

**Lab 02 - Nonsilicate Minerals - Key**

1. Except for the native element class of minerals, all minerals are made up of 2 or more elements.
2. Silicon and Oxygen
3. Metals are cations: Si, Al, Fe, Ca, Na, K, Mg
4. Oxygen is an anion
5. Sulfides = Metal + Sulfur; Sulfate = Metal + Sulfur + Oxygen
6. sulfides, halides, native elements
7. graphite and galena
8. graphite, a native element
9. minerals with a nonmetallic luster have a white or too light a colored streak
10. Native Copper, Chalcopyrite, Sphalerite (+/- the harder forms of hematite and limonite)
11. hard minerals have fracture
12. True, minerals that lack cleavage have strong chemical bonds
13. calcite has rhombic cleavage; halite has cubic cleavage
14. magnetite is black and pyrite is brass yellow

<b>MINERAL</b>	<b>(at least) TWO PHYSICAL PROPERTIES</b>
Graphite	H=1, greasy feel
Galena	bright silver color, gray streak (cubic cleavage)
Hematite	brick red color, brick red streak
Limonite	yellow-brown color, yellow-brown streak
Native Copper	copper color and copper penny streak
Sphalerite	dark brown color, tan streak (streak smells like sulfur)
Chalcopyrite	buttery yellow color, black streak
Magnetite	black color, black streak (attracts to magnet)
Pyrite	brass-yellow color, black streak (cube crystals)
Sulfur	bright yellow color, sulfur smell (soft)
Gypsum	H=2, 1 good cleavage
Halite	cubic cleavage, salty taste
Calcite	H=3, rhombic cleavage
Fluorite	H=4, 4 cleavages
Apatite	H=5, fractured crystals (apple green)
Corundum	H=9, 6-sided crystals