Methods of Separation in Everyday Life

(From NCERT Class 6 – Curiosity)

1. Handpicking

We can separate larger impurities from grains by **handpicking**.

Example: Picking stones from rice.



2. Winnowing

Winnowing is used to separate lighter materials from heavier ones using wind.

Example: Separating husk from grains.



3. Sieving

Sieving helps to separate particles of different sizes.

Example: Separating flour from bran.



4. Sedimentation

Heavier particles settle down at the bottom when a liquid is kept undisturbed.

Example: Mud settling at the bottom of water.



5. Decantation

The clear liquid is carefully poured off from the settled solid.

Example: Pouring clear water from muddy water.



6. Filtration

Filtration is used to separate an insoluble solid from a liquid.

Example: Filtering sand from water.



7. Evaporation

Evaporation helps to separate a soluble solid from a liquid.

Example: Getting salt from seawater.



8. Magnetism

Magnetism is used to separate magnetic substances from others.

Example: Picking iron filings from sand.



Why do we separate?

- To get pure substances.
- To remove unwanted materials.
- To make useful things.



Key Takeaways

- We use different methods to separate mixtures in everyday life.
- These methods help us get clean and pure materials.

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Hand Picking

A Simple Method of Separation



What is Hand Picking?

Hand picking is the process of removing larger or unwanted particles from a mixture **by hand**.

How Does It Work?

We use our hands to pick out the larger or unwanted particles from the mixture.

Examples in Everyday Life

Removing stones from rice



Picking out bad beans from a heap



Taking out leaves from salad



Key Points

- Useful for separating larger unwanted particles.
- Simple and easy to do.
- Helps to get a cleaner and better mixture.



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Threshing

Threshing is the process of separating grain from the stalks (**husks**).



How it Works?

1. Take a bundle of harvested stalks.
2. Beat the stalks on a hard surface (or on a log).
3. Grains fall down, separating from the stalks.
4. Collect the grains.

The Process







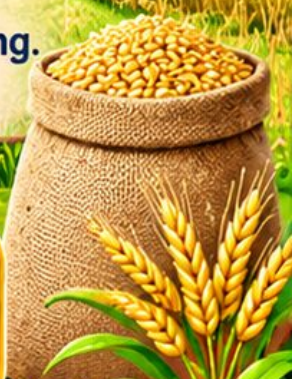
Example

In the field, farmers beat the wheat stalks to get wheat grains.



Importance

- Helps to get grains.
- Useful in agriculture, construction and cooking.
- Saves time and effort.



Key Facts

- Threshing separates grain from stalks.
- It is done by beating or using machines.
- After threshing, grains are collected for use.

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Winnowing

Winnowing is the process of separating lighter chaff from heavier grains using wind.



How it Works?

1. Hold a winnowing tray with a mixture of grains and chaff.
2. Lift the tray and throw the mixture into the air.
3. Let the wind blow away the lighter chaff.
4. Collect the heavier grains.

Illustration of the Process



Examples

- Wheat, rice, paddy and other grains.

Importance

- Helps to get clean grains.
- Improves quality of food.
- Useful in agriculture.

Key Fact

Winnowing is done with the help of wind.

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Sieving

Sieving is the process of separating larger particles from smaller ones using a sieve.

How it Works?

1. Take a mixture (e.g. sand and stones).
2. Put it in a sieve.
3. Shake or move the sieve gently.
4. Smaller particles pass through the holes and larger particles remain on the sieve.

Example



Importance

- Helps to get pure and clean materials.
- Useful in agriculture, construction and cooking.
- Saves time and effort.



Key Facts

- A sieve has small holes or mesh.
- It separates particles by size.
- Common sieves are used in kitchens and industries.



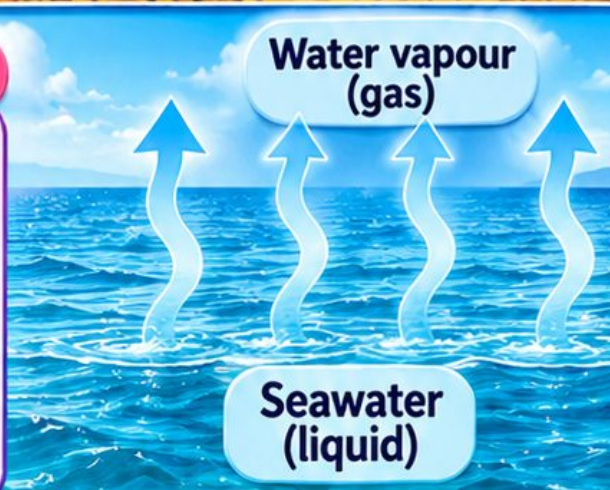
Evaporation

Evaporation is the process by which a liquid changes into vapour on heating.

It happens naturally in our daily life!

Key Points

- Caused by heat (from the Sun).
- It occurs at the surface.
- Forms water vapour.
- Leaves impurities behind.



Examples

- Water drying on clothes.
- Puddles disappear.
- Salt from seawater.

Obtaining Salt from Seawater

Evaporation helps us to get salt from seawater. Let's see how!

1. Collect seawater.



2. Let the water evaporate in shallow pans.



3. Salt crystals are left behind.



4. Collect the salt.



Why does it work?

- Sun's heat makes water from seawater evaporate.
- Salt is non-volatile, so it remains behind.

Importance

- Helps us get salt for food and industry.
- Used in salt pans along the coast.
- Also helps in desalination (to get fresh water).



Key Fact

Evaporation is a natural and simple method to separate solid substances from a solution.

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Sedimentation, Decantation and Filtration

These methods help us separate **insoluble solid particles** from a liquid.

Sedimentation

- When a mixture is left undisturbed, heavier solid particles settle down at the bottom.
- This is called **sedimentation**.



Example

Sand and water



Decantation

- After sedimentation, the clear liquid is carefully poured off without disturbing the sediment.
- This process is called **decantation**.



Example

Pouring clear water after sand settles down.



Filtration

- Filtration is used to separate insoluble solid particles from a liquid using a filter paper or filter cloth.
- This process is called **filtration**.



Example

Filtering muddy water.



Importance

- Helps to get clean water.
- Used in water treatment plants.
- Useful in many industries.

Key Facts

- Sedimentation works with gravity.
- Decantation is a careful pouring process.
- Filtration uses a filter.



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Separation of Water from Mud

Filtration helps us to separate the clear liquid from an insoluble solid like **mud**.

Materials Required



Filter funnel · Filter paper · Tripod stand · Beaker · Muddy water

Set Up

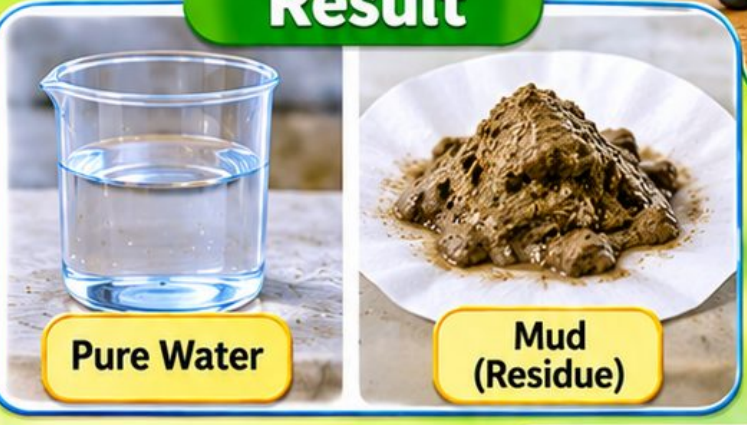


Steps

1. Place the tripod stand on a table and keep a beaker underneath.
2. Put a filter paper in the funnel.
3. Pour the muddy water slowly into the funnel.
4. Let the water pass through the filter paper.



Result



Key Points

- Filter paper blocks the mud.
- Clear water passes through.
- Mud remains on the filter paper.

Importance

- Helps us get clean water.
- Useful in water treatment and daily life.

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Churning of Curd

Churning is the process of stirring curd vigorously to separate butter from buttermilk.

1 Curd in a Pot



Fresh curd is taken in a pot.

2 Churning



A churner is moved up and down vigorously in the curd.

3 Separation



Butterfat gathers together in small lumps.

4 Collecting Butter



The butter is scooped out and the remaining liquid is buttermilk.

The Result



Uses

- Butter is used in cooking.
- Buttermilk is a healthy drink.

Key Point

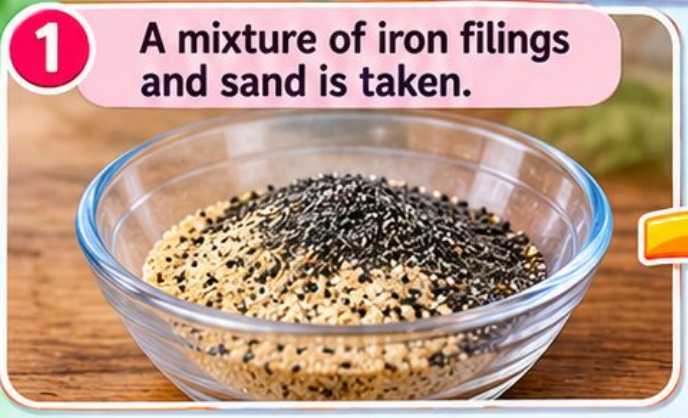
Churning helps us get butter from curd.

Magnetic Separation

Magnetic separation is a method to separate **magnetic materials** from a mixture using a magnet.

How It Works?

1. A mixture of iron filings and sand is taken.



2. A magnet is brought near the mixture.



3. Iron filings stick to the magnet.



4. Sand is left behind.



Examples

Separating iron filings from sand



Removing iron pieces from flour



Separating iron nails from gravel



Key Point:

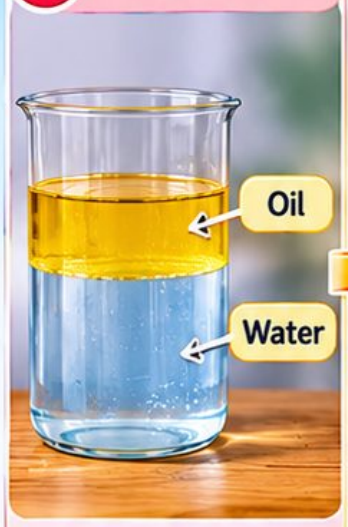
A magnet helps us separate **magnetic materials** from other materials.

Separation of Oil from Water

Oil and water do not mix. Oil is **lighter** and **floats** on water. We can separate them using a **separating funnel**.

Steps

1 Mixture



Oil and water form two layers.

2 Use Separating Funnel



Pour the mixture into a separating funnel.

3 Open the Tap



Let the water flow out first.

4 Collect the Oil



Then collect the oil.

Key Points

- Oil is **lighter** than water.
- They form **separate** layers.
- A separating funnel helps us separate **immiscible** liquids.

Real-Life Uses



Removing oil from water



Cleaning wastewater



Handling oil spills

Thus, a separating funnel helps us to separate lighter oil from water easily.