Year 5 – Properties and Changes of materials

Whittington CE Primary School

Key Learning

- Materials have different uses depending on their properties and state (liquid, solid, gas).
- Properties include hardness, transparency, electrical and thermal conductivity and attraction to magnets.
- Some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment.
- Mixtures can be separated by filtering, sieving and evaporation.
- Some changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible

Prior Learning

Y2 – Uses of everyday materials - Identify and compare the suitability of a variety of everyday materials. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
Y3 - Forces and magnets - Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.
Y4 – States of matter - Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Subject Specific Vocabulary

mixture	Two or more substances which can be separated
Solution	Mixture of a liquid and a solid
Soluble/ insoluble	When something dissolves When something can't dissolve
Conductor/ insulator	Transmits heat or electricity Does not allow heat or electricity to pass
Transparent/ opaque	Allows light to pass through it – clear Not able to be seen through
Impermeable/ absorbent	Not allowing fluid to pass through it – watertight/ able to soak up liquid easily
Evaporation	The process of turning the liquid into vapour
Dissolve	When a solid mixtures with a liquid to make a solution
Solvent	Usually liquid that does the dissolving
Solute	The substance that dissolves
Reversible/ irreversible	When materials can be changed back to how they were before the reaction took place. When they can't.

Common Misconceptions

There is confusion between physical/chemical changes and reversible and irreversible changes. Chemical changes result in a new material being formed. These are mostly irreversible. Physical changes are often reversible but may be permanent.
Some children may think:
• thermal insulators keep cold in or out • thermal insulators warm things up
• solids dissolved in liquids have vanished and so you cannot get them back
• lit candles only melt, which is a reversible change.