

## Key Vocabulary:

**Melting** – is the process of changing a solid into a liquid, usually by applying heat

**Dissolving** – A way of mixing a solid and a liquid. When a solid dissolves in a liquid it creates a solution

**Processes** – The different techniques that can be used to separate mixtures

**Solution** – What is created when a solid solves in a liquid

**Reversible Changes** – A change that can be reversed/changed back again. Melting and heating are examples of reversible changes

**Irreversible Changes** – A change that cannot be changed back again. Burning or mixing a liquid with bicarbonate of soda are examples of irreversible changes

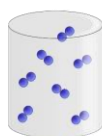
**Solubility** – Degree to which a substance dissolves in a solvent to make a solution

## Three States of Matter:

**GAS:** particles far apart and randomly arranged / move around

**LIQUID:** particles close but randomly arranged / move around

**SOLID:** particles very close together / vibrate around a fixed position



Gas



Liquid



Solid

### Examples

Steam (water vapour)  
Hydrogen  
Carbon Dioxide  
Oxygen

### Examples

Water  
Milk  
Washing up liquid  
Juice

### Examples

Ice  
Wood  
Glass  
Diamond



## Holy Family Halewood Year 5 & 6 Science Changes of Materials



## Learning Objectives:

- To explain the difference between melting and dissolving and identify materials which will dissolve in water
- To investigate the rate of dissolving
- To identify different ways materials can be mixed together and know when to use which processes to separate mixtures
- To describe how to recover a substance from a solution by separating different mixtures
- To carry out a variety of investigations involving reversible and irreversible changes

## Separating Mixtures:

**SIEVING** – A way to separate two solids of different sizes (e.g. flour and raisins).

**FILTRATION** – A mixture of liquids and solids which haven't dissolved can be filtered using paper with tiny holes (e.g. sand and water).

**EVAPORATION** – A solid dissolved in a liquid (solution) can be heated. Liquid evaporates and leaves behind the solid (e.g. salt and water solution).

**MAGNETISM** – Metal attracts to the magnet, leaving behind the other solid (e.g. paper clips and matchsticks).



## Reversible & Irreversible Changes:

### Reversible

Ice (melts into water) > Water (evaporates into steam) > Steam (condenses into water) > Water (freezes into ice) >

### Irreversible

Cooking an egg



Burning wood



### DISSOLVING

Dissolving is when the particles of solids mix with particles of liquids, often appearing like it has disappeared but it has dissolved in the liquid to make a transparent solution (e.g. mixing sugar into water). It does not always need heat to occur. If a material does not dissolve it is insoluble. If it does, it is soluble.

### MELTING

Involves only solids which change into a liquid due to heat. They stay as the same material (e.g. ice to water).

