

Minerals

Properties of Minerals

2.3 Properties of Minerals

- Minerals can be identified by many characteristics and properties
 - Minerals occur in different colors and shapes.
 - Minerals also vary in the way that they reflect light, and the way that they break.
 - There are 8 main properties of minerals:
 1. Color
 2. Streak
 3. Luster
 4. Crystal form
 5. Hardness
 6. Cleavage
 7. Fracture
 8. Density

1. Color

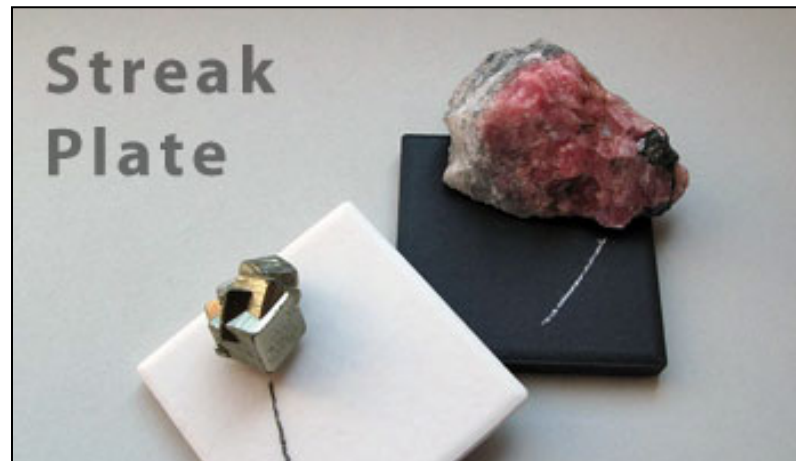
- Color is not a very useful property to identify minerals.
- Most minerals occur in more than one color.
 - Small amounts of different elements can show up as different colors in the same mineral.

Sapphire



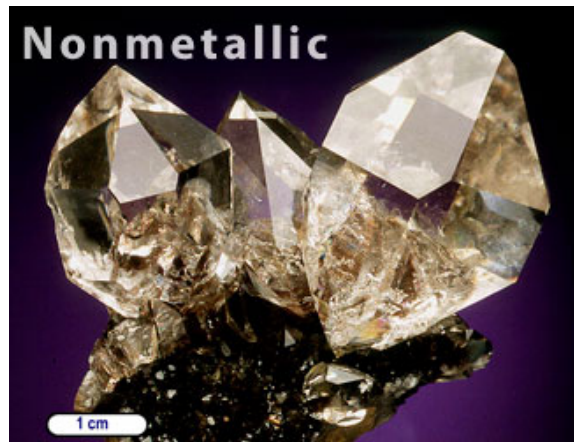
2. Streak

- Streak is the color of a mineral in its powdered form.
- Minerals leave a specific color of powder when scraped along a streak plate.
 - Harder minerals will scratch the streak plate and leave behind no colored powder.
 - Metallic minerals usually leave a dark streak, non-metallic do not.



3. Luster

- Luster is used to describe how light is reflected from the surface of a mineral.
- If a mineral looks metallic, it is said to have a metallic luster, *ex. pyrite (fool's gold) and copper.*
- If a mineral doesn't look metallic, it can be described as: glassy, pearly, silky, earthy, brilliant.



3. Luster

Types of Luster

- **Vitreous:** The luster of glass
- **Resinous:** The luster of resin.
- **Pearly:** The luster of pearls.
- **Greasy:** Looks like it is covered in a thin layer of oil.
- **Silky:** The luster of silk.
- **Adamantine:** A hard, brilliant luster.



4. Crystal Form

- Crystal form is the visible expression of a mineral's internal arrangement of atoms.
- Every mineral has a distinct crystal form.
- Crystal formation without space restrictions will have well-formed faces.
- Crystal formation with restricted space will result in smaller crystals (do not show crystal form).



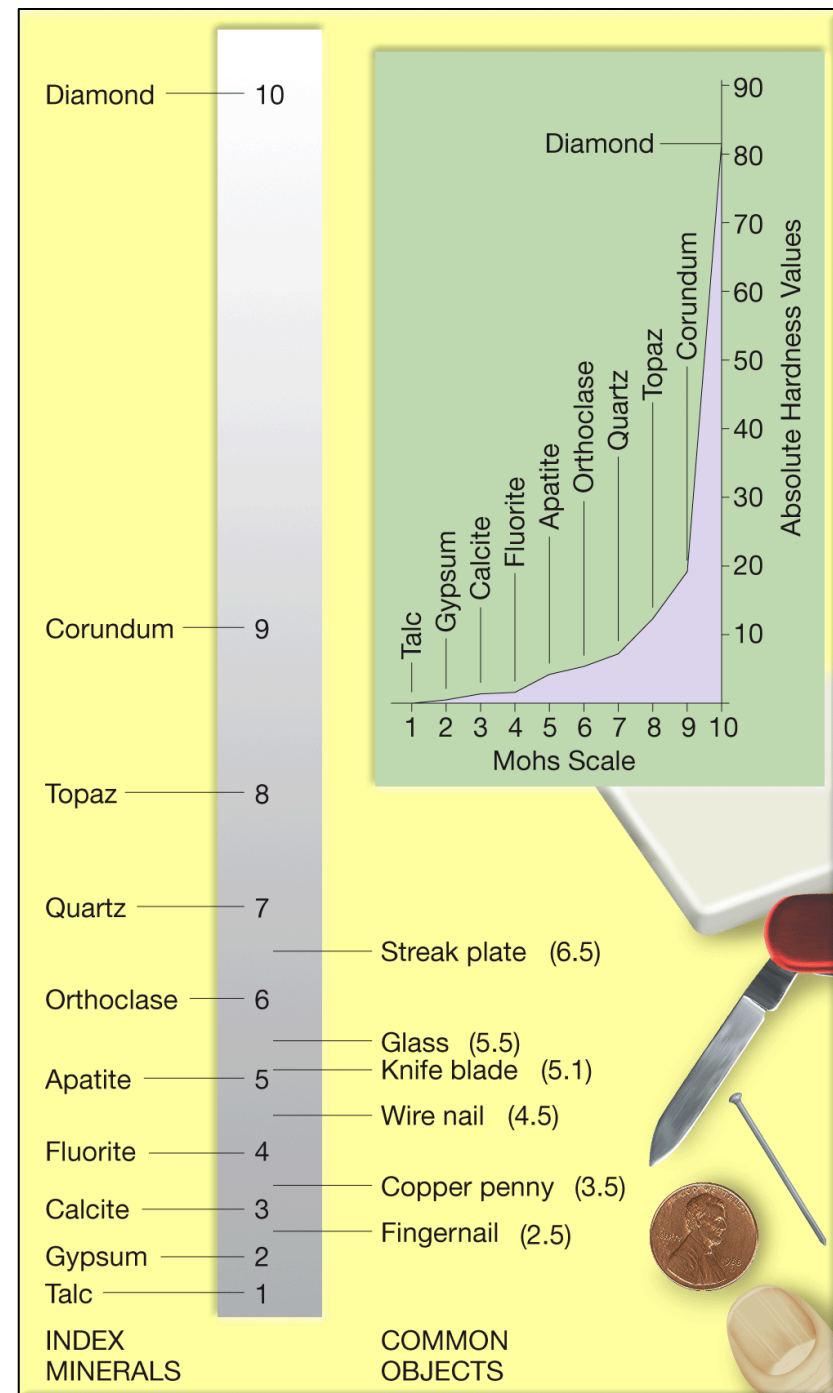
5. Hardness

- Hardness is a measure of the resistance of a mineral to being scratched.

- Minerals can be rubbed against another mineral that the hardness is known.

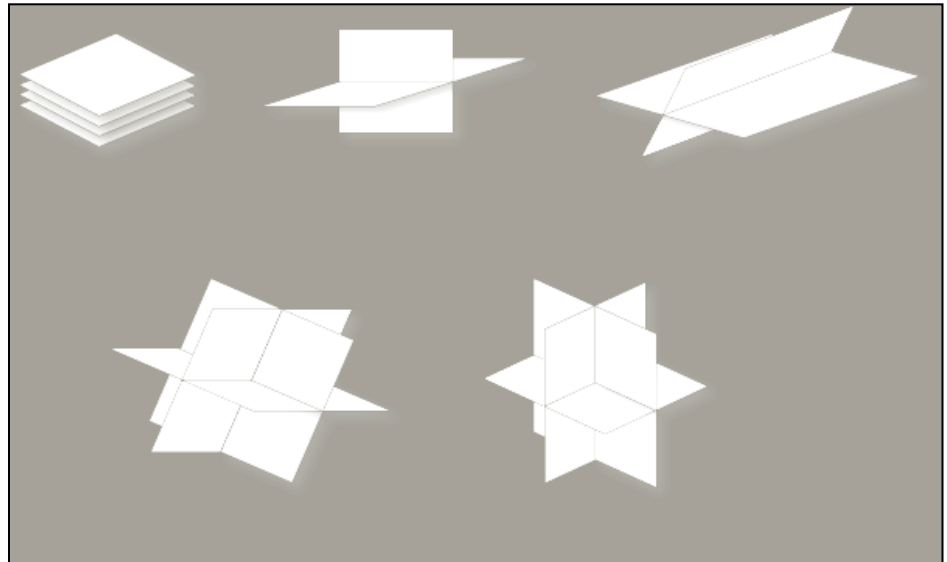
- Other materials can also be used to determine hardness (*ex. fingernail*)

- **Mohs scale** consists of 10 minerals arranged from 10 (hardest) to 1 (softest).



6. Cleavage

- Cleavage is the tendency of a mineral to cleave, or break, along flat, even surfaces.
- If a mineral does not show cleavage when broken, it is said to fracture.
- Mica shows a simple form of cleavage – it breaks in one direction (forms thin sheets).



Conchoidal Fracture

