

**Semester Exam Study Guide**  
**Unit 1 Rocks and Minerals**

**Earth Science**

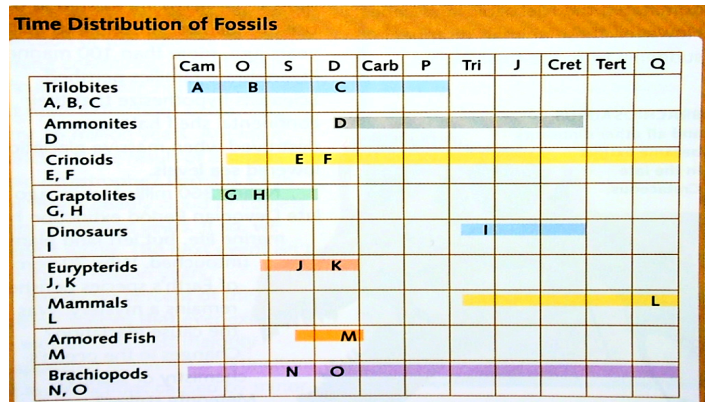
The semester exam will have many graphs and charts to analyze. Look at all charts within chapters, chapter assessments, and in class labs and activities. **This Study Guide is in no way constitutes every item that will be found on the test.**

**NOTE- WORK MUST BE LEGIBLE AND ON YOUR OWN PAPER TO RECEIVE CREDIT**

1. What are the requirements for a material to be classified as a mineral?
2. List and describe all properties and tests used for mineral ID.
3. What mineral can be identified using hydrochloric acid?
4. What are the minerals of the Mohs hardness scale and what are their hardness's?
5. a. What is an example of a mineral with a metallic luster?  
 b. What is an example of a mineral with perfect cleavage?
6. Make a dichotomous key to distinguish between the minerals quartz, talc, gypsum, chalcopryite, muscovite.
7. What is the difference between a conglomerate and a breccia?
8. How does cooling rate affect crystal size of igneous rocks?
9. Sketch the types of igneous intrusions.
10. Explain how clastic, chemical and organic sedimentary rocks are classified and give an example of each.
11. What is the difference between the terms permeable and porous?
12. Organize the following sedimentary particles from most and least permeable: very coarse sand, silt, coarse sand, fine sand
13. Make a concept map for the rock cycle.
14. What is the most important factor affecting igneous rock crystal size?
15. What do the terms porphyritic and vesicular mean?
16. Describe and give examples of intrusive and extrusive rocks.
17. What type of rock does each of the following represent? Conglomerate, gneiss, granite, pumice, coquina, marble, sandstone, and obsidian.
18. Make and analyze a concept map to represent the types of weathering and erosion.
19. What type of weathering is responsible for cave formation?

**Unit 2 Geologic Time Scale/ Reading the Rock Record**

20. List and define the laws of position Make a diagram to show rock layers from oldest to youngest and state the law that corresponds with each layer. Use all three laws at least once.
21. Give an example of relative time.
22. How old is a mammoth tusk if there is only 25% of the original carbon 14 remaining in the sample?
23. What is the main cause of extinction in the last 11,000 yrs?
24. Describe the **main** characteristics associated with **each** of the geologic time Eras and Periods. Be able to identify the time frames, life of the time, climate, major tectonic events and extinctions. (examples- appearance of reptiles, appearance of mammals, 1<sup>st</sup> bird, coal formation, Rocky mountains, Appalachian mountains...)
25. If all of geologic time was condensed into 24 hours how much of the day would the Cenozoic era take up?
26. Explain five different reasons why fossilization is a rare event.
27. Preservation by drying is called \_\_\_\_\_.
28. Sequence common organisms found in the fossil record from oldest to youngest or youngest to oldest. Ex: salamander, brachiopod, bacteria, barracuda, horse, alligator, ostrich.
29. Describe the types of original remains and give examples of each.
30. Read the interpret fossilization charts by determining the best index fossil for the Quaternary, the Ordovician, and the Permian.

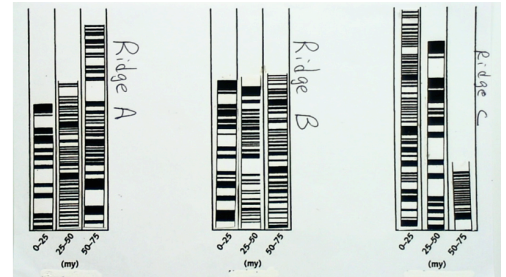


31. Use the “journey through time assignment” to determine the frames when: Pangaea formed, the Rocky mountains formed, when Australia broke from Antarctica, the Atlantic Ocean formed, the Himalayan mountains formed
32. Describe the types of trace fossils.
33. What are the characteristics of an index fossil?

### Plate tectonics study guide Review Guide

34. a. Describe the density and rock type of continental crust.  
b. Describe the density and rock type of ocean crust.
35. A. What are the five types of plate boundaries  
B. What **all features** are associated with each boundary?  
C. What rock type is found at each boundary?  
D. Give an example of where each boundary occurs.
36. Look at the figure on page 323 of your Earth Science book.

Figure 1

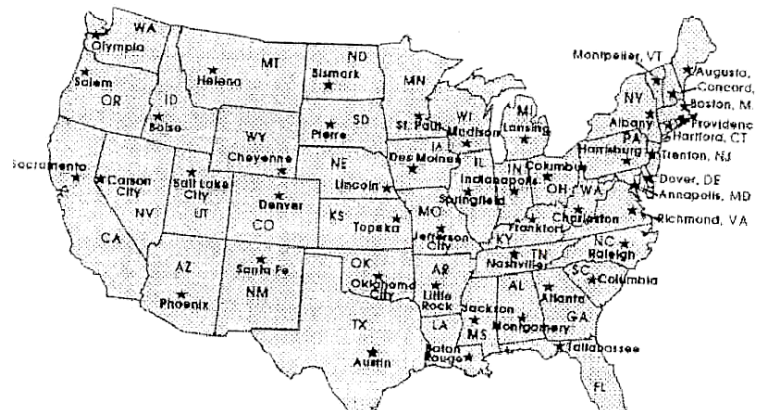


37. Using figure 1. For ridge C,  
A. When did the sea floor spread the fastest?  
B. When did the sea floor spread the slowest?  
C. Which ridge has the most consistent spreading?
38. Be able to calculate density of unknown samples by using water displacement.  
A student performed an experiment to find out the density of a rock.  
He placed the rock on the scale. It had a mass of 7 grams.

He then placed the rock in a graduated cylinder that contained 6 ml of water.  
After adding the rock the water level was at 8.5 ml.  
What is the density of the rock?

39. A. Which rock type is the most dense?  
B. Which rock type is the least dense?
40. A. Define Lagtime B. Define fault.
41. What causes the plates of the earth to move?
42. Describe Wegner’s evidences of **continental drift**.
43. What is the ring of fire?
44. Explain how density is related to subduction.
45. The distance from the spreading center to a distant is 1700 km. It takes 4,000,000 years for the plate to reach this location. How fast is the plate moving in **cm per year**? Round to two decimal places.  
1km=100000 cm Show all work, units, and cancelling.

Figure 2



46. What are the fastest and slowest earthquake waves?
47. Where on earth would you do to find a divergent boundary on land?
48. Look at page 308 in your textbook. Determine the likelihood of an earthquake occurring in your community.
49. How does the amount of dissolved gas and silica affect the explosiveness of a volcano?
50. Explain the relative **age and heat flow** of rocks found close to and far from a spreading center.
52. A. List two mountains that are currently on active margins. B. List two mountains that are currently on passive margins.
53. Explain why fossil animals that thrive in tropical areas have been found in Antarctica.
54. What is the difference between ash, lapilli, blocks and bombs?
55. Describe asthenosphere, crust, lithosphere, mantle, inner core, and outer core.
56. When a rock 1<sup>st</sup> becomes stressed it \_\_\_\_\_
57. Use the following information and Figure 2, to determine the earthquake epicenter.

Show all work, units and cancelling. The lag time for 100 km is 8 sec.  
**Jefferson City, MO-** The P waves arrive in 15 sec and the S waves arrive in 79 sec.  
**Denver, CO-** The P waves arrive in 40 sec and the S waves arrive in 180 sec.  
**Tallahassee, FL** The P waves arrive in 10 sec. And the S waves arrive in 42 sec.  
 Where is the epicenter?

$$\frac{\text{Measured lag time(sec)} \times 100 \text{ km}}{\text{Lag time for 100 km (sec)}}$$