

Session 2 Homework – Geologic Resources of Iowa for Iowa’s Amazing Teachers

Again PLEASE do not get stressed out by these, especially if you are just getting started in geology! If you get stuck feel free to use more resources than our presentation (although the answers are in there)... Don’t have access to geologic knowledge or time, send a question or two via e-mail and I will help you out! - chad

- \_\_\_\_\_ 1. Which geologic time period makes up 88% of the Earth’s 4.6 Ga.  
A. Cenozoic                      B. Mesozoic                      C. Paleozoic                      D. Precambrian
- \_\_\_\_\_ 2. Who applied geochemistry (U/Pb isotopic decay) to the Earth’s crust revealing it absolute age.  
A. Cornelia Cameron                      B. Nicolaus Steno  
C. James Hutton                      D. Clair Paterson
- \_\_\_\_\_ 3. The Earth’s inner and outer core that contain remnant energy from the *Big Bang* (Earth’s origin) is enriched in what element?  
A. Silicon (Si)                      B. Iron (Fe)                      C. Oxygen (O)                      D. Carbon (C)
- \_\_\_\_\_ 4. Oceanic crust...  
A. is more thick than continental crust                      C. is more dense than continental crust  
B. contains more silicon minerals than continental crust                      D. all of the above
- \_\_\_\_\_ 5. Subduction zones are related to...  
A. convergent plate boundaries                      B. transform plate boundaries  
C. divergent plate boundaries
- \_\_\_\_\_ 6. The oldest sea floor crust occurs...  
A. along active margins                      C. along mid-ocean ridges  
B. near continental boundaries                      D. evenly over the entire ocean basin
- \_\_\_\_\_ 7. Using data from WWII, who made some of the first maps of the Atlantic Ocean floor that expressed its dynamic (valleys, ridges, plains) nature?  
A. Marie Tharp                      C. Mary Anning  
B. Marie Curie                      D. Sylvia Earle
- \_\_\_\_\_ 8. What supercontinent began to break apart at approximately 245 Ma?  
A. Panasia                      C. Panficia  
B. Pantella                      D. Pangaea
- \_\_\_\_\_ 9. What tectonic feature works to create the Hawaiian Island chain?  
A. Divergent                      B. Subduction                      C. Hot spot                      D. Transform

- \_\_\_\_\_ 10. This underground geologic feature runs from north east Kansas to Lake Superior and around to the upper peninsula of Michigan. This feature contains dark, dense rock potentially containing abundant minerals. This feature is called?
- A. Olduvai gorge  
B. Mid-Continent Rift  
C. Mid-Atlantic Spreading Ridge  
D. Des Moines Lobe

#### Short Answer

1. The Earth's surface is very dynamic. Plate tectonic processes and products are a major contributor to our dynamic planet. A) Where does the energy that drives plate tectonics come from? (2pts) B) This energy source is older than 4.6Ga, how is it still capable of powering some of the Earth's processes? (3 pts) C) Other than Plate Tectonics, what else is this energy capable of creating? (1pt) 6 - total

Challenge question/extension (How is the Plate Tectonic Theory relevant to Iowa?) If you have time (not required!)

2. Based on our session two presentation – How would you visually distinguish the three primary rock types apart from one another? (Challenge question/extension, not required, how would you be able to distinguish a rock that cooled in the crust under California from a rock that cooled on the surface of the Big Island of Hawaii? And what name would you give each of these rocks?)