Title: Plate Tectonics	Page:
MS-ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.	Date:
Essential Question: What is the theory of plate tectonics? What are the three types of plate boundaries? What formations does each boundary type create?	

Anticipation Guide: True or False?
Strategy: "Think-pair-share"

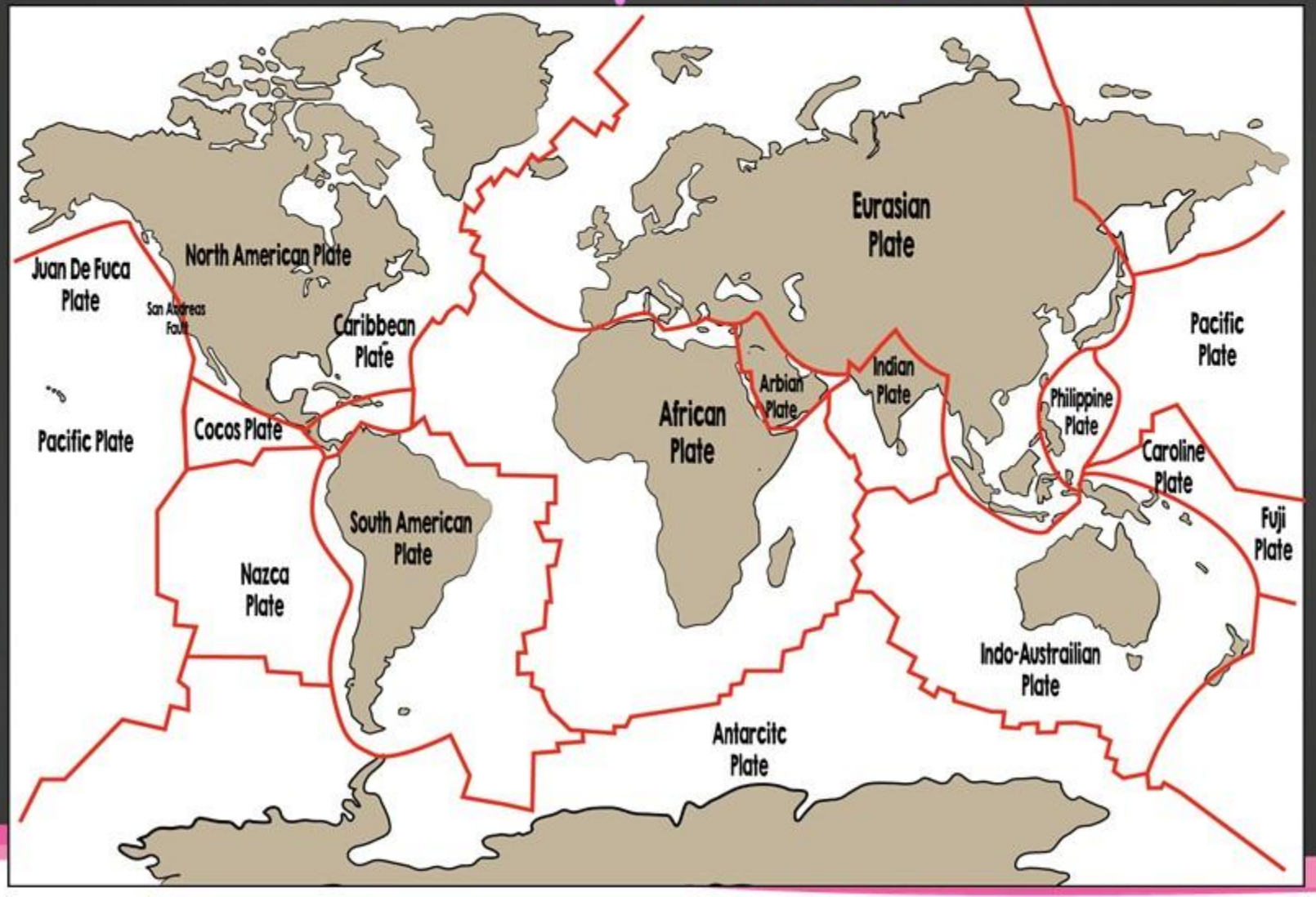
9. Plates move apart forming a rift valley due to convergent boundaries. Explain:

10. Plates that slip and slid past each other form mountains. Explain:

Theory of Plate Tectonics

- Pieces of the Earth's lithosphere –solid crust and upper mantle--constantly move, driven by convection currents in the mantle.

Earth's crust is broken into around 12 plates



The Teacher Time Saver

Formation

- Plate movement forms mountains, volcanoes, earthquakes and deep ocean trenches.

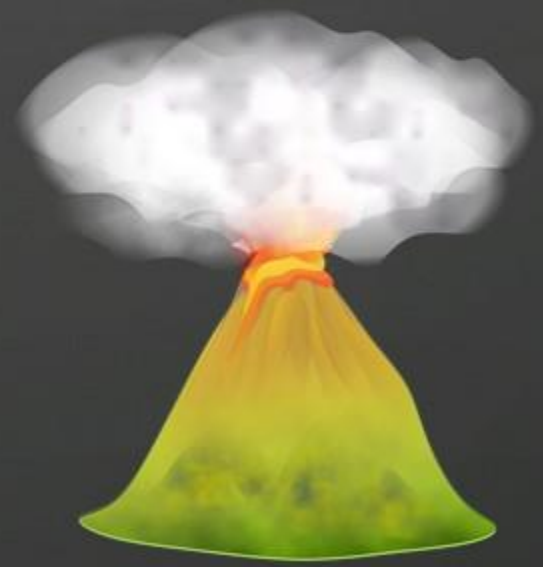


Plate Boundaries

- The edge of Earth's plates meet at plate boundaries. There are around 12 major plates.

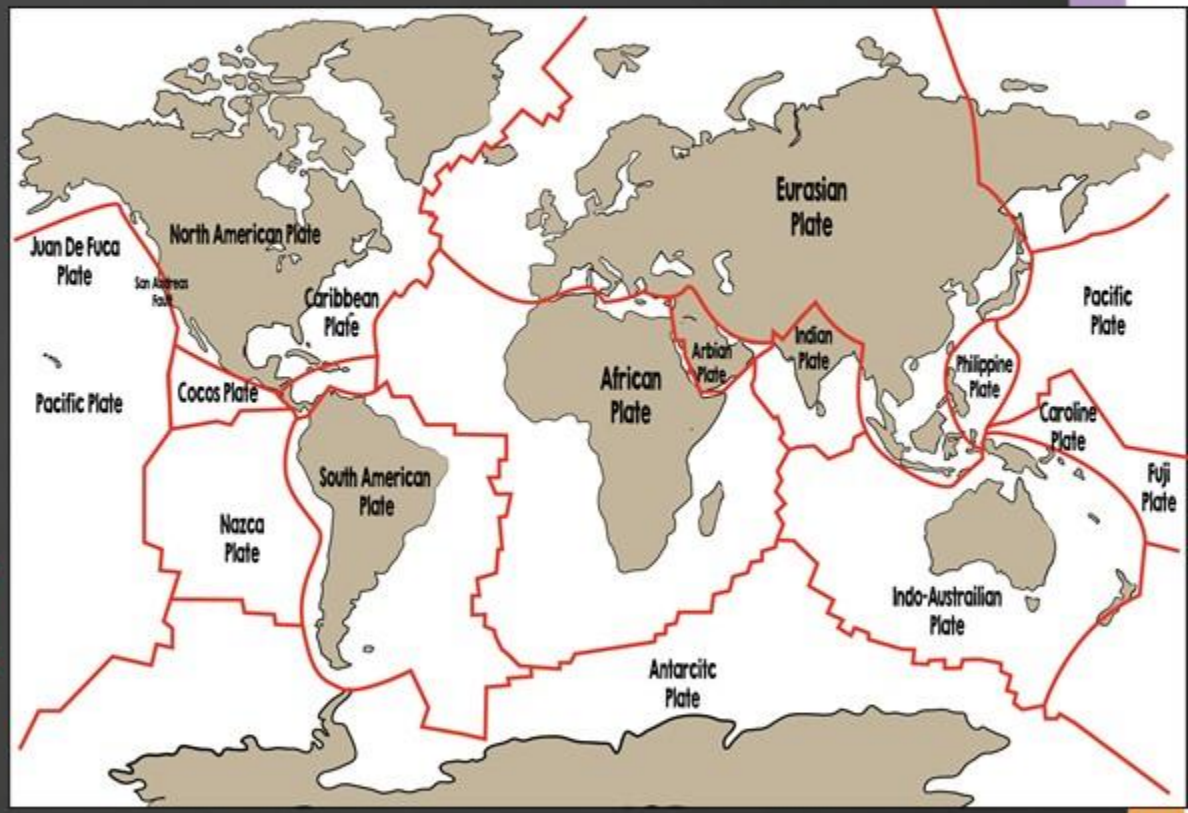
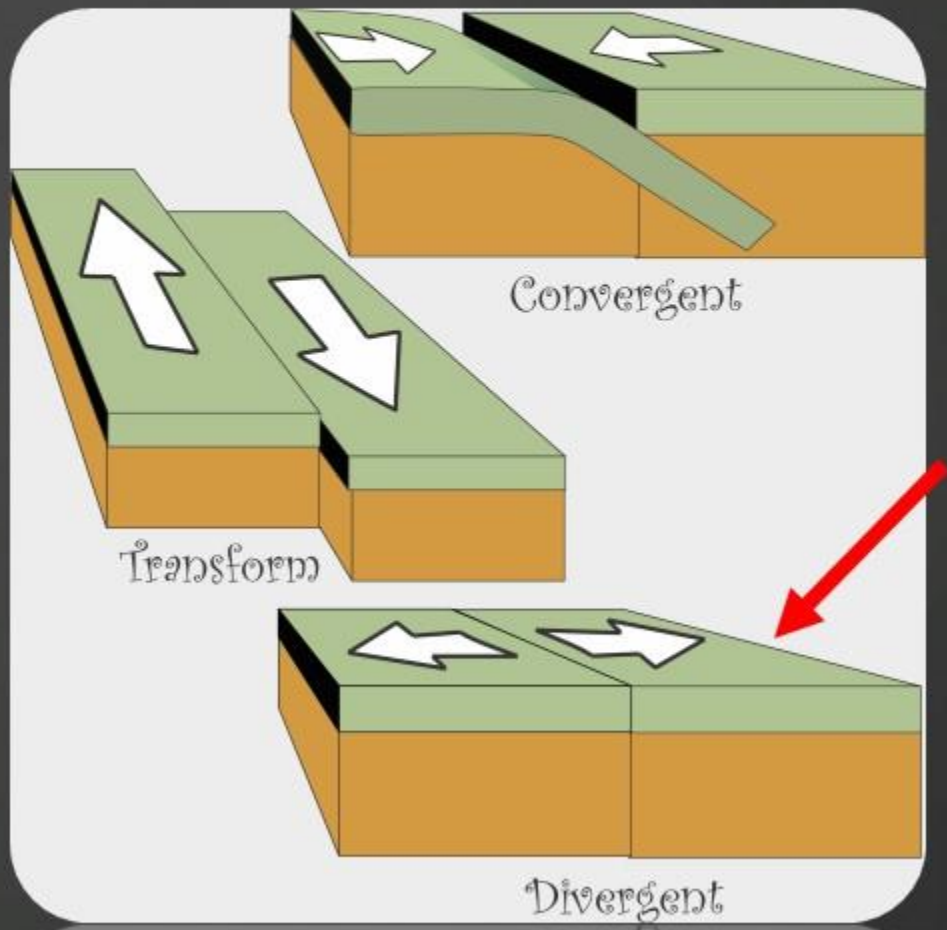


Plate Boundaries (3 types)

1. Divergent Boundaries
2. Convergent Boundaries
3. Transform Boundaries

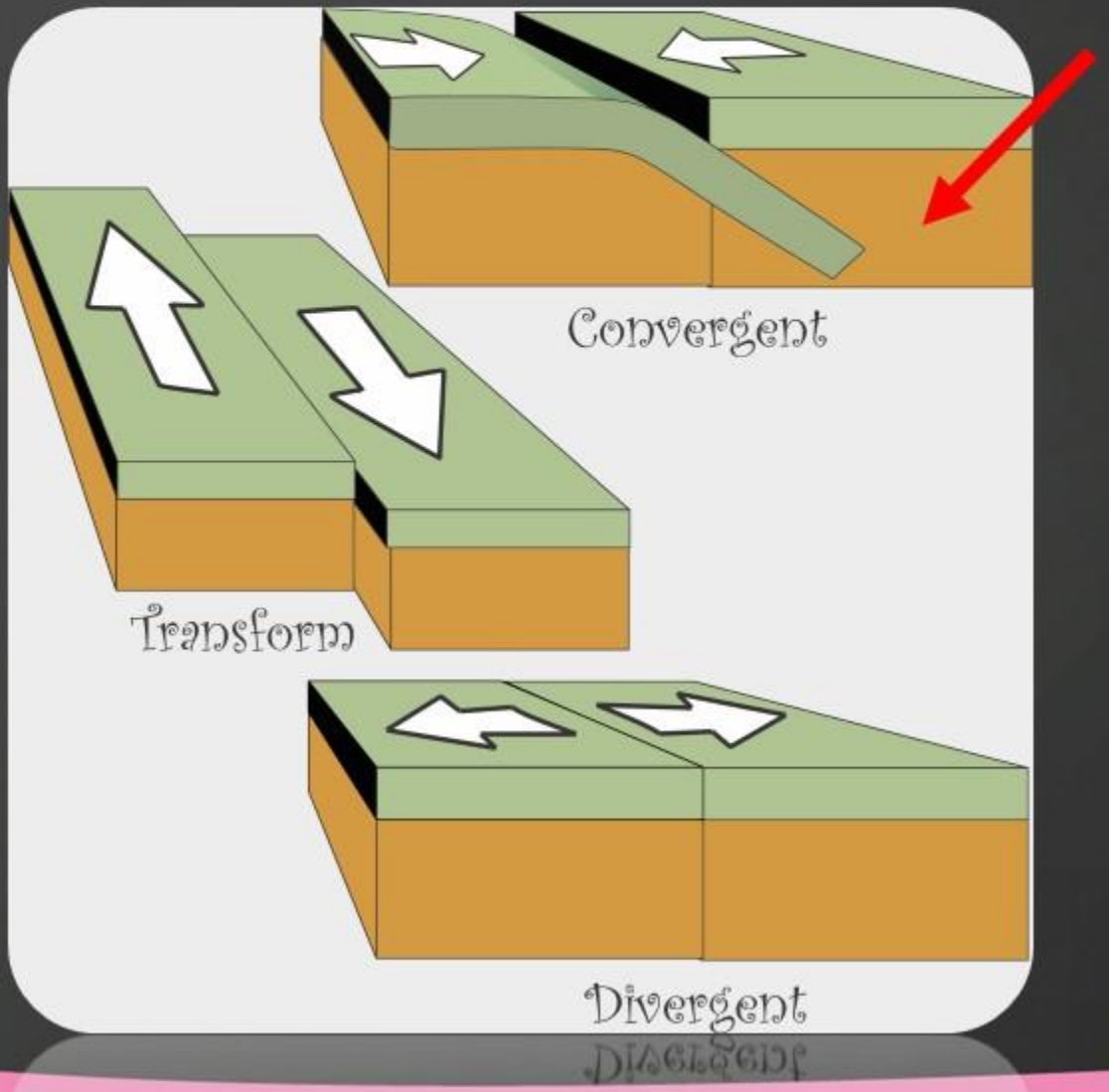
1. Divergent Boundaries

- 1. Plates move apart forming a rift valley. Examples: the Mid-ocean ridges and the Great Rift Valley.



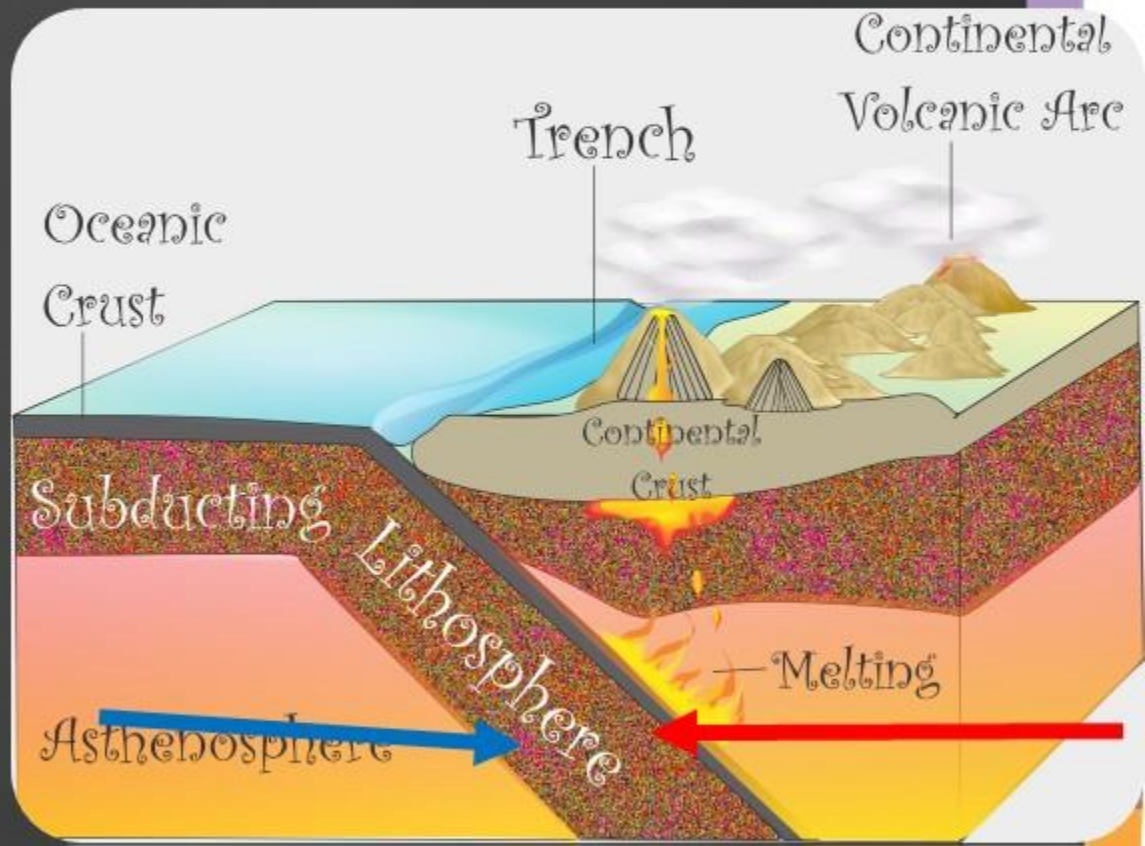
2. Convergent Boundaries (3 types)

- Plates collide or smash together.



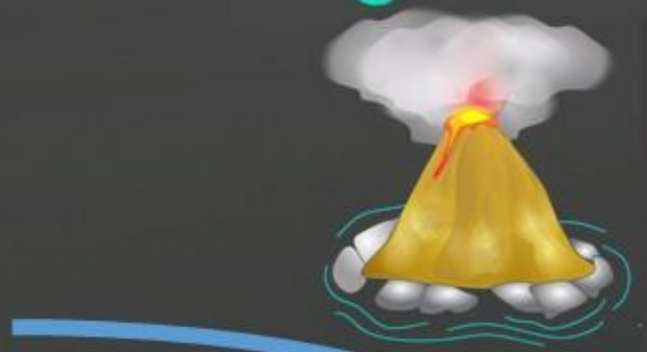
A. Ocean collide with continent

- A. Dense, ocean floor plate pushes down into mantle re-melting crust. Formations: Volcanic mountains, deep trenches. Example: Mount Saint Helen, Mount Lascar



B. Two Oceans collide

- B. Older, denser plate is pushed down (subduction) under the younger. Formation: deep trench; Island arc of volcanoes. Examples: Tonga Trench, Philippine Islands



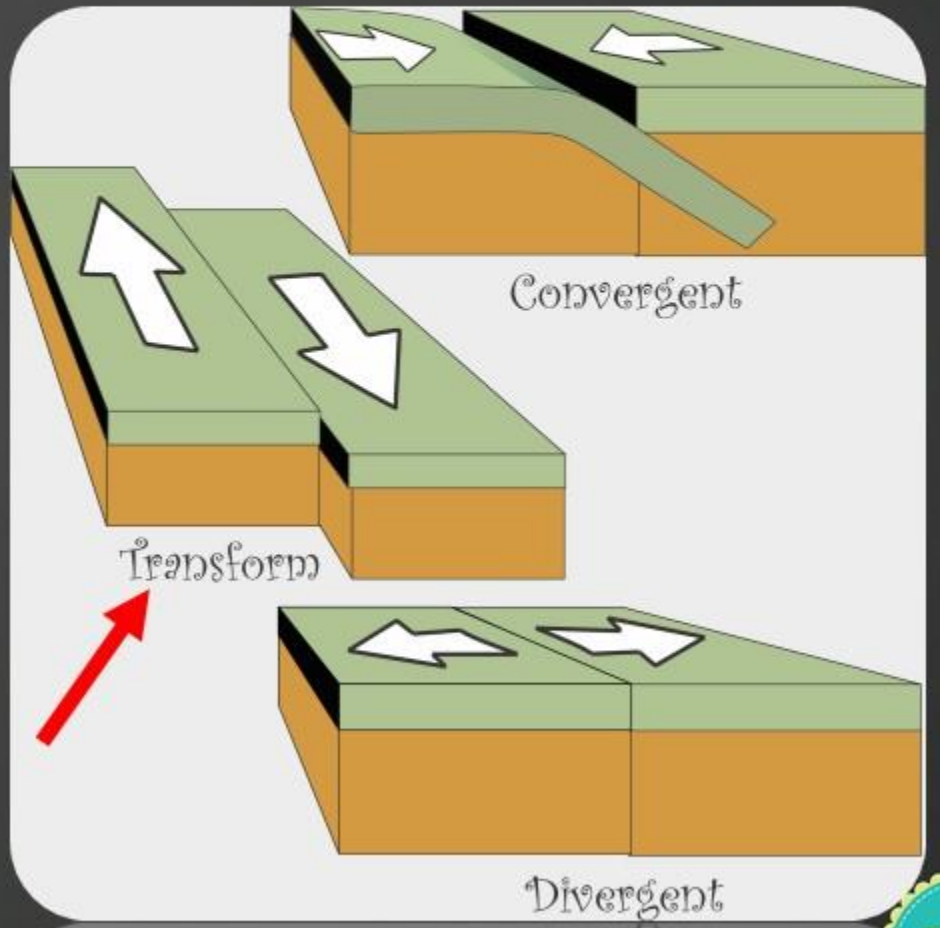
Denser Ocean crust

C. Two Continents collide

- C. No subduction of plates; collision causes crust to crumple up to form mountains. Examples: Himalayan Mountains and the Alps

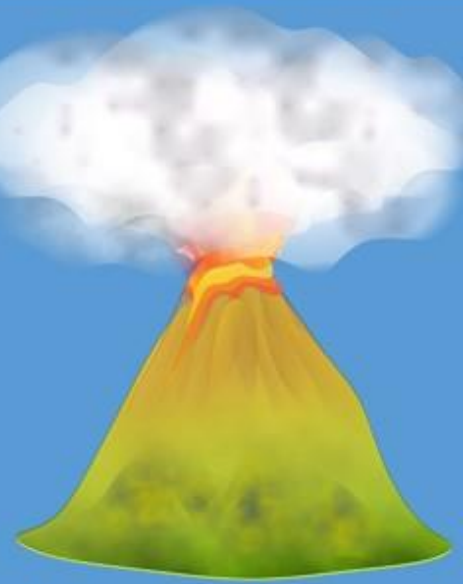
3. Transform Boundaries

- 3. Plates side-slip past each other. Many earthquakes occur. Examples: San Andreas Fault



Hot Spots

- Weak spots around the crust where magma flows to the surface;
  Example: Hawaii.



Center of plate (not on a boundary)

Plate Boundary

Quiz time!

- Ready: Number 1-5 behind notes
- Go: Write correct letter and mark if incorrect.
- Back: highlight, add to notes or drawings

1. The 12 main tectonic plates move due to what?

A. convection currents
B. gravity
C. conduction
D. subduction

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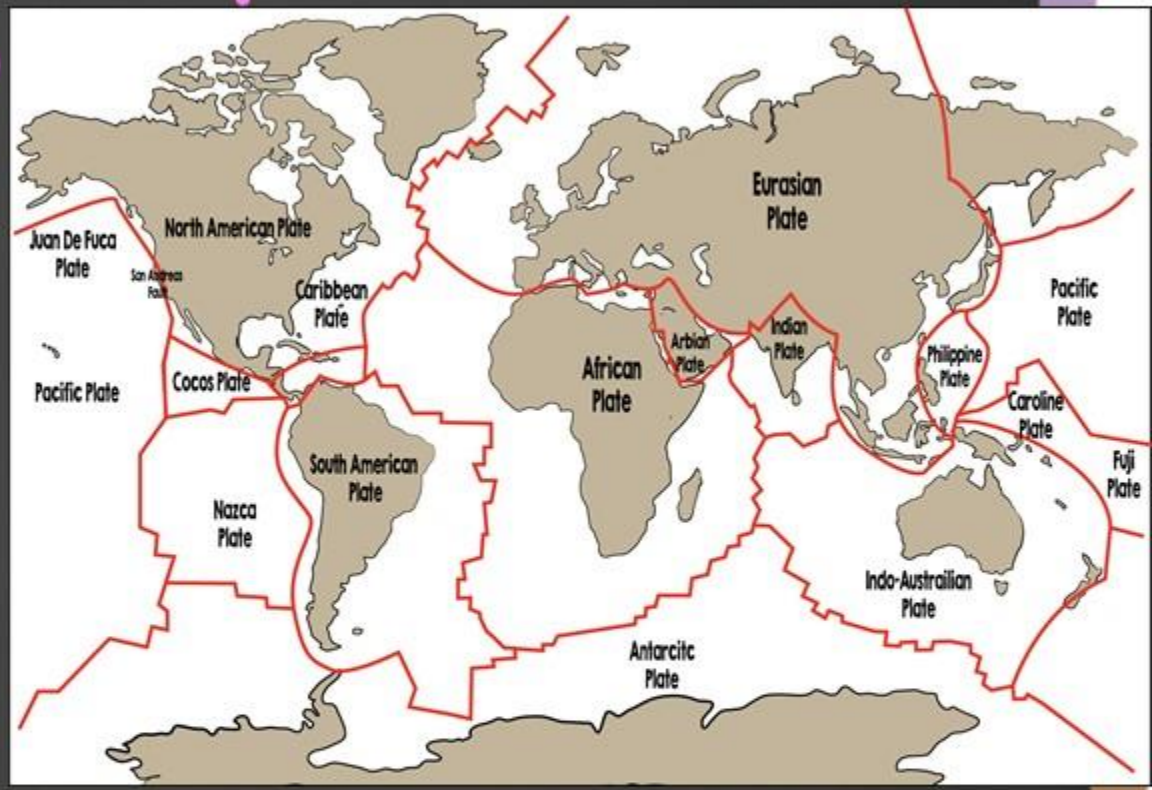
2. The red lines in the picture represent what?

A. continents
B. plate boundaries
C. subduction zones
D. oceans



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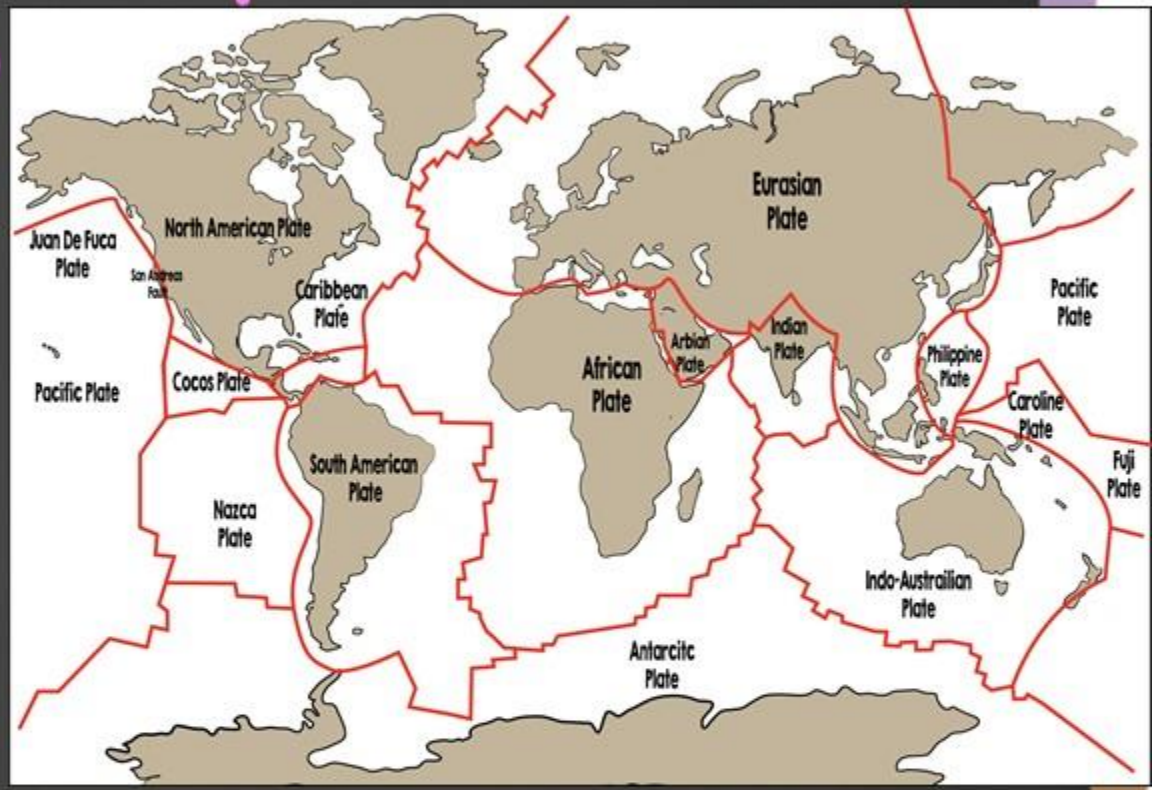


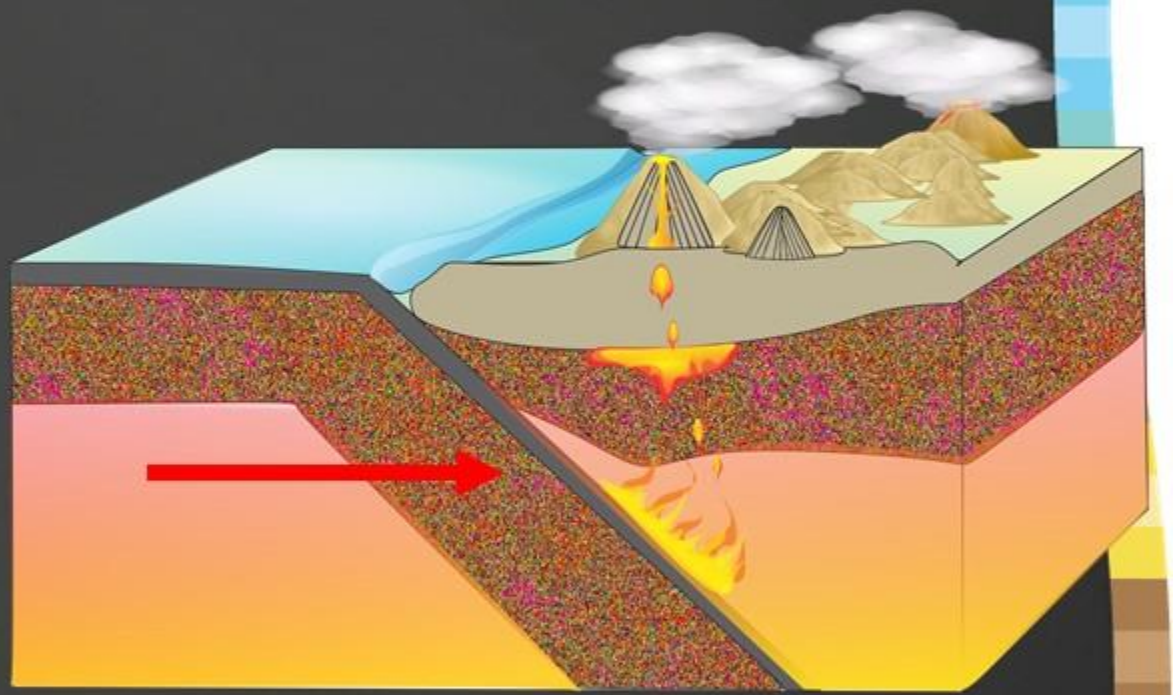
3. The gray line in this image represents what?

A. divergent boundary

B. transform boundary

C. Mid ocean ridge

D. subduction



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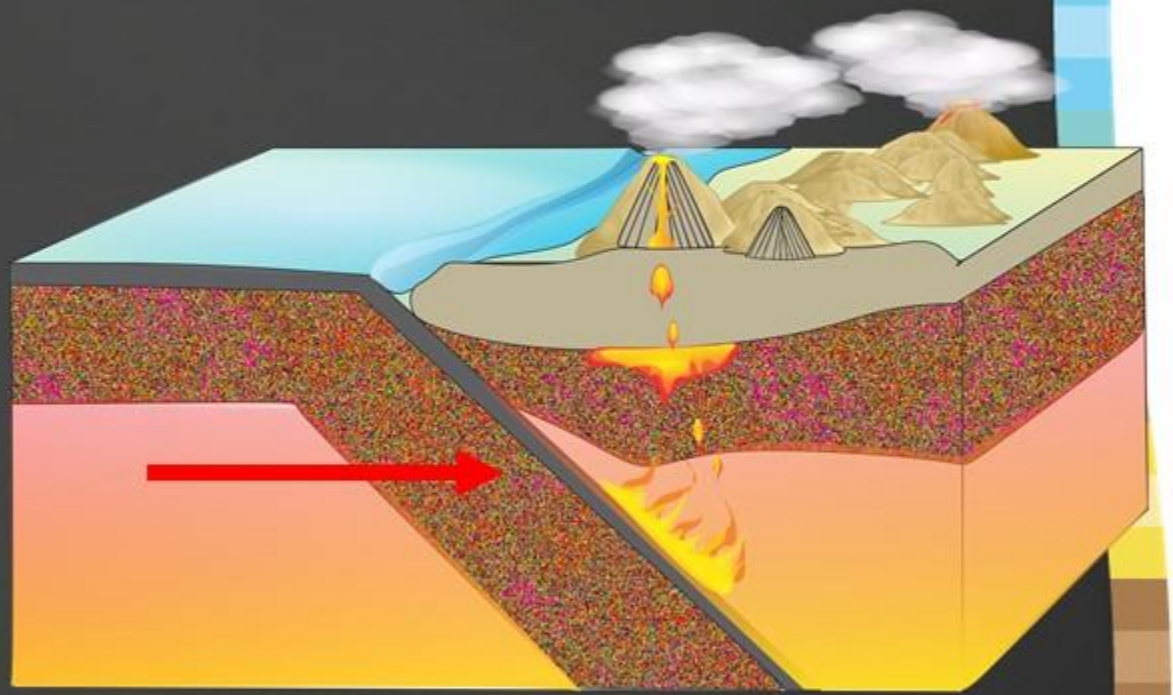

4. Which type of plate boundaries formed the Philippine islands?

A. divergent

B. transform

C. convergent

D. subduction

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B. transform

C. convergent

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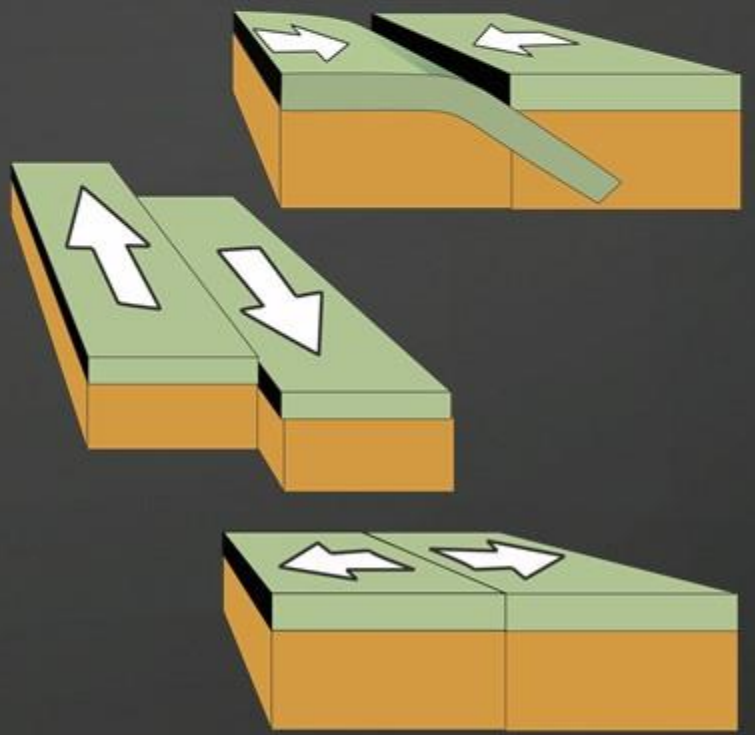
5. When plates side-slip past each other, many earthquakes occur. What type of plate boundary is this?

A. Divergent
B. Convergent
C. Transform
D. Subduction



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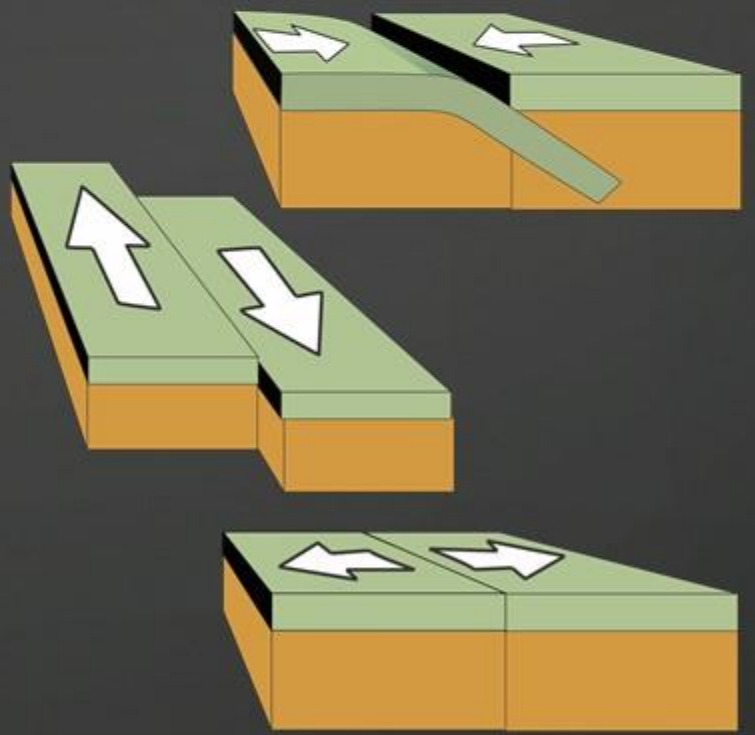

Anticipation Guide Questions and Answers

1. Cover: Check back to the unit cover.
2. After: In the "after" section, state whether true or false based on what was learned.
3. Explain: Be prepared to explain in summary.

9. Plates move apart forming a rift valley due to convergent boundaries. Explain:

False! Divergent boundaries cause plates to move apart creating rift valleys and mid-ocean ridges.

10. Plates that slip and slid past each other form mountains.
Explain:

False! Earthquakes result from transform boundaries sliding past each other.

Summary and question.

- What is the theory of plate tectonics?
  - "The theory of plate tectonics states ___ (describe)."
- What are the three types of plate boundaries?
  - "Convergent/transform/divergent boundaries are ____ (describe)."
- What formations does each boundary type create?
  - "Convergent/divergent/transform boundaries result in ____ (list an Earth feature)."

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