

Science • Changes of Materials



Crucial Knowledge

- Materials exist in three states: a solid, a liquid or a gas.
- Materials can sometimes be changed from one state to another, perhaps by heating them—for example, ice is a solid which becomes a liquid when heated.
- Some changes...



Key Vocabulary

We are getting better at communicating scientifically

Mixture: A substance in which two or more substances are mixed but not chemically joined together.

Solution: A specific type of mixture where one substance is dissolved into another.

Dissolve: When a substance dissolves, it might look like it has disappeared, but it has just mixed with the liquid to make a transparent liquid called a solution.

Soluble: A material that dissolves in liquid.

Insoluble: A material that does not dissolve in liquid.

Sieving: A separating process that is used to remove smaller particles from larger particles.

Filtering: A separating process that catches solid particles in a filter but allows water to get through.

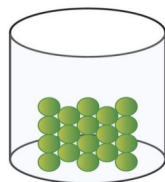
Evaporation: When liquid changes into a gas (when heated), leaving the solid particles behind.

Reversible changes: Where a change is made physically and can be undone or reversed into its original state. E.g Freezing water to make ice.

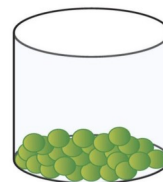
Irreversible Change: Where a change is made chemically and can't be reversed into its original state. E.g Baking a cake.



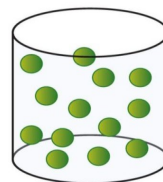
Diagrams / Images



Solid Particles



Liquid Particles



Gas Particles

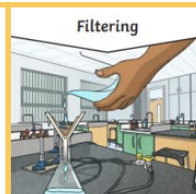
Sea Water Solution Experiment:

Sieving, filtering and evaporating allows you to separate out insoluble and soluble materials.



Step 1: The sea water solution can be sieved to separate out large insoluble solids like pebbles. Smaller solid particles, like sand, will still slip through.

Step 2: The filter further separates solids, like sand, that may have gone through the sieve but are unable to go through the permeable barrier of a filter.



Step 3: Evaporation then separates the water from the salt solid particles, which are soluble and therefore slipped through the filter in step 2.



Important People



Madame C J Walker
Famous for inventing and selling cosmetic products.

Ruth Benerito

Famous for inventing wrinkle free cotton.



We Are Building Our Knowledge From

- States of matter (Y4)

This will help when we learn about

- Substances (KS3)