

# GEOL113

## Minerals

**Goals:** To learn how to use physiochemical (physical and chemical) properties to identify minerals and construct a table of notes for the mineral identification quiz. Learn common rock forming minerals.

**Chapter 3: Mineral Properties, Uses, and Identification,**  
**READ BEFORE LAB** Pages 57-69. Review diagrams and figures, and how to use them.

**Procedure:** You will have the following: one box of 30 numbered mineral samples, one box of 16 common rock forming minerals, and one box of minerals of the Mohs hardness scale (except for diamond). You will also have tools to assist in evaluating the physical characteristics of the minerals (hand lens or magnifying lens, streak plates, glass plates, magnets). During this lab period, you should concentrate on useful properties for identification of some of the more common and not so common minerals. You should especially concentrate on properties that will allow you to distinguish between similar-looking minerals, e.g., quartz and fluorite; potassium and plagioclase feldspars; calcite and dolomite; halite and gypsum; gypsum, talc and kaolinite, etc.

Figures 3.18, 3.19, and 3.20 are flow charts for identifying minerals. Try using these tables to identify minerals. They are designed to highlight especially useful properties for distinguishing otherwise similar minerals.

At the beginning of the next lab meeting, you will have a mineral identification quiz (worth 10 points) for which you will demonstrate your mineral-identifying prowess. For the quiz, you will be given 10 mineral specimens to identify out of those you will study today. The specimens used for the quiz will not be the same specimens that you examined in class. The purpose of the quiz is to test how well you can identify minerals based on their physical properties, not how well you memorize the appearance of particular individual specimens. Thus, in addition to correctly naming the 10 specimens, you will also have to describe one or more physical properties that enable you to correctly identify the specimens. Minerals names *must* be spelled correctly on the quiz. Extra credit may be awarded for distinguishing features (cleavage, hardness, etc), economic uses and chemical formula.

You may use one 8.5x11 inch sheet of paper with notes on one side during the quiz. You may not paste things (e.g., layers of post-it notes) to the paper, but are limited to the plane of the surface of the paper itself. The only other restriction is the size of the sheet. You may **write, print, draw** (no photocopying) or whatever else you like on your sheet of paper.

**Minerals that may appear on the quiz:** augite, azurite, bauxite, biotite, calcite, corundum, dolomite, fluorite, galena, garnet, graphite, gypsum, halite, hematite, hornblende, kaolinite, potassium-feldspar, limonite, magnetite, malachite, muscovite, olivine, plagioclase feldspar, pyrite, quartz, sphalerite, and talc.