

Minerals

GLE 0707.7.1 Describe the physical properties of minerals.

GLE 0707.Inq.4 Recognize possible sources of bias and error, alternative explanations, and questions for further exploration.

Table of Properties of Four Minerals

Mineral	Formula	Density (g/cm ³)	Hardness	Uses
Silver	Ag	10.5	2.5	Photography, electronics, jewelry
Galena	PbS	7.5	2.5	Batteries, ammunition
Pyrite	FeS ₂	5.0	6.5	Mined for lead
Gold	Au	19.3	2.5	Jewelry, computers, dentistry

Pyrite is called fool's gold because it was often mistaken for gold. Galena is sometimes confused with silver. Suppose a friend brings to class an unknown sample and claims it is very valuable. What could you do to keep from being tricked?

Read each answer below. Tell if you agree or disagree with the student and explain your reasoning.

1. Ryan states that hardness could be used to tell the minerals apart. Pyrite is much harder than gold. If the unknown mineral can be scratched with a penny, it must be gold not pyrite.
2. Karen says that galena and pyrite are sulfide minerals, but silver and gold are native elements. That is how to tell them apart.
3. Keith wants to measure the mass and volume of the sample to determine its density, since all four minerals have different densities.
4. Ruth disagrees with everyone. She says you cannot identify an unknown sample using only one property. She thinks they need to find all four properties to match the unknown with a mineral in the table.