

## Mineral Review Lab

### Instructions for this exercise

The goal of this lab is to emphasize mineral identification by comparing similar minerals. You will be scored on your preparation for lab and participation during lab, but there will be nothing you have to turn in. You will be responsible for 3-4 minerals from the set we have examined. For each mineral you should:

- Find those others we have studied that might potentially be confused with yours. Be judicious here - quartz will never be confused with galena, for example. You should be able to select no more than 4-5 similar minerals.
- For each of the similar minerals, you should determine a test that can be made in lab to distinguish between the main mineral and that similar mineral, using the techniques you have learned, or you should determine that they are indistinguishable with the techniques you know.
- So, if you have 3 main minerals in the list below, you should end up with perhaps 12 pairs of minerals and 12 ways to distinguish between them.
- Note: I do not want to hear lists of features that differ. I want you to think about what is the best way to tell between the two minerals. For example: Quartz vs. gypsum:
  - Do not say this: Quartz has hardness of 7, conchoidal fracture, Specific Gravity of 2.65, while gypsum has hardness of 2, one perfect cleavage, and specific gravity of 2.32. I want you to think, not just copy out of the text.
  - You could say cleavage, but what if the samples are fine-grained?
  - You could say hardness (and if you did, you should not say Gypsum = 2 and Quartz = 7, you should say that you can scratch gypsum with your fingernail) but this requires you to do something
  - The best feature for our purposes is heft: gypsum is significantly lighter than quartz.

We will present these distinguishing characteristics in lab, and after lab, in order that everyone will have these techniques for reference, you should email your results to the list ([geo306@lists.wvu.edu](mailto:geo306@lists.wvu.edu)).

Graphite	Ault
Dolomite	Ault
Augite	Ault
Albite	Ault
Sulfur	Benedetti
Malachite	Benedetti
Jadeite	Benedetti
Anorthite	Benedetti
Chalcocite	Bowerman
Azurite	Bowerman
Spodumene	Bowerman
Leucite	Bowerman
Bornite	Bratz
Ulexite	Bratz
Wollastonite	Bratz
Nepheline	Bratz
Galena	Carlile
Barite	Carlile
Tremolite	Carlile
Sodalite	Carlile
Sphalerite	Darst
Gypsum	Darst
Actinolite	Darst
Analcime	Darst
Chalcopyrite	Futch
Forsterite	Futch

Hornblende	Futch
Natrolite	Futch
Stibnite	Henrichs
Almandine	Henrichs
Glaucophane	Henrichs
Stilbite	Henrichs
Pyrite	Isaacson
Andradite	Isaacson
Serpentine	Isaacson
Anorthoclase	Isaacson
Marcasite	Johnson
Grossular	Johnson
Kaolinite	Johnson
Molybdenite	Kaemingk
Zircon	Kaemingk
Talc	Kaemingk
Corundum	Leighton
Andalusite	Leighton
Pyrophyllite	Leighton
Hematite	Lembrick
Kyanite	Lembrick
Muscovite	Lembrick
Magnetite	Lykken
Topaz	Lykken
Lepidolite	Lykken
Rutile	Marrs

Staurolite	Marrs
Biotite	Marrs
Chromite	Marshall
Titanite	Marshall
Chlorite	Marshall
Goethite	Messer
Epidote	Messer
Chrysocolla	Messer
Halite	Montgomery
Allanite	Montgomery
Quartz	Montgomery
Fluorite	Sayler
Vesuvianite	Sayler
Cristobalite	Sayler
Calcite	Walter
Beryl	Walter
Opal	Walter
Siderite	Wheeler
Tourmaline	Wheeler
Microcline	Wheeler
Rhodochrosite	Williams
Enstatite	Williams
Orthoclase	Williams
Aragonite	Youngquist
Diopside	Youngquist
Sanidine	Youngquist