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|  **Creech St Michael Primary School** |
| **Science:****Chemistry**  | **States of Matter** | **Year** **3 / 4**  |

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| **Background understanding (what I should already know)…** |
| * **Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses**
* **Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching**
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| **What I will know by the end of the unit…** |
| **Changing states of Matter**  | Can change from one state to another if it is heated or cooled – solid, liquid and gas |
| **The water cycle**  | The water cycle is a complete journey that water makes, from one place to another and from one state to another. |
| **Solids hold their shape** | Solid particles are tightly packed together.Solids can hold their shapes (for example, water in the form of ice).  |
| **Liquid**  | A liquid like water forms a pool. It flows or runs but it can’t be stretched or squeezed. Liquids form the shape of whatever container they are kept in (Swimming pool; cup; tube; straw…)  |
| **Gas will escape****from an****unsealed****container** | A **gas** can flow, expand and be squeezed; if it is in an unsealed container it escapes.  |

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| **Key vocabulary** |
| **Boiling point** | The temperature at which a liquid boils and turns to vapour.  |
|  **Bond** | Joined securely to something else condensation turn a gas into a liquid.  |
|  **Celsius** | A scale of temperature on which water freezes at 0 degrees and boils at 100 degrees under standard conditions. |
| **Condensation** | Turn a gas into a liquid. |
| **Evaporation** | Turn a liquid into a gas.  |
| **Gas** | A substance that will expand freely to fill a whole container and has no fixed shape or volume.  |
| **Irreversible** | Not able to be undone or altered - a chemical change has occurred. |
| **Liquid** | A substance that flows freely but is of constant volume.  |
|  **Matter** | Makes up our planet and the whole universe. On Earth, all matter exists in one of three different states: solid, liquid or gas. |
| **Melting point** | The temperature at which a given solid will melt |
| **Molecules** | The very tiny particles that make matter |
| **Precipitation** | Liquid or solid particles that fall from a cloud as rain, sleet, hail or snow. |
|  **Reversible** | Capable of being reversed so that the previous state is restored. |
| **States of Matter** | Materials can be one of three states: solids, liquids or gases. Some materials can change from one state to another and back again.  |
| **Thermometer** | An instrument for measuring and indicating.  |
| **Transpiration** | The exhalation of water vapour in plants  |
| **Water cycle** | The cycle of processes by which water circulates between the Earth's oceans, atmosphere, and land.  |

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| **Who: (famous people)** |
|  | Most noted for his discovery of the role **oxygen** plays in combustion. He recognized and named oxygen (1778) and hydrogen (1783). |
|  | Boyle discovered that the **volume of a gas** decreases with increasing pressure and vice versa—the famous Boyle's law |
|  | In 1803, he proposed that **matter** is made up of **atoms** that are indivisible and indestructible. |

**Scientific skills and enquiry (Year 3 and 4)**

* Ask relevant questions and use different types of scientific enquiries to answer them.
* Set up simple practical enquiries, comparative and fair tests.
* Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
* Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
* Gather, record, classify and present data in a variety of ways to help in answering questions.
* Identify differences, similarities or changes related to simple scientific ideas and processes.
* Report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions.
* Use straightforward scientific evidence to answer questions or to support their findings.
* Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

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| **Possible Scientific Enquiry Questions…** |
| **Observing over time**  | **How does the level of water in a glass change when left on a windowsill?** |
| **Pattern seeking** | **Is there a pattern in how long it takes different sized ice-lollies to melt?** |
| **Identifying, classifying and grouping** | **Can you group these materials into solids, liquids and gases?** |
| **Fair testing**  | **How does the mass of a block of ice affect how long it takes to melt?** |