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|  **Creech St Michael Primary School** |
| **Science:****Chemistry**  | **Properties & changes in materials**  | **Year** **5 / 6** |

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| **Background understanding (what I should already know)…** |
| * Be able to 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.**
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| **Key vocabulary** |
| **Conductor**  | **A material that allows heat or electricity through.** |
|  **Crystallisation** | **A natural process separating a solid from a liquid or gas.**  |
|  **Dissolve** | **When something solid mixes with a liquid and becomes part of the liquid** |
|  **Evaporation** | **The process of turning from a liquid to a gas.** |
|  **Filtering** | **When a solid is removed from a liquid** |
|  **Gas** | **An air-like fluid substance which expands freely to fill any space available** |
|  **Evaporation** | **Insoluble Does not dissolve in a liquid.** |
|  **Insoluble**  | **Does not dissolve in a liquid.** |
|  **Insulator** | **A substance which does not readily allow the passage of heat or sound** |
|  **Irreversible** | **Cannot be reversed back to its original state** |
|  **Liquid** | **A substance that flows freely like water or oil.** |
|  **Magnetism** | **Capable of being magnetised or attracted by a magnet.** |
|  **Melting** | **Changing from a solid to a liquid due to heat.** |
|  **Reversible** | **Able to be reversed back to its original state** |
|  **Saturated** | **When a substance cannot dissolve any more.** |
|  **Sieving** | **The process of separating a solid from a liquid.** |
|  **Solid** | **Firm and stable in shape, not a liquid or fluid.** |
| **Soluble**  | **Able to be dissolved, especially in water.** |
|  **Solute** | **Something that is dissolved in liquid** |
|  **Solution** | **A mixture where a solid has dissolved into a liquid** |
|  **Solvent**  | **A liquid in which a solute is dissolved in** |
|  **Thermal**  | **Heat!** |

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| **What I will know by the end of the unit…** |
| **M****A****T****E****R****I****A****L****S****M****I****X****T****U****R****E****S****I****E****V****I****N****G****F****I****L****T****E****R****I****N****G****E****V****A****P****O****R****A****T****I****N****G** | Materials can be sorted in a variety of ways based on their **properties.** The properties of materials can include **transparency, flexibility** and whether they are **conductors or insulators** of heat and electricity* Materials can be **solids, liquids or gases.** In some solids, the bonds between particles break when surrounded by a liquid.
* This allows the liquid to absorb the solid; when this happens, the solid is called a solute, the liquid is called a solvent and the result is a solution; when a solid does dissolve in a liquid it is described as being soluble in that solvent (e.g. sugar in water); when it cannot it is insoluble (e.g. sand in water).

* Some changes are **reversible** (can be changed back) whilst others are **irreversible** (cannot be reversed). A new material is always formed after an irreversible change such as toast.
* A **mixture** is created when two or more materials are combined and can be **separated** using methods such as **sieving, filtration** and **evaporation**.
* Sometimes when a **solid (solute)** is mixed with a **liquid (solvent)** it will **dissolve** to form a **solution**.
* The **solid** seems to disappear in the **solution**.
* A **soluble** material can dissolve, however, an **insoluble** material cannot dissolve. More will dissolve in a hot liquid rather than a cold liquid. When no more solid can dissolve, the solution becomes **saturated.**

A mixture of different solid particles can be separated using a **sieve**. An insoluble solid can be separated from a liquid when passed through a **filter**. The liquid can pass through the filter whilst the solid particles are trapped in the filter.When sugar is mixed with water, it forms a solution. The sugar seems to disappear in the water. If the solution is boiled, the solid can be recovered. The water will **evaporate** into a gas and the solid will be left behind. |

**Scientific skills and enquiry (Year 5 and 6)**

• Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

• Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.

• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.

• Identify scientific evidence that has been used to support or refute ideas or arguments.

• Report and present 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.

• Use test results to make predictions to set up further comparative and fair tests.

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| **Working Scientifically: possible investigations!**  |
| **Sugar Cube Enquiry:** * Know that some materials will dissolve in a liquid to form a solution.
* Gather and record data of increasing complexity using tables

**Paper absorbency results:*** taking measurements, using a range of scientific equipment, with increasing accuracy and precision
* give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials

**Compare everyday materials on basis of their thermal conductivity:*** Use test results to make predictions to set up further comparative and fair tests
* Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials.

**Champion Tape!*** Report and present findings from enquiries, including conclusions and explanations of degree of trust in results
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