NCERT Class 6 Science Solutions Chapter 3: Separation of Substances

Exercise Questions:

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

Solution:

Understanding Mixtures and the Importance of Separating Components
Mixing two or more substances creates a mixture, but it's important to separate its components to ensure effective use. Certain components may be useless or even spoil the useful parts of the mixture. Here are a couple of examples:

- During the preparation of tea, a strainer is used to separate tea leaves from the liquid.
- Hand-sorting wheat, rice, or pulses to remove any stones or debris.

2. What is winnowing? Where is it used?

Solution:

Separating Mixtures with Air
Winnowing is a technique used to separate different components of a mixture. By using wind or blowing air, lighter particles are separated from heavier ones. This method is commonly used by farmers to sift lighter husk particles from heavier seeds of grain.

Winnowing uses air to separate lighter particles from heavier ones and is commonly used by farmers to sift husk particles from grain seeds.

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

Solution:

Pulses are winnowed to remove husk and dirt particles.

4. What is sieving? Where is it used?

Solution:

Sieving separates fine particles from bigger impurities. It's used in flour mills to remove husk and stones from wheat before grinding and at construction sites to separate pebbles and

stones from sand.

5. How will you separate sand and water from their mixture?

Solution:

To separate sand and water from a mixture, let the mixture stand undisturbed, wait for the sand to settle down, and pour the water into another container to obtain the sand at the bottom.

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

Solution:

It is possible to separate a mixture of sugar and wheat flour by mixing them in water, allowing the sugar to dissolve, and then filtering the mixture to obtain the sugar solution and wheat flour residue.

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

Solution:

The following process should be carried out to obtain clear water from muddy water:

i) Allow muddy water to stand.

ii) Mud gets settled down in the water.

ii) Slowly pour water into another container.

8. Fill in the blanks.

(a) The method of separating the 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 _____.

Solution:

(a) The method of separating the 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 **filtration**.

(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 **decantation**.

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.

Solution:

a) False

b) False

c) False

d) False

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?

Solution:

When preparing lemonade, it is best to dissolve the sugar before adding ice. However, it is also acceptable to add more sugar before incorporating the ice.