

# Geology of Planet Earth - GEOL 101

Name \_\_\_\_\_

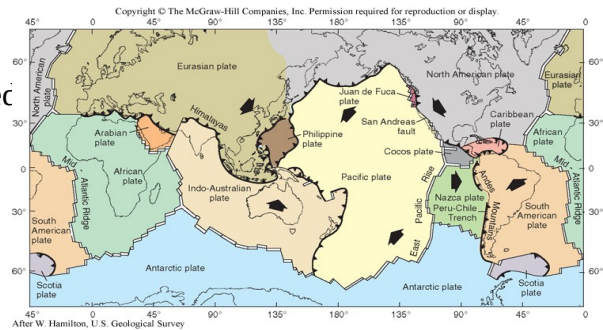
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Homework #1 (Chapters 1-6, 18,19)

After answering the questions below, enter your final answers on Moodle

1. What is the most likely geologic hazard in your part of the country? Is there more than one, if so what are they?

2. What are the three types of plate boundaries and where does each most commonly occur on the Earth? Circle and example location of each on the map provided



3. What type of plate boundary is closest to where you live ?

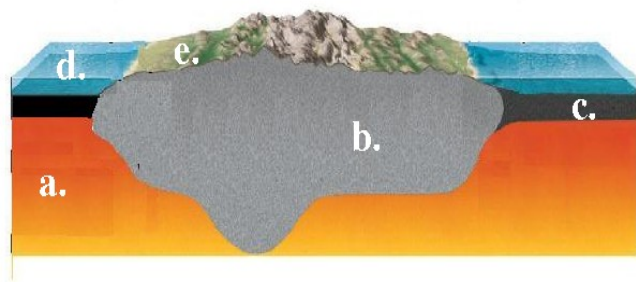
- a. transform boundary
- b. convergent boundary
- c. divergent boundary
- d. subjective boundary

4. What tectonic plate are you currently on ?

- a. Pacific plate
- b. North American Plate
- c. Juan de Fuca Plate
- d. Nazca Plate

5. Name three physical properties that differentiate **oceanic** crust from **continental** crust ?

6. Label the 3 layers (oceanic crust, continental crust, mantle) and composition of each on the diagram to the right.



7. What were the four types of evidence used to prove the hypothesis of plate tectonics ?

- (a) continental fit, glacial striations, paleomagnetism, fossil assemblage
- (b) age dating, polar wander, earthquakes, fossils
- (c) earthquakes, glacial striations, polar wander, shape of continents
- (d) faulting, age dating, earthquakes, paleomagnetism

8. Define the *lithosphere* and *asthenosphere*? How are they different?

9. What are the 5 properties that define a *mineral* ?

10. What are the three main constituents of an *atom*? Draw a picture of an atom with these 3 particles.

11. Draw a picture of a silicon-oxygen tetrahedron. What is its chemical formula ?

12. Identify the 3 minerals below (from the mineral boxes in the back of class). Use the mineral descriptions attached.

#	Streak (color)	Hardness (1-10)	Luster	Cleavage (How many cleavage planes at what angles to each other ?)	Density (high/med/low)	Mineral Name
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#5. \_\_\_\_\_

#7. \_\_\_\_\_

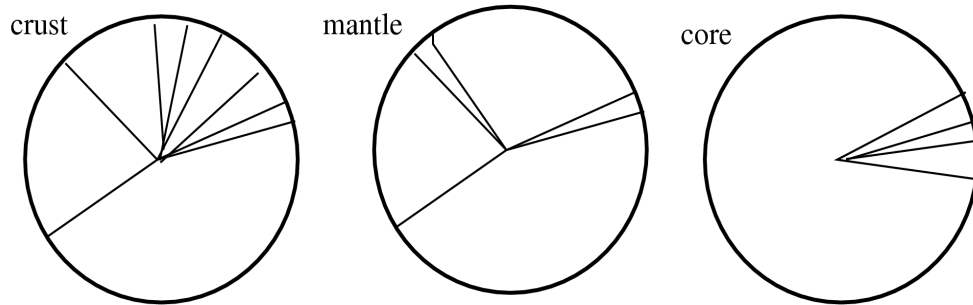
#15. \_\_\_\_\_

13. Why do *intrusive* igneous rocks tend to be course-grained and *extrusive* rocks fine-grained ?

14. Will magma at an oceanic spreading ridge melt at the same temperature as in the continental crust? Why or why not?

15. Describe 3 processes that mechanically weather rocks.

16. Fill in the pie diagrams below indicate the three most common minerals in the crust, mantle, and core.



17. Describe the mineral composition and grain size of these three igneous rocks :  
granite, gabbro, diorite.

18. Name 3 ways that rocks can melt in the Earth's interior.

19. What is a foliated metamorphic rock ? Give a few examples.

20. A schist that developed in a high-pressure, low-temperature environment likely formed in:  
a. the lower part of the continental crust  
b. a subduction zone  
c. mid-oceanic ridge  
d. near a contact with a magma body

21. What 2 processes change sediment into sedimentary rocks ?

22. How old is the Earth? How do we know this ?

23. Name the 4 major ***Era***'s in the Earth's history. What major events occurred in each ?

24. If you found a sedimentary rock on the ground embedded with very large and angular rock fragments what could you determine about its history of formation and where it may have come from?

25. Name the 2 elements in halite (table salt) \_\_\_\_\_ and \_\_\_\_\_. What *bonding type* joins the halite elements? a) covalent bond b) ionic bond c) metallic bond d) james bond