ICSE CLASS 6 CHEMISTRY
PURE SUBSTANCES AND MIXTURES

PURE SUBSTANCES (Compounds/Mixtures)	MIXTURES (Impure substances)
2 or more elements combined together chemically	Elements or compounds or both mixed together without chemical combination
Always homogeneous	Homogeneous or heterogeneous
Definite composition	Variable composition (can be present in any ratio and proportion)
Compounds do not show properties of the constituent elements	Each element retains its properties
When a compound is formed, energy is released or absorbed as heat, light or sound	No change in energy when a mixture is formed
Constituents can be separated only by chemical methods	Can be separated by physical methods
Fixed melting and boiling points	No fixed melting or boiling points

METHODS OF SEPARATION OF MIXTURES

Separating components of solid- solid mixtures

Handpicking – based on difference in size, shape, colour of constituents

Stones from grains

Sieving- based on difference in size of constituent particles

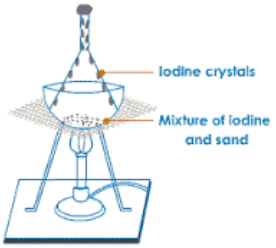
Bran from wheat flour

Winnowing-based on difference in the weights of the constituent particles

Grains from chaff

Magnetic separation- one constituent is magnetic and can be picked up by a magnet (iron and sand)

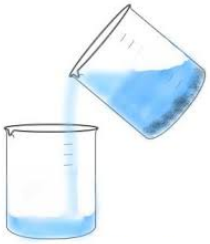
Sublimation- based on property of solid going directly into vapour state



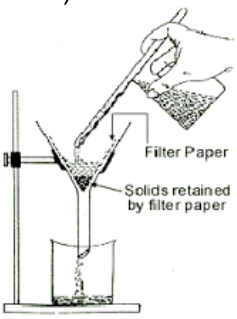
Iodine and sand (iodine alone is sublime)

Separation of solid-liquid mixtures

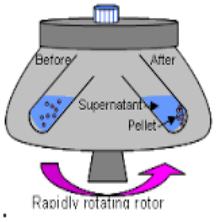
Sedimentation and decantation- insoluble heavy solid particles settle down at bottom due to gravity and clear liquid above can be removed (muddy water)



Filtration- based on solid being insoluble and lighter than liquid particles (clay and water)

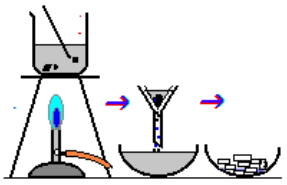


Centrifugation-when rotated, lighter particles move to top and heavier particles settle at bottom



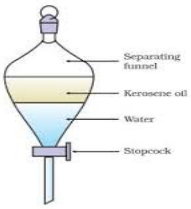
Evaporation- Liquid constituent evaporates leaving solid behind (salt from water)

Crystallization-pure crystals of solid separate out on cooling saturated solution (copper sulphate)



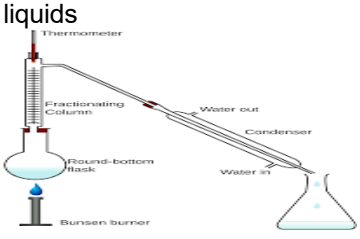
Separation of liquid -liquid mixture

Separating funnel- heavier liquid forms lower layer, lighter liquid forms upper layer. Only for immiscible liquids



kerosene and water

Distillation- based on difference in boiling points of miscible liquids



methyl and ethyl alcohol