



Science Topic: Properties and Changes in Materials (Reversible Changes)

Year: 5 **Term:** Summer 1

Key Knowledge/Content:

- When two or more substances are mixed and remain present the mixture can be separated.
- Some changes can be reversed and some can't.
- Materials change state by heating and cooling.
- All matter (including gas) has mass.
- Sometimes mixed substances react to make a new substance. These changes are usually irreversible.
- Heating can sometimes cause materials to change permanently. When this happens, a new substance is made. These changes are not reversible.

Scientist Focus:

Stephanie Kwolek (Chemist)

The inventor of Kevlar, a material used in protective vests.

Links to:

Prior learning:

To investigate how materials can be used for different purposes based on their properties such as hardness, flexibility and transparency.

Future learning:

To compare reversible changes with irreversible changes.

Key vocabulary with definition:

Prior vocabulary:

- Hardness
- Material
- Magnetic- Pushes or pulls a metal material.
- Flexibility- The material to bend a material into shape.
- Transparency- Whether a material can be seen through.

New vocabulary:

- Permeability- A material that allows water or liquids to flow through.
- Property- Something about how a material feels, appears and is measured.
- Conductor- A material that lets electricity pass through.
- Insulator- A material that does not let heat or electricity pass through.
- Mixture- Where two materials are mixed.
- Solution- Two materials that are evenly mixed.
- Filter- Removing materials from a liquid.
- Sieving- Separating a mixture using a sieve.
- Evaporation- Heating something, usually water, under it is vapour.
- Reversible- Can be turned back.

By the end of this unit

All children can: **sort** materials based on properties and **suggest** why a material could be used for different purposes, giving reasons why.

Most children can: **identify** different ways to separate a mixture, such as sieving, filtering and evaporating, and **investigate** which materials dissolve in water.

Some children can: **compare** solutions and mixtures and **explain** how filtering supports the process of having clean water.

Background understanding for teachers and parents:

This unit will look at the properties and uses of different materials based on their permeability, transparency and flexibility. They will look at how to separate mixtures and solutions using different methods.

Curriculum Driver (one):

Healthy Lifestyle

Evidence outcome:

Understand how filtering can be used to ensure we have clean and healthy drinking water.