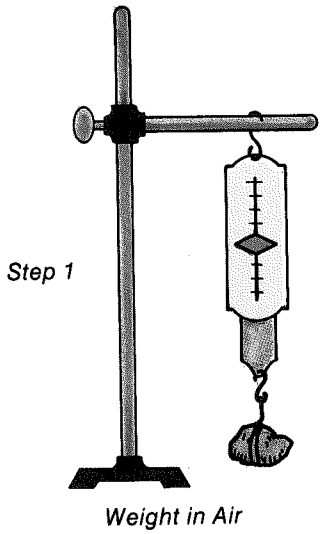
Mohs' Scale of Hardness

Hardness	Mineral	Simple Test
1	Talc	Fingernail scratches it easily.
2	Gypsum	Fingernail scratches it.
3	Calcite	Copper penny just scratches it.
4	Fluorite	Steel knife scratches it easily.
5	Apatite	Steel knife scratches it.
6	Feldspar	Steel knife does not scratch it easily; it scratches window glass.
7	Quartz	Hardest common mineral; it scratches steel and hard glass easily.
8	Topaz	Harder than any common mineral
9	Corundum	It scratches topaz.
10	Diamond	Hardest of all minerals

Hardness should not be confused with brittleness. Glass is a brittle substance that breaks easily when dropped. Glass, however, is harder (resistant to scratching) than copper and other metals.

In doing a scratch test for hardness, the powder rubbed off the softer mineral may look like a scratch on the harder mineral. For example, when calcite is rubbed against glass, the calcite may appear to have scratched the glass. Rub this "scratch" with your finger. It may prove to be powder that comes off and leaves the glass unscratched. The calcite is obviously softer than the glass. A real scratch can be felt with the fingernail.



4.6 A mineral's weight in water and in air is used to find specific gravity.

Topic 4 Specific Gravity

Specific gravity is another property that is helpful in identifying a mineral. Specific gravity is the ratio of the weight of a mineral to the weight of an equal volume of water. In other words, the specific gravity of a mineral tells you how many times as dense as water the mineral is.

Nearly all minerals are denser than water. Their specific gravities are greater than 1. Typical nonmetallic minerals—such as quartz, feldspar, calcite, and talc—have specific gravities of slightly less than 3. Typical metallic minerals—such as the iron ores hematite and magnetite—have specific gravities of about 5. Other metallic minerals are much denser. Gold has a specific gravity as high as 19.3 when pure.

The specific gravity of a mineral is found as suggested by the definition. The weight of the mineral sample is found by weighing it in air. Then the mineral sample is weighed again while it is underwater. This second weighing indirectly gives the weight of a volume of water that is equal to the volume of the mineral sample. The sample weighs less submerged because of the buoyant effect of the water. *Archimedes' principle* states that this loss in weight is equal to the weight of the displaced water. The displaced water is equal in volume to the mineral sample that displaced it. Thus it can be stated that