

**Reading Guide for Chapter 5**  
**Weathering: the Breakdown of Rocks** (p. 142)

Please read the introduction to the chapter. What is the difference between weathering and erosion?

**Weathering Processes** (p. 144)

*Mechanical Weathering:* (p. 144)

What is the difference between mechanical and chemical weathering?

What are some ways in which mechanical weathering occurs?

*Chemical Weathering:* (p. 147)

For those who have had a chemistry course, you may be able to follow the chemical formulas in this section, but since most of the students in this class have not had a previous chemistry course, I will not expect you to know these formulas or be able to use them. If you have questions or would like to know more about them, see me during an office hour.

List and briefly explain the three primary chemical weathering processes:

1)

2)

3)

*Factors that Influence Chemical Weathering:* (p. 152)

► What role does climate have in promoting chemical weathering? What type of climate does chemical weathering occurs at the fastest rate? Slowest rate?

► In general, rocks with more mafic minerals (dark colored) will chemically weather \_\_\_\_\_ (faster/slower) than more felsic minerals. We can explain this trend because mafic minerals formed at higher temperatures, so they are the \_\_\_\_\_ (least/most) stable at the earth's surface.

*Some Products of Chemical Weathering:* (p. 155)

From the previous section you learned that hydrolysis produces clays. These clays are useful in our world as are the metallic ores concentrated as a result of the weathering processes, but I will not ask the details of this material on an exam.

You should be familiar with spheroidal weathering and how it forms. You see this in some of the basalts in eastern Washington. Weathering occurs faster on the corners and edges of the basalt columns, creating rounded masses of basalt without tumbling in a river.

**Soils and Soils Formation** (p. 156)

*Influences on Soil Formation:* (p. 157)

An important idea in this section is that soils are also a function of the rock type of the bedrock. Soils that are derived from sandstones will be much sandier than soils derived from shales that will be more clayey.

Sections entitled *Typical Soil Profile*, *Classifying Soils*, and **Weathering in Extraterrestrial Environments** will not be covered on the second exam. Students in Forestry and Civil Engineering may want to read the soils information carefully for applications in their field.