

What is a Mineral?

S N I F C	_____	<ul style="list-style-type: none"> • Cannot be a _____ or a _____
	_____ Occurring	<ul style="list-style-type: none"> • Found in _____, not man-made
	_____	<ul style="list-style-type: none"> • Is not _____ and never was, _____
	_____	<ul style="list-style-type: none"> • Has a chemical _____, most are formed from _____ of two or more _____, some minerals consist of one _____ ex. Au (Gold)
	_____ Structure	<ul style="list-style-type: none"> • A definite _____ in which _____ are arranged

Make your guesses in the first 2 columns, correct answers in the last two columns:

Mineral	Non-Mineral	Mineral	Non-Mineral

Definition: A **mineral** is a naturally formed, inorganic solid that has a definite crystalline structure.

What is a Mineral?

1. Two Groups of Minerals

a. Silicates

- i. Contains Silicon (Si) and Oxygen (O) - 90% of Earth's crust
- iii. Combine with elements such as Al, Fe, Mg, and K

b. Non-silicates

- i. Do **not** contain combinations of Si and O
 1. Classes of Non-silicates
 - a. Native Elements: Au, Cu, Ag
 - b. Oxides : Al or Fe combine with O
 - c. Carbonates: C + O
 - d. Sulfates: S + O
 - e. Halides: F, Cl, I, or Br combine with Na, K, or Ca
 - f. Sulfides: Pb, Fe, Ni, combine with S

2. Identifying Minerals

a. **Color** – the same mineral can come in a variety of colors, not reliable

b. **Luster** – the way in which a mineral reflects light

- i. Metallic - opaque and reflective, like metal
- ii. Submetallic - to nearly opaque and reflect well
- iii. Nonmetallic - not looking like a metal at all
 1. Vitreous - glassy
 2. Silky - fibrous
 3. Resinous – yellow, dark orange, brown
 4. Waxy
 5. Pearly – like inside a mollusk
 6. Earthy – dull, looks like dirt or clay

c. **Streak** – the color of the mineral in a powdered form

d. **Cleavage** – when minerals break along a smooth, flat surface

e. **Fracture** – when minerals break unevenly along a curved or irregular surface

f. **Hardness** – a mineral's resistance to being scratched

- Moh's Scale of Hardness 1 - 10

G. Density – how much matter is in a given amount of space (mass/volume)

H. Special Properties

- i. Fluorescence – glow under ultraviolet light
- ii. Chemical Reaction – fizzes with acid test
- iii. Optical Properties – double image formed
- iv. Magnetism – magnetic, attract iron
- v. Taste – salty
- vi. Radioactivity – radium or uranium contained

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