretch**, and **uplift** the crust.
- The folding, stretching, and uplifting of the crust creates landforms such as anticlines and synclines, folded mountains, fault-block mountains, and plateaus.



# Folding Earth's Crust

- Folds are bends in rocks that form because of compression.
  - Folding has produced some of the world's largest mountain ranges.



The collision of two plates can cause compression and folding of the crust over a wide area.



## Himalayas (Asia)



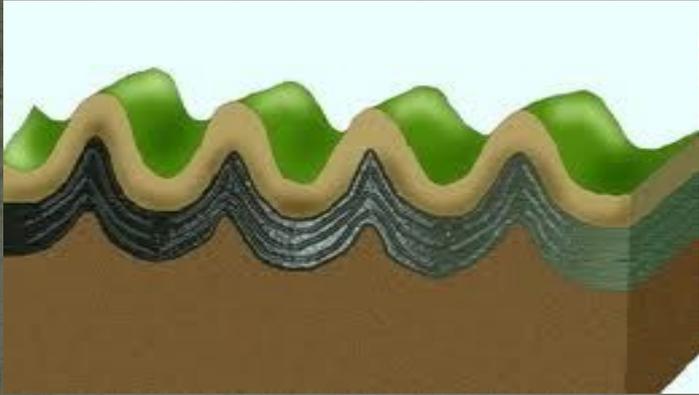


# Coast Ranges (Northern California)



# Folding Earth's Crust

- Folds are bends in rocks that form because of compression.
  - Folding has produced some of the world's largest mountain ranges.





# Alps

(Europe)

