

Some of the samples used in Mineralogy Lab are museum specimens. Please do not destroy them. You can do just about anything you want to the grungy ones, but be nice to the pretty specimens as they are irreplaceable.

Name _____

MINERALOGY LABORATORY

Properties of Minerals and Intro to Polarizing Microscopes

The mineralogy text cited in this lab is *Mineralogy*, by Dexter Perkins.

1. Box of Rocks

There are three trays (W4, W17, and W28) that each consist of an unknown igneous rock and the minerals that make up that rock. For each of the three trays, examine the rocks and minerals and identify the minerals present in the rock using the list of minerals below. You may find Appendix B of your text useful.

tray #	mineral present
1a	
1b	
1c	

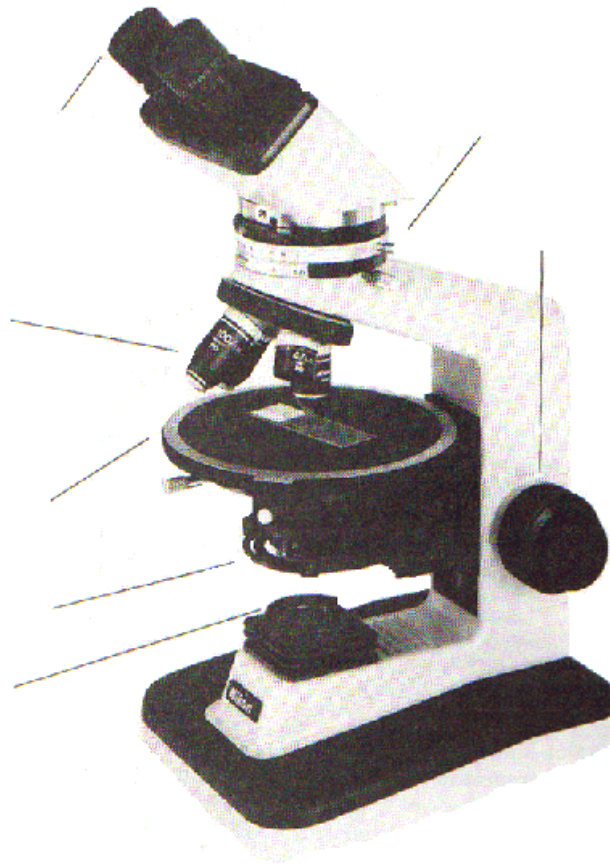
A list of possible minerals.

Pyrite	Riebeckite	apatite
Plagioclase/albite	Nepheline	Flourite
calcite	Tremolite	Microcline
quartz	Sodalite	
hornblende	biotite	
Magnetite	Labradorite	

2. Identifying unknown minerals

In tray #2, there are **15** unknown minerals. Using your text (and any other sources you wish) and the skills you developed in last week's lab, test the physical properties of each mineral and try to identify each mineral. Record your results in your lab notebook using a format similar to that of the attached table. Also, in the space provided below write a few sentences explaining how you were able to identify each mineral. That is, what properties enabled you to make a positive identification.

**You may find the Appendices in the back of your textbook and additional text helpful.



3. Introduction to polarizing microscopes.

Read the pages on microscopes (from Perkins 2002). Pg64-70,75-77
Then, answer the following questions.

- 1). What is the purpose of using a microscope?
- 2). Identify the parts of the polarizing light microscope shown in the figure above. Then, describe the function of each part in a sentence or two.

3) What is visible light?

4) What is the wavelength range (meters) of visible light?

5) What is meant by plane-polarized (PP) light?

6) What is meant by cross-polarized (XP) light? How do you get XP light?

7) What is pleochroism?

8) What are interference colors?

9) What must be used (instead of a polarized light microscope) to identify a mineral if it appears opaque when being viewed under the microscope?

10) What is the difference between isotropic and anisotropic minerals?

11) Anisotropic minerals are divided into _____ and _____ minerals.

[illegible]

[illegible]