

Review for Test 1

ESC 115 Physical Geology

Last revised: Spring, 2015

Chapter 1

1. What is the scientific method? What makes a prediction scientific or not? Why study science? Why study geology?
2. What is uniformitarianism? How is it different from catastrophism?
3. What is the difference between absolute and relative age dating? Give examples of each.
4. How does the thickness of the continents compare to the thickness of the ocean bottoms? Why?
5. Be able to sketch the rock cycle.

Iowa Geology

1. What age rocks is Dubuque built upon? What resources were found in these rocks? How did they originally form? What age rocks are under the Dubuque airport?
2. Review the history of Dubuque.
3. Why are rocks of Mesozoic age largely missing from Iowa?
4. What is the history of glaciation in Iowa and Dubuque? What were several effects?
5. What is the Driftless Zone?
6. Why are there so many lakes in Minnesota?
7. How can you tell if a sediment has been transported by ice or water?
8. Give two geologic reasons why Des Moines and Dubuque look so different.
9. What are several of today's environmental challenges in Iowa? How have we sought to reduce those impacts?
10. Explain the impact of excess nutrients upon water quality. What are sources of these nutrients?
11. What are major influences on Iowa's weather?

Chapter 2

1. Why do we think the Mediterranean Sea was once a desert?
2. What are some principles for relative dating? Be able to use them to determine relative age of layers of rocks.
3. What is an isotope? What is radioisotopic decay? What is it used for?
4. What parts of continents are the oldest? Where nearby can some of these rocks be found? Why are they at the land surface?
5. How can oxygen isotopes be used to estimate past water temperatures? Explain. What is the purpose of the *isotope dance* demonstration?
6. How is the evolution of antibiotic-resistant bacteria speeded by the inappropriate use of antibiotics?

Chapter 4

1. What is the difference between a rock and a mineral?
2. How are elements in a mineral bonded together? Know the four ways.
3. What is the difference between felsic and mafic silicate minerals?
4. Be able to identify the properties of calcite, quartz, mica, copper, galena, halite and diamond.
5. What are some common minerals that are not silicates? Why is each important?
6. What are evaporites? Name two.
7. How does the density and melting points of mafic and felsic minerals influence where they are found (on continents versus ocean lithosphere).?
8. What is a hydrogen bond? Why does it matter? How is it different from the four main types of bonds in silicate minerals?

Chapter 9

1. Where do the oldest rocks in Iowa appear at the surface? What is their pattern beneath the surface?
2. Be able to determine the relative age of layers of rock, such as we did in lab.
3. Explain the phrase, Resistant rocks stand high in relief. Why do waterfalls occur?
4. What evidence supports the hypothesis that the dinosaurs were destroyed by a meteorite impact in the Yucatan, Mexico.
5. How fast do tectonic plates move? What are some ways in which we determine their rate?

Thought Questions

1. How does geology connect to the natural features of the Dubuque area?
2. How does geologic history connect to agriculture in Iowa?
3. How does geology connect to the current environmental issues in Iowa?
4. How does geologic history affect the making of underwear in North Carolina?