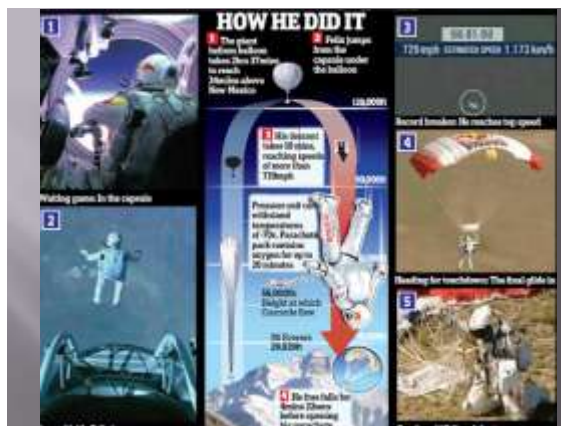


Felix Baumgartner Red Bull Stratos space jump breaks speed of sound Oct. 14, 2012

- Baumgartner, a 43-year-old Austrian, hit Mach 1.24, or 833.9 mph, according to preliminary data, and became the first person to reach supersonic speed without traveling in a jet or a spacecraft. The capsule he jumped from had reached an altitude of 128,100 feet (24miles) above Earth, carried by a 55-story ultra-thin helium balloon.

Open to ESRT page 14, find 24 miles!!



Video of the Jump

- http://www.cbsnews.com/8301-505263_162-57532204/free-fall-trainer-one-finger-salute-to-doubters/
- Freefalling at Mach1 speed: <http://www.youtube.com/watch?v=OZtXW2opTlk>

WHAT IS A MINERAL?

DO NOW - [link](#)

Which of the following are Minerals?

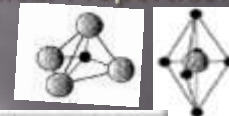
- | | |
|-----------|-----------------|
| 1-Gold | 5-Dinosaur Bone |
| 2-Diamond | 6-Cotton |
| 3-Quartz | 7-Talc |
| 4-Oil | 8-Nylon |
| | 9-Brass |

A Mineral is:

1. Naturally Occurring
2. Inorganic - Solid
3. Definite Chemical Composition
4. Definite Crystalline Structure
5. Internal Arrangement of Atoms

What determines a Mineral's Physical & Chemical Properties?

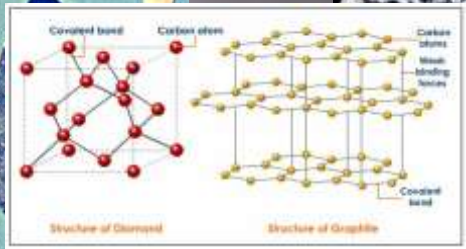
Internal arrangement of atoms !!



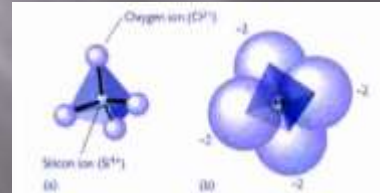
Mineral	Crystal Structure	Crystal Structure	Crystal Structure	Crystal Structure
Quartz	Trigonal	Trigonal	Trigonal	Trigonal
Calcite	Rhombohedral	Rhombohedral	Rhombohedral	Rhombohedral
Halite	Cubic	Cubic	Cubic	Cubic
Fluorite	Cubic	Cubic	Cubic	Cubic
Graphite	Hexagonal	Hexagonal	Hexagonal	Hexagonal
Diamond	Cubic	Cubic	Cubic	Cubic

How does Graphite differ from Diamond?

Both are composed of Carbon Atoms.

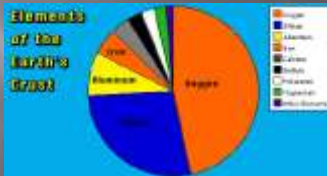


Definite Crystal Structure



Most ABUNDANT elements in Earth's Crust? ESRT page 1

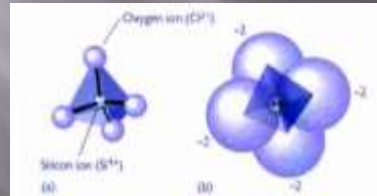
Oxygen & Silicon



SILICATES

The most common mineral Group? ESRT page 16

Silicates: Silicon, Oxygen Tetrahedron



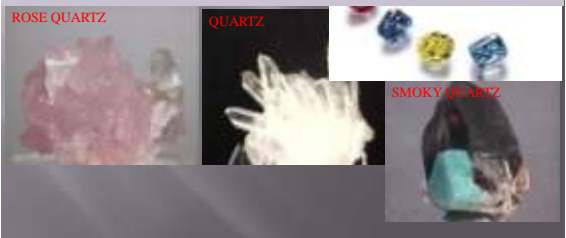
Do Now: Hand in textbook HW

AIM: How do you identify different minerals?

** ESRT page 16 **

Color

Many minerals have the same color & the same minerals can have different colors. NOT RELIABLE for identification.



Streak

The color of a finely powdered mineral
 Rub the mineral on a streak plate, reveals its 'true' powdered color.



Luster

General appearance of a mineral:
 Metallic or Non-Metallic.

Metallic



Galena

Non-Metallic



Greasy-Graphite



Glassy-Obsidian



Earthy-Shale



Pearly-Talc

Photos by Dr. Steve Matton

Mohs Mineral Hardness Scale

<ol style="list-style-type: none"> 1) Talc 2) Gypsum 3) Calcite 4) Fluourite 5) Apatite 6) Feldspar 7) Quartz 8) Topaz 9) Corundum 10) Diamond 	Softest ↓ Hardest	
--	-------------------------	--

Cleavage

A mineral's ability to split along flat planes.



Cleavage in one direction. Example: MUSCOVITE



Cleavage in two directions. Example: FELDSPAR



Cleavage in three directions. Example: HALITE



Cleavage in two directions. Example: CALCITE

Fracture

Mineral breaks and shatters.
 Rough, Jagged, Uneven.





Review

Remember to use the ESRT

1. The tendency of one mineral to scratch another mineral is most closely associated with the property of:
 1. hardness
 2. luster
 3. fracture
 4. crystal form
2. Which of the following is the best definition of the mineral property of cleavage?
 1. the tendency of a mineral to split along flat planes
 2. the tendency of a mineral to reflect light in a certain way
 3. the ability of a mineral to attract iron bearing objects
 4. the ability of one mineral to glow when exposed to ultraviolet light
3. List the 5 physical properties that are most useful for identifying minerals.
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
4. Why is color not a reliable means for identifying minerals?

Homework

Handouts & Lab

Quiz-Friday !!