# Science

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*(Chapter – 5) (Separation of Substances)*

(Class – VI)

## Exercises

**Question 1:**

Why do we need to separate different components of a mixture? Give two examples.

**Answer 1:**

Before using a substance, we need to separate harmful or non-useful substances that may be mixed with it. Sometimes, we separate even useful components if we need to use them separately.

For example:

- We used to separate slightly larger sized impurities like the pieces of dirt, stone, and husk from wheat, rice or pulses by *handpicking* method.
- Rice or pulses are usually washed before cooking. When we add water to these, the impurities like dust and soil particles get separated.

**Question 2:**

What is winnowing? Where is it used?

**Answer 2:**

Winnowing is the method of separating components of a mixture containing heavier and lighter components by wind or by blowing air. It is used to separate husk particles from seeds of grain.

**Question 3:**

How will you separate husk or dirt particles from a given sample of pulses before Cooking?

**Answer 3:**

Husk or bigger pieces of dirt particles can be removed from a sample of pulses by handpicking.

**Question 4:**

What is sieving? Where is it used?

**Answer 4:**

Sieving is the process of filtering components of a mixture of different sizes. Sieving allows fine particles to pass through the holes of the sieve, while the bigger impurities remain on the sieve.

Sieving is used in flour mills to separate broken particles of grains from flour. It is also used at construction sites to separate lumps, smaller stones from the mixture of sand and cement.

## Question 5:

How will you separate sand and water from their mixture?

## Answer 5:

To separate sand and water from their mixture, we follow the following steps:

- Leave mixture to stand undisturbed for some time in a container.
- Sand settles at the bottom of the container. It is called sedimentation.
- Gently pour the water in another container (called decantation).
- We may also use filter paper to remove fine particles of sand (called filtration)

## Question 6:

Is it possible to separate sugar mixed with wheat flour? If yes, how will you do it?

## Answer 6:

Yes. Through sieving we can separate sugar mixed with wheat flour.

## Question 7:

How would you obtain clear water from a sample of muddy water?

## Answer 7:

Following steps are required to obtain clear water from muddy water:

- Allow muddy water to stand undisturbed in a container.
- After sometime, mud settles at the bottom of the container. This process is called sedimentation.
- Upper layer is clear water.
- Pour the clear water gently in another container. This process is called decantation.
- To remove finer impurities we can filter this water again with the help of filter paper. This process is called filtration.

## Question 8:

Fill up the blanks

(a) The method of separating seeds of paddy from its stalks is called _____.

(b) When milk, cooled after boiling, is poured onto a piece of cloth the cream (malai) is left behind on it. This process of separating cream from milk is an example of _____.

(c) Salt is obtained from seawater by the process of _____.

(d) Impurities settled at the bottom when muddy water was kept overnight in a bucket. The clear water was then poured off from the top. The process of separation used in this example is called _____.

## Answer 8:

(a) The method of separating seeds of paddy from its stalks is called ***threshing***.
(b) When milk, cooled after boiling, is poured onto a piece of cloth the cream (malai) is left behind on it. This process of separating cream from milk is an example of ***churning***.
(c) Salt is obtained from seawater by the process of ***evaporation***.
(d) Impurities settled at the bottom when muddy water was kept overnight in a bucket. The clear water was then poured off from the top. The process of separation used in this example is called ***sedimentation and decantation***.

## Question 9:

True or false?
(a) A mixture of milk and water can be separated by filtration.
(b) A mixture of powdered salt and sugar can be separated by the process of winnowing.
(c) Separation of sugar from tea can be done with filtration.
(d) Grain and husk can be separated with the process of decantation.

## Answer 9:

(a) A mixture of milk and water can be separated by filtration. (**False**)
(b) A mixture of powdered salt and sugar can be separated by the process of winnowing. (**False**)
(c) Separation of sugar from tea can be done with filtration. (**False**)
(d) Grain and husk can be separated with the process of decantation. (**False**)

## Question 10:

Lemonade is prepared by mixing lemon juice and sugar in water. You wish to add ice to cool it. Should you add ice to the lemonade before or after dissolving sugar? In which case would it be possible to dissolve more sugar?

## Answer 10:

We should add sugar before adding ice. Sugar dissolves in warm water more quickly than in cold water. We can dissolve more sugar before mixing ice in water.