



MINERALS

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Four Billion Years and Counting
Quatre milliards d'années d'histoire

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What do all of these
have in common?



 **Bell
Ringer**

**What do all of these
have in common?**

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.

What is Talc?

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

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

Resistance to
scratching

Color

Its color
Tarnish
oxidize

Streak Color

Color of
finely ground
power

Luster

The way it
reflects light

Cleavage

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.
- Most minerals occur in more than one color.
 - Ex: Quartz can be clear, white, yellow, purple, or black.
- Several minerals tarnish or oxidize, which affects their color.
 - Think: Copper is brownish-red but turns green





Hardness

Hardness describes a mineral's **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.

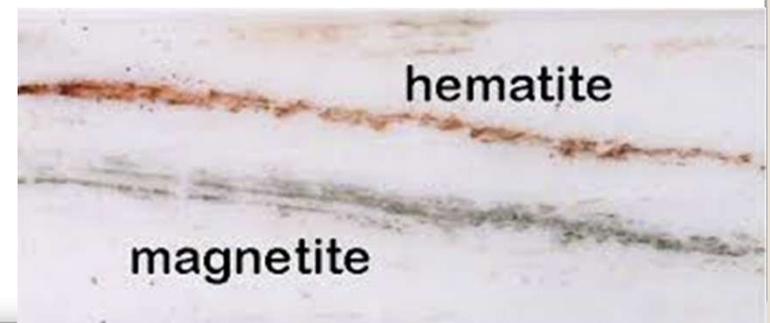


Streak Colour

- The visible color property is unreliable as an identification method.

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

- 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.
- 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

- Minerals have all different shapes because they all break in different ways

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

- 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)

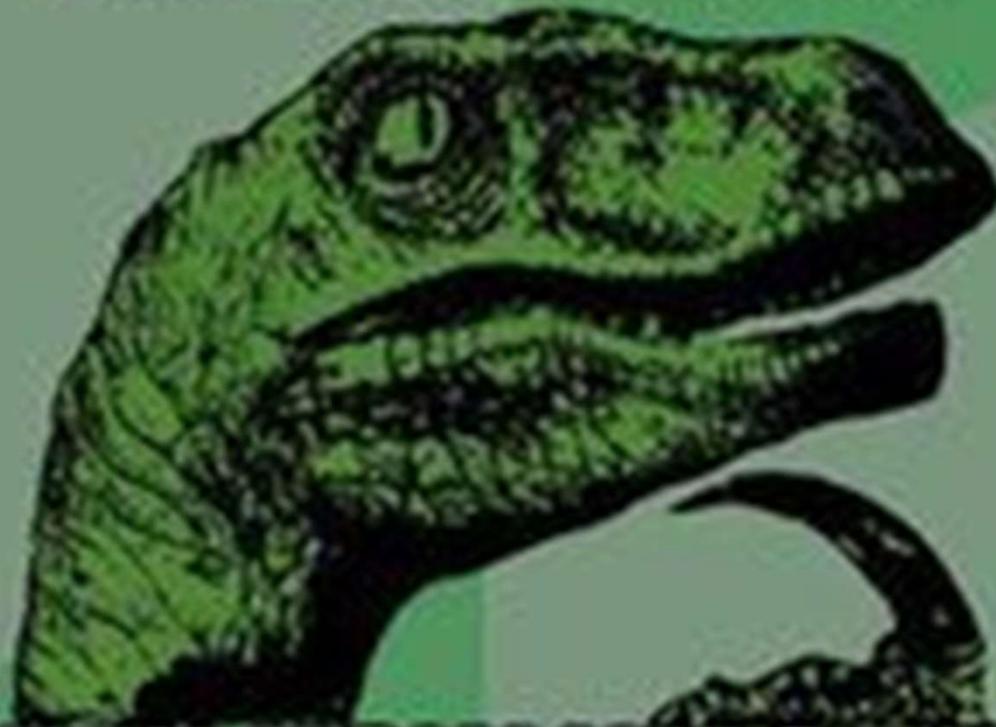




Final Thoughts & Exit Slip



**IF DIAMOND IS THE
HARDEST MINERAL**



**THEN HOW WAS THE
FIRST DIAMOND MINED**