



Year 5 – Properties of Changing Materials

Making predictions and Analysis



Prior learning

- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Year 2)
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Year 2)
- Compare and group together a variety of everyday materials on the bases of whether they are attracted to a magnet and identify some magnetic materials. (Year 3)
- Compare and group together materials according to whether they are liquids, solids or gasses. (Year 4)
- Observe that some materials change state when they are heated or cooled, measure or research the temperature at which this happens in degrees celsius. (Year 4)
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (Year 4)

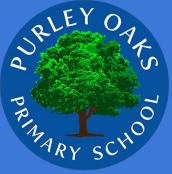
In this topic, we are learning to

- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.
- Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.
- Demonstrate that dissolving, mixing and changes of state are reversible changes.
- Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Key Vocabulary

Insulator	An insulator is a material which does not easily allow heat and/or electricity to pass through it.
Conductor	Conductors are materials that allow electric charges to move through them. Conductors can also conduct heat.
State	A state of matter is a way to describe the behaviour of atoms and molecules in a substance. There are three common states of matter: solid, liquids and gas.
Mixture	A mixture is a physical combination of two or more substances that aren't chemically joined.
Dissolve	Dissolving is when a solute (soluble substance) is added to a solvent (liquid that does the dissolving) to form a solution.
Solution	A solution is a mixture of two or more substances that stays evenly mixed.
Soluble	If a substance is soluble, it can be dissolved in liquid.
Insoluble	A material that is insoluble does not dissolve in water.
Reversible	A reversible change is a change that can be undone or reversed
Irreversible	A change is called irreversible if it cannot be changed back again.

Questions you will know the answers to...



What are the characteristics of solids, liquids and gases?

What do the terms soluble and insoluble mean?

How can you recover a substance from a solution?

What are reversible and irreversible changes?

Making predictions and Analysis

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Identifying scientific evidence that has been used to support or refute ideas or arguments.
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Using test results to make predictions to set up further comparative and fair tests.