GOOD DAY, CHILDREN

In the last worksheet we have discussed about the mixtures and their types. Today I am going to discuss about the various method of separation of mixtures.

**SEPARATION OF MIXTURES:**

**Why do you need to separate mixtures?**

- To obtain useful component.
- To obtain a pure substance.
- To remove harmful impurities.

**Method of separation of mixtures:**

1. **SOLID - SOLID SEPARATION**
   - Hand picking.
   - Sieving.
   - Winnowing.
   - Magnetic separation.
   - Sublimation.
   - Gravitation.
   - Solvent extraction.
   - Fractional crystallisation.
Hand Picking
Principle on which it is based is the difference in size; shape or colour of the components of a mixture.
Ex: Picking small stones from pulses or rice.

Sieving
It is based on the principle of separating bigger particles from smaller particles.
Ex: To remove stone from sand

Winnowing
It is based on the principle of separating heavier particles from lighter particles.
Ex: Husk & chaff from grains.

Magnetic separation
It is based on the principle of separating magnetic substance from non magnetic substances.
Ex: To separate iron and sulphur mixture.

Sublimation
It is based on the principle of separating sublimable substances from non sublimable substances.
Ex: Ammonium chloride and sand.

Gravitation
It is based on the principle of separating a mixture when one component of mixture is heavier than water and the other component is lighter than water.
Ex: Sawdust and sand.

Solvent extraction
It is based on the principle of separating a mixture where one of the solid components is soluble in liquid and the other is not soluble.
Ex: Sodium chloride and calcium carbonate.
**Fractional crystallisation**
It is a process used to separate components of a mixture when the solubility of solid components varies in the same solvent. 
Ex: Sodium chloride and potassium nitrate.

2. **SOLID LIQUID SEPARATION**
   - Sedimentation.
   - Decantation.
   - Filtration.
   - Evaporation.
   - Crystallisation.
   - Froth floatation.
   - Distillation.
   - Centrifugation.

**Sedimentation**
It is a process to separate insoluble solids suspended in liquid. The solid particles that settle down are called Sediments. The clear liquid above the sediments is called supernatant. Ex: Separation of sand and water.

**Decantation**
The process of pouring the clear liquid without disturbing the sediments is called Decantation. Ex: Decanting water from a mixture of sand and water.

**Filtration**
The process where insoluble solid particles can be separated from a liquid through filter paper. The particles left behind in the filter paper is called residue. The liquid that passes through the filter paper is called filtrate. Ex: To separate tea leaves and tea; chalk powder and water.
Children going through the above worksheet please answer the following questions:

1. Why do you need to separate mixture?
2. Define Sieving and Winnowing.
3. How will we separate a mixture of a) Calcium Carbonate and Sodium chloride; b) Husk from grain; c) ammonium chloride from sand?
4. Differentiate between Residue and Filtrate.

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