

Mystery Minerals

Purpose: The purpose of this activity is to examine and identify common minerals found on earth.

Minerals are classified by their physical and chemical properties. Some of the most common ways to identify minerals are their *crystal form*, *hardness*, *luster*, *streak* and *specific gravity*. You will make observations about and perform simple tests on each of your Mystery Minerals.

Procedure:

Perform each of the tests described and record your observations in the table below.

Luster: the appearance of a mineral's surface when it reflects light.

- Metallic (gold, silver or black, shiny and opaque)
- Nonmetallic (not gold or silver, dull, pearly, can be transparent or translucent)

Streak: the color of the mineral in powdered form.

- Scrape the mineral across the porcelain plate
- Blow away excess powder and observe

Hardness: the resistance of a mineral to being scratched.

- Scrape the mineral across the glass plate.
- If the mineral scratches the glass, it is harder than glass.
- If the mineral does *not* scratch the glass, scrape the mineral across a penny.

Crystal Form: the pattern or arrangement that the mineral grows in.

- Observe each mineral, with the magnifying glass, if necessary and record observations
- Common crystal forms are flat sheets, rectangles, parallelograms, cubes, rhombuses and irregular shapes.

Specific Gravity: an object's density compared to the density of water.

- Calculate the mineral's density by finding its mass and volume
- Divide the mineral's density by the density of water

	Mass (g)	Volume (cm ³)	Density (g/cm ³)	Specific Gravity (D/1g/cm ³)
Mystery Mineral 1				
Mystery Mineral 2				
Mystery Mineral 3				
Mystery Mineral 4				
Mystery Mineral 5				
Mystery Mineral 6				
Mystery Mineral 7				

Observations:

	Luster	Streak	Hardness	Crystal Form	Specific Gravity
Mystery Mineral 1:					
Mystery Mineral 2:					
Mystery Mineral 3:					
Mystery Mineral 4:					
Mystery Mineral 5:					
Mystery Mineral 6:					
Mystery Mineral 7:					

Identification:

- Using your data table and the provided information about minerals to identify each of your Mystery Minerals.
- Label each of your minerals in your data table above
- Circle the distinguishing characteristic of each mineral that ultimately led you to identify the mineral

Analysis:

1. If a mineral does not exhibit a streak, is it metallic? Explain.
2. Which property is more reliable in mineral identification, color or streak? Why?
3. What is the difference between a chemical property and a physical property of a mineral?
4. What properties distinguish chlorite from pyroxene?

Think & Explain:

5. What factors determine the crystal growth of a mineral?