

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

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## Packet: Crustal Boundaries

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### CLASS NOTES

- Tectonic plates are constantly moving and interacting
- As they move across the asthenosphere and form plate boundaries they interact in various ways
- The types of plate boundaries are:

Convergent	Transform	Divergent

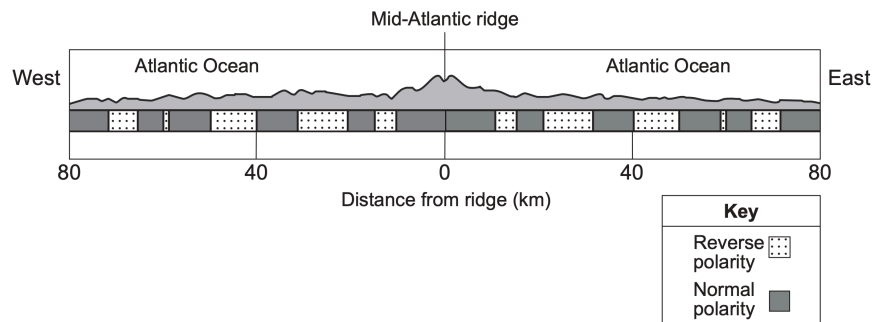
- Convergent Boundary - \_\_\_\_\_  
\_\_\_\_\_
  - Example: the Indian-Australian Plate is pushing upward into Eurasian Plate
  - Subduction - \_\_\_\_\_  
\_\_\_\_\_
  - Trench - long narrow depression of the sea floor that parallels a subduction zone
  - Example: the Nazca Plate being consumed under the South American Plate
- Three Types of Convergent Boundaries:
  - Ocean - Ocean Boundary
  - Ocean - Continental Boundary
  - Continental - Continental Boundary

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- Divergent Boundary - \_\_\_\_\_  
\_\_\_\_\_  
  - Example: part of the Mid-Atlantic Ridge emerges from the ocean and splits Iceland in half
  - Sea-Floor Spreading - \_\_\_\_\_  
\_\_\_\_\_
  - Mid-Ocean Ridge - underwater mountain range created from a divergent plate boundary
  - Mid-Atlantic Ridge - \_\_\_\_\_  
\_\_\_\_\_
    - Separates the North and South American Plates from the Eurasian and African Plates
  - Rift Valley - narrow valley that runs the length of a mid-ocean ridge
- Divergent Plate Boundary Evidence:
  1. Rock samples of the deep ocean floor show that basaltic oceanic crust becomes progressively younger as you approach the mid-ocean ridge
  2. Scientists dragged a magnetometer across the ocean floor and discovered a unique magnetic pattern where stripes of normal and reversed polarity parallel the mid-ocean ridge flipping every 200,000 to 300,000 years [the last one was 781,000 years ago].



- Transform Boundary - boundary where two lithospheric plates are sliding past one another
  - Example: the San Andreas Fault is \_\_\_\_\_ long and runs throughout California

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## PART I QUESTIONS: MULTIPLE CHOICE

1. The west coast of South America is best described as
  - a. convergent plate boundary
  - b. divergent plate boundary
  - c. transform plate boundary
  - d. none of the above
2. What is the border between the South American plate and the African plate is best described as
  - a. converging and located at an oceanic ridge
  - b. converging and located at an oceanic trench
  - c. diverging and located at an oceanic ridge
  - d. diverging and located at an oceanic trench
3. What is the direction of crustal movement of the Indian-Australian plate?
  - a. northward
  - b. southward
  - c. northwestward
  - d. southeastward
4. It is inferred that over the past 250 million years North America has moved toward the
  - a. northwest
  - b. southwest
  - c. southeast
  - d. northeast
5. According to tectonic plate maps, New York State is presently located
  - a. at a convergent plate boundary
  - b. above a mantle hot spot
  - c. above a mid-ocean ridge
  - d. near the center of a large plate
6. The movement of tectonic plates is inferred by many scientists to be driven by
  - a. tidal motions in the hydrosphere
  - b. density differences in the troposphere
  - c. convection currents in the asthenosphere
  - d. solidification in the lithosphere
7. Which two tectonic plates are separated by a mid-ocean ridge?
  - a. Indian-Australian and Eurasian
  - b. Indian-Australian and Pacific
  - c. North American and South American
  - d. North American and Eurasian

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8. At the Aleutian Trench and the Peru-Chile Trench, tectonic plates are generally
  - a. diverging
  - b. moving along a transform boundary
  - c. moving over a mantle hot spot
  - d. converging
  
9. Evidence found in rocks suggests that, through geologic time, Earth's magnetic poles have
  - a. maintained their present positions
  - b. corresponded exactly with Earth's geographic poles
  - c. maintained their constant strength
  - d. reversed their magnetic polarities
  
10. Magnetic readings taken across mid-ocean ridges provide evidence that
  - a. the sea-floor is spreading
  - b. the ocean basins are older than the continents
  - c. the mid-ocean ridges are higher than the nearby plains
  - d. Earth's rate of rotation has changed
  
11. Hot springs on the ocean floor near the mid-ocean ridges provide evidence that
  - a. convection currents exist in the asthenosphere
  - b. meteor craters are found beneath the oceans
  - c. climate change has melted huge glaciers
  - d. marine fossils have been uplifted to high elevations
  
12. As distance from the center of the mid-ocean ridge increase, the age of the rock
  - a. decreases
  - b. increases
  - c. remains the same
  - d. increases and decreases in a cyclic pattern
  
13. What is the primary reason that oceanic crust subducts beneath continental crust?
  - a. Oceanic crust deforms less easily
  - b. Oceanic crust melts at higher temperatures
  - c. Oceanic crust contains more felsic minerals
  - d. Oceanic crust is more dense
  
14. Hawaii [approximately 20° N, 157° W] is located near the middle of which tectonic plate?
  - a. Philippine plate
  - b. Nazca plate
  - c. North American plate
  - d. Pacific plate
  
15. The Hawaiian Islands were formed as a result of
  - a. lava flowing over Earth's surface where two tectonic plates move apart
  - b. an oceanic plate moving over a mantle hot spot
  - c. two oceanic plates colliding to form an island arc
  - d. tectonic plates sliding past each other