

LAB: Mineral Identification Challenge

Directions: You are to watch the video [Mineral Identification Challenge](#) by [Mike Sammartano](#) and then complete the worksheet by identifying each sample he presents. You can use the sheets that he provides, which is attached. Video Link is also below:

<https://www.youtube.com/watch?v=GKuLWZIJkM&t=30s>

Mineral Identification Challenge Answer Sheet

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Properties of Common Minerals

LUSTER	HARD- NESS	CLEAVAGE FRACTURE	COMMON COLORS	DISTINGUISHING CHARACTERISTICS	USE(S)	COMPOSITION*	MINERAL NAME
Metallic luster	1-2	✓	silver to gray	black streak, greasy feel	pencil lead, lubricants	C	Graphite
	2.5	✓	metallic silver	gray-black streak, cubic cleavage, density = 7.6 g/cm ³	ore of lead, batteries	PbS	Galena
	5.5-6.5	✓	black to silver	black streak, magnetic	ore of iron, steel	Fe ₃ O ₄	Magnetite
	6.5	✓	brassy yellow	green-black streak, (fool's gold)	ore of sulfur	FeS ₂	Pyrite
Either	5.5 - 6.5 or 1	✓	metallic silver or earthy red	red-brown streak	ore of iron, jewelry	Fe ₂ O ₃	Hematite
Nonmetallic luster	1	✓	white to green	greasy feel	ceramics, paper	Mg ₃ Si ₄ O ₁₀ (OH) ₂	Talc
	2	✓	yellow to amber	white-yellow streak	sulfuric acid	S	Sulfur
	2	✓	white to pink or gray	easily scratched by fingernail	plaster of paris, drywall	CaSO ₄ •2H ₂ O	Selenite gypsum
	2-2.5	✓	colorless to yellow	flexible in thin sheets	paint, roofing	KAl ₃ Si ₃ O ₁₀ (OH) ₂	Muscovite mica
	2.5	✓	colorless to white	cubic cleavage, salty taste	food additive, melts ice	NaCl	Halite
	2.5-3	✓	black to dark brown	flexible in thin sheets	construction materials	K(Mg,Fe) ₃ AlSi ₃ O ₁₀ (OH) ₂	Biotite mica
	3	✓	colorless or variable	bubbles with acid, rhombohedral cleavage	cement, lime	CaCO ₃	Calcite
	3.5	✓	colorless or variable	bubbles with acid when powdered	building stones	CaMg(CO ₃) ₂	Dolomite
	4	✓	colorless or variable	cleaves in 4 directions	hydrofluoric acid	CaF ₂	Fluorite
	5-6	✓	black to dark green	cleaves in 2 directions at 90°	mineral collections, jewelry	(Ca,Na)(Mg,Fe,Al)(Si,Al) ₂ O ₆	Pyroxene (commonly augite)
	5.5	✓	black to dark green	cleaves at 56° and 124°	mineral collections, jewelry	CaNa(Mg,Fe) ₄ (Al,Fe,Ti) ₃ Si ₆ O ₂₂ (O,OH) ₂	Amphibole (commonly hornblende)
	6	✓	white to pink	cleaves in 2 directions at 90°	ceramics, glass	KAlSi ₃ O ₈	Potassium feldspar (commonly orthoclase)
	6	✓	white to gray	cleaves in 2 directions, striations visible	ceramics, glass	(Na,Ca)AlSi ₃ O ₈	Plagioclase feldspar
	6.5	✓	green to gray or brown	commonly light green and granular	furnace bricks, jewelry	(Fe,Mg) ₂ SiO ₄	Olivine
7	✓	colorless or variable	glassy luster, may form hexagonal crystals	glass, jewelry, electronics	SiO ₂	Quartz	
6.5-7.5	✓	dark red to green	often seen as red glassy grains in NYS metamorphic rocks	jewelry (NYS gem), abrasives	Fe ₃ Al ₂ Si ₃ O ₁₂	Garnet	

*Chemical symbols: Al = aluminum Cl = chlorine H = hydrogen Na = sodium S = sulfur
 C = carbon F = fluorine K = potassium O = oxygen Si = silicon
 Ca = calcium Fe = iron Mg = magnesium Pb = lead Ti = titanium

✓ = dominant form of breakage