

Station 1 - What is a mineral?  
 Look at the items on the table. Decide which are minerals and which are not (remember NIFE!) and write them in the chart below. FOR THE NONMINERALS, WRITE WHY THEY DON'T QUALIFY.

Mineral

Nonmineral

Station 2 - Color and Streak

The color samples at this station are all quartz. Why is color alone not a good indicator of mineral type?

Streak Procedure: Take a mineral and rub it across an unglazed porcelain plate, which is called a streak plate. Metallic minerals often have a black streak, while nonmetallic minerals are usually a very light shade of the mineral. Some minerals will not streak at all, if there is no streak, write none.

Name	Streak Color

Station 3 - Hardness

Hardness is measured using Mohs Scale. This scale lists 10 minerals in order of increasing hardness, 1 being the softest, and 10 being the hardest. To test for an unknown mineral, you must determine which is the hardest mineral/object on the scale that it can scratch.

Example: galena can scratch galena, but not calcite. Between which 2 numbers does it fall? \_\_\_\_\_

Mineral A will be scratched by a steel nail, but will not scratch a glass plate. What is its hardness? \_\_\_\_\_

Hardness	Object
2	Fingernail
3	Penny
5.5	Glass plate
6.5	Steel Nail

Mineral	Hardness
Talc	1
Gypsum	2
Calcite	3
Fluorite	4
Apatite	5
Feldspar	6
Quartz	7
Topaz	8
Corundum	9
Diamond	10

Using the supplies at this station, determine the hardness of each of the minerals.

Name	Hardness

Station 4 - Specific Gravity

Specific gravity is a measure of a mineral's density. Follow the directions below to find the specific gravity of each sample.

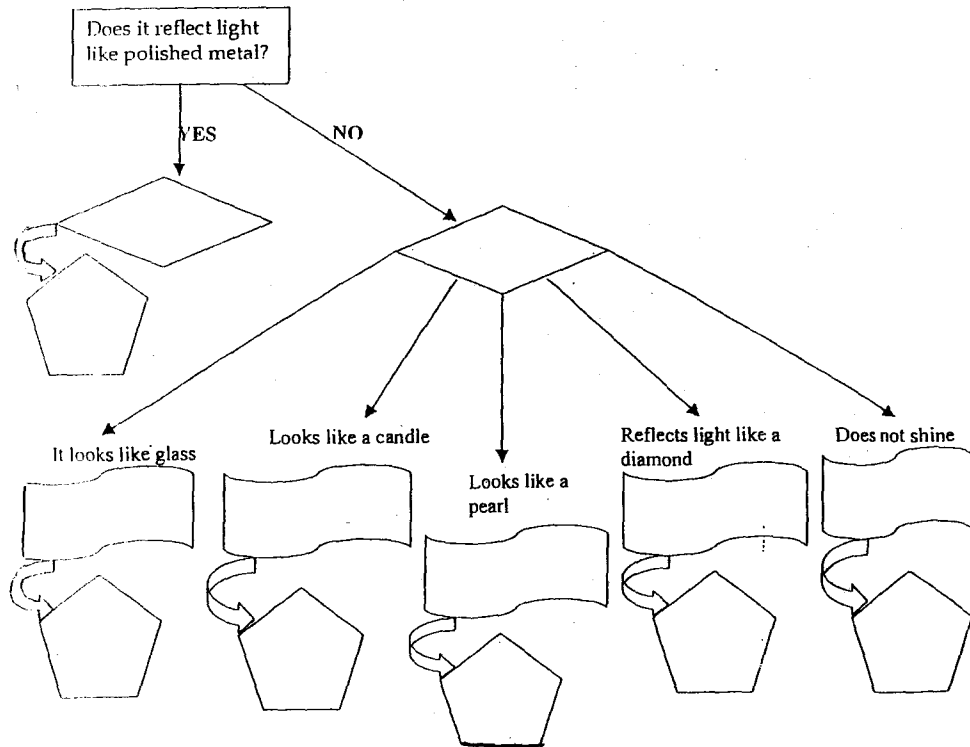
- Hook the string on your mineral onto the spring scale
- Read the mass (in grams!) and record your value in column 2
- Fill a beaker ¾ full of water
- With the rock on the hook, submerge it into the water, being careful NOT to let it touch the bottom or sides of the beaker.
- Record the mass in grams from the spring scale in column 3
- Subtract the mass in water from the dry mass and record your answer in column 4
- The specific gravity is the weight in air (column 2) divided by the difference in weight (column 4)

$$\text{Specific Gravity} = \frac{\text{mass}}{(\text{mass} - \text{mass in water})}$$

1	2	3	4	5
Mineral Number	Mass in air	Mass in water	(Mass in air) - (mass in water)	Specific Gravity

### Station 5 - Luster

Use your notes to fill in the flow chart below. The last row should be the name of a specific mineral shown at this lab station.



### Station 6 - Cleavage & Fracture

When minerals break along certain lines, they are said to have cleavage. If they break on uneven surfaces, they are said to fracture. Look at the minerals at this station - which ones have cleavage & which have fracture?

Cleavage

Fracture

The way that minerals break is dependant on their bonding. Look at the model of the silicon-oxygen tetrahedron.

What color ball represents oxygen? How many oxygens are in the tetrahedron?

What color ball represents silicon? How many silicons are in the tetrahedron?

### Station 7 - Special Properties

Some minerals exhibit special properties that make them easy to characterize. You will look at 3 special properties today.

**Fluorescence** - Look through the "viewing slit" in the box at the minerals under a black light. Describe what you see.

**Magnetism** - Magnetite is the mineral that magnets were first made from. Try picking up the paper clips with Magnetite - how many can you pick up? Try for the record!

**Reacts with acid** - Your instructor will assist you with this portion of the lab.