What do all of these have in common?

Bell Ringer

What do all of these have in common?

Talc

What is Talc?

Talc is used in a wide variety of products that we see everyday. It is an important ingredient in rubber, a filler and whitener in paint, a filler and brightening agent in high-quality papers, and a primary ingredient in many types of cosmetics.

Minerals

They are:
1)Naturally occurring,
2)Inorganic
3)Solids
4)with a definite chemical composition
5) and an ordered internal crystalline structure.

(Atoms → Elements → Minerals → Rocks)

Naturally occurring → Formed by natural processes

Solid →

Definite shape and volume, Not a gas or a liquid

Inorganic → They are not alive and never were alive

Definite chemical composition

Some minerals are composed of just one element.
Example – Gold = Au

Most minerals are composed of compounds.
Example – Quartz = SiO_2

An ordered internal crystalline structure

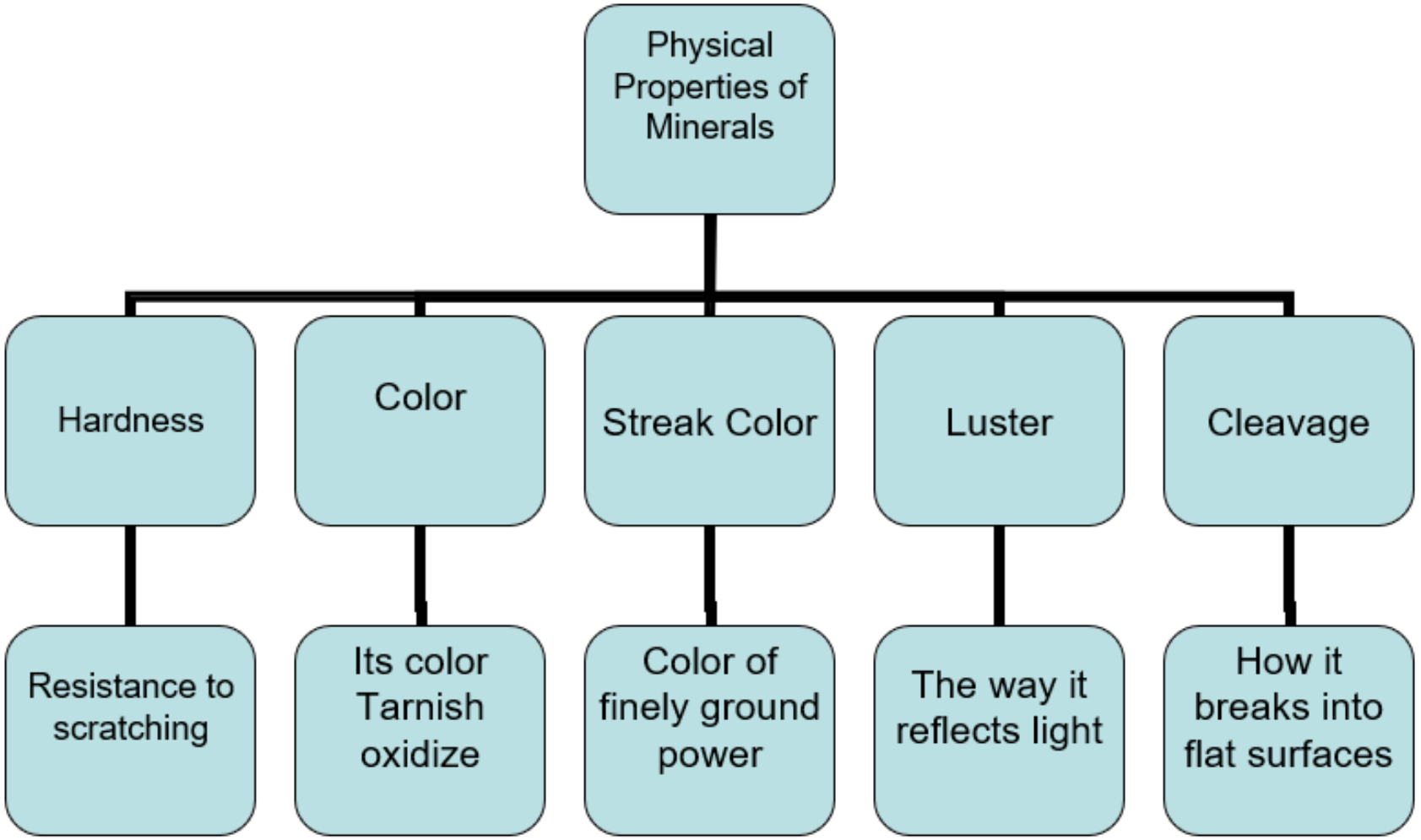
Displayed by its crystal shape

Is Ice a Mineral?

Is Ice a Mineral?

- Is ***ice*** a mineral?
  - Think about this:
    - Is it a solid? **Yes**
    - Is it pure (Made up of one substance)? **Yes**
    - Is it living or non-living? **Non -living**
    - Does it occur naturally? (No help needed?) **Yes**

So ICE is a mineral! But what about when it melts? Since it is no longer a solid it is no longer a mineral.


Physical Properties of Minerals
Hardness
Color
Streak Color
Luster
Cleavage
Resistance to scratching
Its color Tarnish oxidize
Color of finely ground power
The way it reflects light
How it breaks into flat surfaces

Colour

The color of a mineral is the first thing most people notice

- It can also be the least useful in identifying a mineral.
- Many minerals can have the same colour
- Most minerals occur in more than one color.
  - E.g.: Quartz can be clear, white, yellow, purple, or black.

Red Minerals

Spinel (octahedral)

Garnet (dodecahedral)

Corundum (hexagonal)

Which would be a more helpful way to distinguish these three minerals, colour or crystal shape?

Hardness

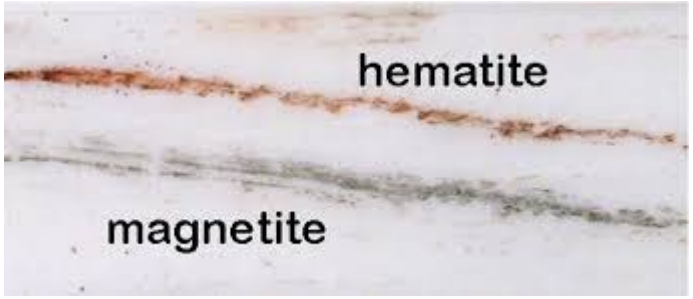
Hardness describes a minerals **resistance to scratching,** therefore representing the strength of atomic bonds.

- Hardness is measured on a scale of 1 – 10, with 1 being the softest mineral and 10 being the hardest mineral.

Streak Colour

Streak color is an important property of a mineral and is **defined as the color of the finely ground powder of the mineral**.

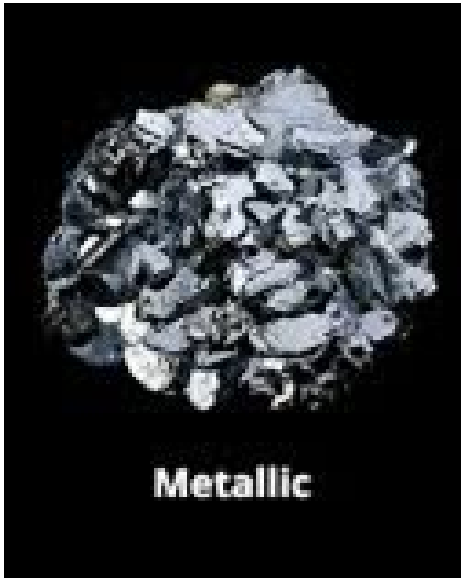
- The visible color property is unreliable as an identification method.
- You can find out the streak color of minerals by using the streak plates.
- Rub each mineral sample once across the tile and blow off the extra powder.
- The streak color is not always the same color as the mineral. The mineral may come in different colors, but the streak is always the same.
- Not all minerals have the same streak color.



Luster

Luster describes **the way a mineral reflects light.**

- Minerals can be categorized as Metallic or Nonmetallic
- Nonmetallic can be categorized as:
  - Dull
  - Earthy
  - Glassy
  - Waxy



Cleavage

Cleavage describes **how a mineral breaks along flat surfaces** (usually one, two, three or four surfaces).

- Minerals have all different shapes because they all break in different ways
- Cleavage is determined by the crystal structure of the mineral. The mineral will break along a plane/flat surface where the bonds are weak.

Cleavage -
How many flat surfaces?
Are they at 90 degrees?

Fracture
(conchoidal)

Final Thoughts & Exit Slip


IF DIAMOND IS THE HARDEST MINERAL
THEN HOW WAS THE FIRST DIAMOND MINED