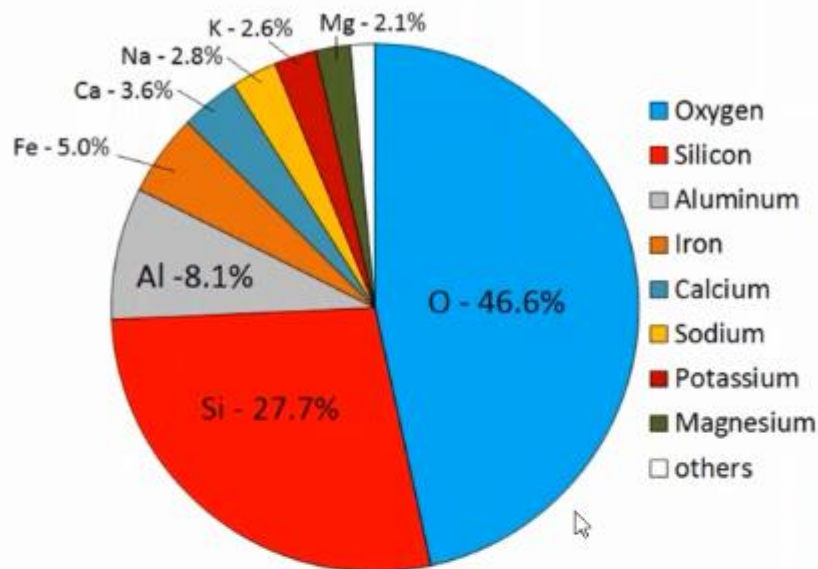


# COMPOSITION OF THE CRUST



**Major Nine elements:  
O, Si, Al, Fe, Ca, Na, K, Mg, and Ti**



## **Mineral:**

Naturally occurring, inorganic substance having a definite chemical composition.

*E.g., Quartz, Feldspar, Olivine, Garnet, Kyanite, Biotite, etc.*

- Most of the minerals are crystalline in form (i.e., with regular internal atomic structure).
- However, there are few minerals, which are amorphous (e.g., Opal, glass)

# MINERALS AND ROCKS

## **Mineral:**

- **Economic Minerals**

- Fe: Magnetite, Hematite
- Cu: Chalcopyrite
- Pb: Galena
- U: Uraninite

- **Rock Forming Minerals**

- Quartz
- Feldspar
- Garnet
- Amphibole

# Properties of MINERALS

## Physical Properties

- Color
- Streak
- Hardness
- Specific Gravity
- Cleavage
- Fracture
- Luster
- Form
- Magnetic

## Optical Properties

## Chemical Properties

- Reaction to HCl

MOHS HARDNESS SCALE				
I N C R E A S I N G  H A R D N E S S  ↓		Talc	1	
		Gypsum	2	
		Calcite	3	← Fingernail
		Fluorite	4	← Copper Coin
		Apatite	5	
		Feldspar	6	← Knife/Glass
		Quartz	7	← Steel Tool
		Topaz	8	
		Corundum	9	
		Diamond	10	
	*			
	(not included)			