## Regents Practical Review

## Carrying out the Physical Mineral Tests

## COLOR

- Color is not usually a definitive property of a mineral.
- Some minerals have characteristics colors
- Others vary due to chemical differences or impurities (atoms mixed inside the main elements)
- However most minerals have a variety of colors.

## **Some Colors of Quartz**







STREAK-Does it have a colored streak or is it white/colorless?

• For opaque minerals, if you rub the sample across a streak plate, it will leave a colored powder. This streak is distinctive for minerals and is used to identify minerals.



#### Varieties of Hematite – all same color streak









HARDNESS – Mineral's resistance to scratching/ abrasion. Minerals with higher numbers will scratch minerals below

Table -		1488 B	
2.2	Mohs Scale of Hardness		
Mineral	Scale Number		Common Objects
Talc	1		
Gypsum	2		Fingernail
Calcite	3		Copper coin
Fluorite	4		
Apatite	5		Knife blade
Orthoclase	6		Window glass
Quartz	7		Steel file
Topaz	8		
Corundum	9		
Diamond	10		

A mineral is considered "Hard" if it scratches glass and "Soft" if it does not. REMEMBER TO WIPE THE GLASS PLATE WITH YOUR FINGER TO MAKE SURE THE SCRATCH IS NOT A STREAK!

LUSTER – Does this look like it could be made from a hard metal?

Describes how light reflects off the surface

• Categories: Metallic or Non-metallic

Metallic – luster of metal – shines like a hard metal (light <u>does not penetrate</u>)

\*Many non-metallic minerals are SHINY because they are transparent or semi-transparent (like biotite mica)

Non-metallic: vitreous or glassy; silky; pearly; greasy; waxy, dull; earthy

## Examples of metallic luster







#### Pyrite (FeS<sub>2</sub>) Galena (PbS)



PYRITE

#### GALENA

## Example of non-metallic luster

#### • Vitreous—quartz or biotite



## Example of non-metallic luster

#### Silky--example plagioclase feldspar



### Non-metallic and metallic luster –



## Cleavage vs. Fracture

- Some minerals split along flat surfaces (called cleavage planes) when struck hard--this is called mineral cleavage
- Other minerals break unevenly along rough or curved surfaces--this is called fracture
- A few minerals have both cleavage and fracture. \*\*\*\*If both are visible, cleavage always dominates over fracture in reporting.

#### Cleavage – due to weak bonds in the crystal structure. Always look at the edges of minerals for cleavage NOT at the overall crystal shape Halite (NaCl)

**Potassium Feldspar** 









#### Rhomboidal Cleavage of Calcite

Fig. 2.24

## "Sheety" Cleavage of Mica



# Quartz – Fracture (It looks like it broke unevenly)



## Pyrite-Fracture

