All known minerals, according to their chemical composition and crystalline texture, are divided into several classes, of which the most important are:

- **Sulphides**
- **Halides**
- **Oxides and Hydroxides**
- **Carbonates**
- **Sulphates**
- **Phosphates**
- **Native elements**
- **Silicates**

Native elements

Graphite: Occurs as Scaly mass, dark colour from steel grey to black. Streak is greyish black and shiny, lustre is submetallic. Cleavage is perfect, Fracture is absent. Hardness is 1 and Sp. Gravity about 2 to 2.3.

Chemical Composition – Carbon

Sulphur: Massive or crystalline in form, yellow of various shades. Lustre is dull. Cleavage is imperfect and fracture is conchoidal. Hardness is 1 – 2 and sp. Gravity about 2.

Chemical Composition – Sulphur

Diamond: Occurs as crystals of octahedron, colourless or shows different shades of yellow, blue, grey or black. Streak is nil, lustre is admantine. Cleavage is perfect, Fracture is conchoidal. Hardness is 10 and Sp. Gravity about 3.5.

Chemical Composition – Carbon

Sulphides

Pyrite: It is generally crystallised or in crystalline form, light or pale brassy in colour. Black or greenish black streak and lustre is metallic. Cleavage is imperfect and fracture is subconchoidal. Hardness is 6.5 and sp. Gravity is 4.5 to 5.

Chemical composition – Fe S_2 (Iron Sulphide)

Chalcopyrite : It generally occurs in massive or crystalline form, brass yellow in colour. Streak is nil and lustre is metallic. Cleavage is imperfect and fracture is uneven. Hardness is 4 and sp. Gravity is 4.
Chemical composition – Cu Fe S2 (Sulphide of copper and iron)

Galena: It generally occurs in granular or bladed form, silver grey, black in colour. Streak is greyish black and lustre is metallic. Cleavage is perfect and fracture is uneven. Hardness is 2 to 3 and sp. Gravity is 7.5.
Chemical composition – PbS (Lead Sulphide)

Halides

Fluorite: It generally occurs in crystallised form and having variety of colours: yellow, green, blue, violet, pink or sometimes colourless also. It has vitreous lustre, perfect cleavage, and even fracture. Hardness about 4 and sp. Gravity is about 3.

Chemical composition – CaF_2 (calcium flouride)

Oxides and Hydroxides

Quartz: Occurs in massive, crystalline or crystallised form, and is generally smoky, milky, violet, black and other shades of white colour. It has vitreous lustre, no or imperfect cleavage, uneven or conchoidal fracture. Hardness is 7 and sp. Gravity 2.7

Chemical composition – SiO_2 (Silicon dioxide)

Bauxite: Occurs in massive, or granular in form, and is generally dirty brown or greyis White in colour. Streak is like that of colour of mineral and It has dull lustre, absent cleavage, sub conchoidal fracture. Hardness is 2 and sp. Gravity 2.5

Chemical composition – Aluminium Hydroxide

Hematite: Occurs in massive, crystalline or crystallised form, and is generally blood red in colour. Red streak and it has metallic lustre, imperfect cleavage, and conchoidal fracture. Hardness is 5.5 to 6 and sp. Gravity 5.5

Chemical composition – Fe_2O_3 (Iron oxide)

Corundum: Occurs in massive, or collumnar form, and shows different colours. It has vitreous lustre, no cleavage, and uneven to conchoidal fracture. Hardness is 9 and sp. Gravity 4

Chemical composition – Al_2O_3 (Aluminium oxide)

Carbonates

Calcite: Generally occurs in crystallised form, colourless or white sometimes with grey, yellow, blue, red, brown tints.Shows white streak and vitreous lustre. Cleavage is perfect and uneven fracture. Hardness of the mineral is 3 and Sp. Gravity 2.7

Chemical composition – $Ca\ CO_3$ (calcium carbonate)

Magnesite :Occurs in massive or fibrous form, white yellow or brown in colour. Shows white streak and vitreousor dull lustre. Cleavage is perfect and conchoidal fracture. Hardness of the mineral is 3.5 and Sp. Gravity 3

Chemical com[position – $Mg\ CO_3$ (Magnesium carbonate)

Dolomite: Generally occurs in massive form & beds in considerable thickness, colourless or white .Shows white streak and vitreous lustre. Cleavage is perfect and conchoidal fracture. Hardness of the mineral is 3.4 to 4 and Sp. Gravity 3

Chemical composition – Carbonate of calcium and magnesium

Sulphates

Gypsum: It occurs in massive, granular, fibrous or crystalline form, colourless but sometimes grey, yellow or red in colour. Streak is white and vitreous or silky lustre. Cleavage is perfect and uneven fractyre. Hardness is 2 and Specific gravity is 2.3.

Chemical composition – Hydrated calcium sulphate

Phosphates

Apatite: Massive or crystalline in form, colour varies from white to brown, pale grteen, blue, violet. Lustre is vitreous and Cleavage is imperfect, fracture uneven. Hardness is 5 and Specific gravity is 3.2

Chemical Composition – Chloro or flouro phosphate of calcium

Silicates

Augite: (Pyroxene) Massive or crystalline in form, greenish black or black in colour but sometimes as white, green or brown. It has vitreous lustre. Cleavage of the mineral is perfect and fracture uneven. Hardness is 5 to 6 and sp. Gravity about 3.5

Chemical composition _ Silicate of calcium, magnesium, iron and aluminium.

Hornblende: (Amphiboles) Massive , bladed or granular in form, greenish black or black in colour. It has vitreous lustre. Cleavage of the mineral is perfect and fracture uneven. Hardness is 5 to 6 and sp. Gravity about 3.3 to 4.7

Chemical composition _ Silicate of aluminium, calcium, magnesium and iron with sodium

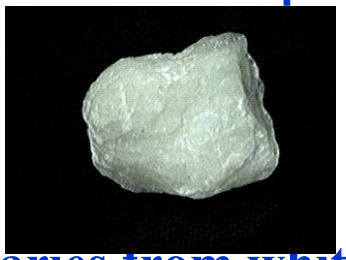
Muscovite: Flaky or scaly in form, colourless, pink, greyish, bluish in colour. Streak colourless and It has vitreous/ pearly lustre. Cleavage of the mineral is perfect and fracture uneven. Hardness is 2.3 and sp. Gravity about 2.7

Chemical composition - Silicate of aluminium and potassium with water

Biotite: Differs from Muscovite by its brown or black colour and higher specific gravity

Chemical composition - Silicate of iron, aluminium, magnesium and potassium with water

Talc: Foliated or Scaly in form, white, pale green, bluish green or silvery white in colour. It has pearly lustre and white streak. Cleavage of the mineral is perfect and fracture uneven. Hardness is 1 and sp. Gravity about 2.7



Chemical composition – Hydrous Magnesium silicate

Feldspar (Orthoclase) : It occurs in tabular form, Colour varies from white to different shades of pink, yellow, and red. It has vitreous lustre. Cleavage of the mineral is perfect and fracture uneven. Hardness is 6 and sp. Gravity about 2.5
Chemical composition – Potassium aluminium silicate

Garnet : It occurs in massive, crystalline or granular form, shows different colours. It has vitreous lustre. Cleavage of the mineral is absent and fracture uneven. Hardness is 7.5 and sp. Gravity about 3.2 to 4
Chemical composition – Magnesium aluminium silicate

Tourmaline: It occurs in massive, or prismatic form, shows pale green, pale blue, black or brown colours. It has vitreous lustre. Cleavage of the mineral is perfect and fracture uneven. Hardness is 7 to 7.5 and sp. Gravity about 2.8 to 3.2
Chemical composition – Borosilicates of aluminium with little iron and magnesium

Topaz: It occurs in crystallised or crystalline form, shows wine yellow, white, greyish and other colours. Streak is colourless and It has vitreous lustre. Cleavage of the mineral is perfect and fracture uneven. Hardness is 8 and sp. Gravity about 3.5
Chemical composition – Floro silicate of aluminium

Chlorite: It occurs in tabular or granular form, shows green colour of various shades. Streak is colourless and It has pearly lustre. Cleavage of the mineral is perfect and fracture uneven. Hardness is 1.5 to 2.5 and sp. Gravity about 2.5
Chemical composition – Hydrous silicates of aluminium, iron, and magnesium

Kyanite: It occurs in bladed or columnar form, shows greyish or brownish grey colour. Streak is white and It has vitreous lustre. Cleavage of the mineral is perfect and fracture uneven. Hardness is 4-7 and sp. Gravity about 3.2
Chemical composition – Al_2SiO_5 (Aluminium silicate)