

utter is prepared by churning
from the milk. If you are given a container
and you are asked to sort them out, how will you do it? You
the apples and put them in a separate container.

5.1 Methods of Separation

Each constituent of a mixture has some property unique to itself and is shared by its
components. This difference in property is utilised
to separate various components from the mixture.

Threshing

When crops like wheat, paddy (rice) or pulses
(dal) are ripe, the plants are cut off from the
fields and the process is called **harvesting**. The
grain seeds have to be removed or separated
from the dried stalks and this process is called
threshing.



Threshing

Winnowing

After harvesting and threshing, the grains from
the field is packed in bags. The grain not only
contains the grain seeds but also pieces of stalk
and other unwanted particles. Before using the
grain or making flour out of it, the unwanted
particles have to be separated from the grain by
a simple process called **winnowing**.



Winnowing

Hand Picking

Despite best efforts, the grains, rice, etc that
comes to our home for food has some solid
impurities and unwanted materials.

Hence before cooking, the dry food material has
to be cleaned and the unwanted material has to
be separated. This is done by **hand picking**.

Sieving

When a mixture contains a large amount of
components of slightly different sized particles, we
can separate the components by using a sieve
(channi) and the process is called **sieving**.



Separating stones from w

Wheat made from wheat stem (maida), the white flour is cleaned by putting it in a kitchen sieve and then shoving the sieve.

This enables the fine white flour particles to pass through the holes in the sieve but the impurities like wheat bran (chokar) and other particles remain in the sieve and can be removed.



Sieve used in construction sites

Sedimentation and Decantation

Often handpicking, winnowing and sieving are not adequate means of separating the components of a mixture. Rice grains may have dust stick on their surface or dal may be dirty; this dust/mud or dirt cannot be hand picked or sieved.

Therefore, the rice or dal is soaked in water and the dirt often dissolves in water or collects at the top while the cereal grains sink down.

The grain is then washed or rubbed between the thumb and fingers while inside water to clean any other impurity.

After washing, the grain sinks at the bottom of the utensil. The process of heavier component sinking down in water is called sedimentation.

The water with the dissolved and floating or suspended impurities, is slowly removed by gently tilting the utensil. The process of removing the impurities in this way is called decantation.

Filtration

You are already familiar with how tea leaves are separated from a cup of tea by using a strainer or sieve. The process of separating solid components from the liquid components by using a strainer or sieve is called filtration.

You can try out filtering muddy water through a cloth and you will see that mud collects in the cloth while the clean water passes through it.

Thus, filtration is a method of separating insoluble solid components from a liquid by passing them through a filter.

The substance that remains in the filter is called the residue. The substance that flows through the filter paper is called the filtrate.

Evaporation

You must have seen water being boiled in the kitchen at home. As the water boils, it gets converted into steam that escapes out of the utensil into the air.

If the water is made to boil continuously, after sometime all the water will become vapour and disappear. The change of liquid into its vapour is called evaporation.