Science Focus:	Year Group:	Autumn Term
Properties of Materials	**5**	**1**

Key Knowledge:

Testing Materials:

Materials often have a variety of properties, you can find these out by conducting a range of tests; how hard is the material? Does it allow water through it (permeable)? Is it magnetic?

Identifying Conductors and Insulators:

If a material is a **thermal conductor**, it allows the transfer of heat. If a material slows the transfer of heat, it is called a **thermal insulator**.

If a material allows electricity to pass through it, it is an **electrical conductor**. If a material does not let electricity to pass through it, it is an **electrical insulator**.

Changes in Materials:

There are many ways in which materials can change, through heating, cooling etc.

Some changes can be reversed (the material can be returned to its original form). These are called **reversible changes**. An example of this is freezing water into ice, it can be melted to once again form water.

Some changes cannot be reversed (the change cannot be 'undone'). These are called **irreversible changes**. An example of this is frying an egg. You can fry the raw egg to cook it but you cannot change it into a raw egg again.

Possible Experiments:

Sorting materials based on their properties.

Safely testing reversible and irreversible changes.

Testing thermal and electrical insulators and conductors.

Key Vocabulary:

Transparent: Allows light to pass through so that objects behind can be seen.

Opaque: Not able to be seen through, not transparent.

Permeable: Allows water to pass through.

Magnetic: Being attracted by a magnet.

Flexible: Bending easily without breaking.

Electrical Conductor: Allows electricity to pass through it.

Electrical Insulator: Does not allow electricity to pass through it.

Thermal Conductor: Allows heat to pass through it.

Thermal Insulator: Does not allow heat to pass through it.

Diagrams and Symbols:

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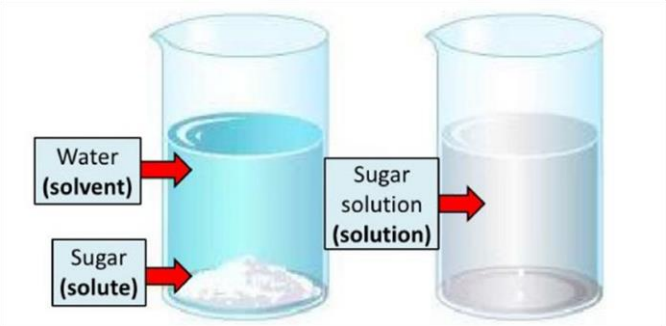
Dissolving:

Dissolving happens when a solid material mixes (solute) with a liquid (solvent) and becomes part of the liquid.

When sugar or salt is mixed with water it forms a solution, you cannot see the sugar or salt. If this is left, the solution will remain the same.



Separating Materials:

Some mixtures and solutions can be separated through process such as sieving and evaporation.

If salt water is heated, the water evaporates and leaves the salt. This is an example of a reversible change.

Key Vocabulary:

Dissolve: When something solid mixes with a liquid and becomes part of the liquid.

Soluble: A material that is able to be dissolved, especially in water.

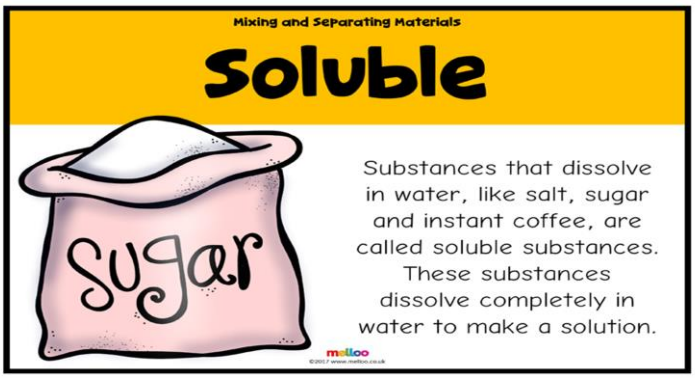
Insoluble: A material that is not able to be dissolved, especially in water.

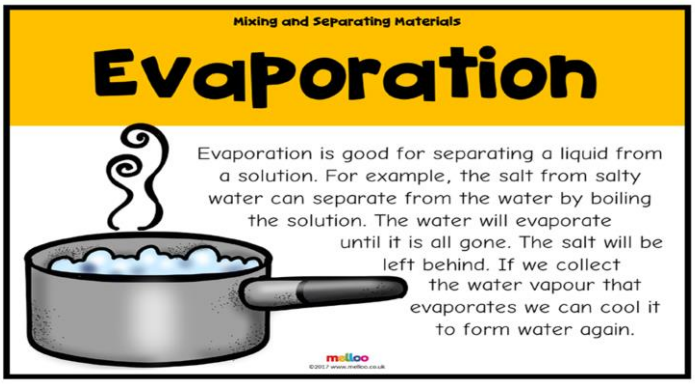
Reversible: Able to be reversed back to its original state.

Irreversible: Not able to be reversed to its original state.

Solution: A liquid that has a had a solid dissolved into it.

Diagrams and Symbols:





Possible Experiments:

Testing the solubility of different materials.

Mixing sugar or salt with water to form a solution.

Heat the water to separate the materials.