

- 8.
- 9.
- 10.
- 11.
- 12.
- 13.

Name Key Class _____ Date _____
What is a Mineral?

| | |
|----------|--|
| S | <u>Solid</u> <ul style="list-style-type: none"> Cannot be a <u>liquid</u> or a <u>gas</u> |
| N | <u>Naturally</u> Occurring <ul style="list-style-type: none"> Found in <u>nature</u>, not man-made |
| I | <u>Inorganic</u> <ul style="list-style-type: none"> Is not <u>alive</u> and never was, <u>non-living</u> |
| F | <u>Formula</u> <ul style="list-style-type: none"> Has a chemical <u>formula</u>, most are formed from <u>compounds</u> of two or more <u>elements</u>, some minerals consist of one <u>element</u> ex. Au (Gold) |
| C | <u>Crystal</u> Structure <ul style="list-style-type: none"> A definite <u>structure</u> in which <u>atoms</u> are arranged |

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

| | Mineral | Non-Mineral | Mineral | Non-Mineral |
|----|---------|-------------|---------|-------------|
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |

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

Name _____ Class _____ Date _____

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

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