Year 5 Term 3

Do you need to see something to believe in it?

SCIENCE

National Curriculum Links
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.

Essential Prior Learning
Materials have different properties. Solutions can be created by mixing two substances. Electrical conductors let electricity pass through them easily. Evaporation is the process in which a liquid turns to a gas. Scientific questions can be answered through observations and investigations. A fair test involves keeping as many things the same as possible, only changing one thing – the variable – at a time.

Progression in Skill
Plan different types of scientific enquiries to answer scientific questions, including recognising and controlling variables where necessary.
Use test results *or observations* to make predictions to set up further comparative and fair tests**.** Make systematic and careful observations. Collect, gather, record data and results of increasing complexity using scientific diagrams and labels, 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, e.g. The ___-er the ___, the ___-er the _____. Read, spell and pronounce simple scientific vocabulary correctly.

Long-term Memory Knowledge
Know that a solution is formed when a particular material is dissolved in a liquid and how to recover that substance from the solution. Use filtering, sieving and evaporating to separate mixtures, using knowledge of solids, liquids and gases to choose the most appropriate method. Use comparative and fair tests to suggest uses for everyday materials, including metals, wood and plastic. Show how dissolving, mixing and changes of state are reversible changes. Know that when a new material is formed, the change is not usually reversible; burning is an example of this. Plan and carry out scientific enquiries to answer questions. Use observations to make predictions and suggest further investigations. Gather data and results and record these in an appropriate way. Draw conclusions from enquiries and explain relationships. Use the appropriate scientific vocabulary accurately.

Key Vocabulary	
burning	a chemical reaction, producing heat and light
rust	a chemical reaction of iron with air
dependent/ independent variable	dependent variable is what is being tested; independent variable is changed to test the dependent variable
dissolve	a substance is mixed with a liquid and becomes part of the liquid
solid	a state of matter that keeps its own shape instead of taking the shape of its container e.g. wood
liquid	a state of matter in which the particles take the shape of its container e.g. water
gas	a state of matter in which the particles are not close together or in a fixed structure e.g. oxygen
state of matter	describes what form – solid, liquid, gas - matter is in
solution	mixture of two or more substances that stay evenly mixed e.g. seawater, air
permeable	allows liquids or gases to pass through
vapour	fine particles floating in the air e.g. steam
particles	tiny pieces of matter which we cannot see with our eyes
acid	a ph less than 7

Progression in Resources
filter paper, sieves, Bunsen burner, funnel, beaker, test tubes

Relevance	
Now	Children know that some changes are reversible and some are irreversible, and some processes for separating materials.
Future	Children apply knowledge of separating materials and reversible/irreversible changes to everyday life, for example, in the kitchen.
Aspiration	Learners are inspired to pursue a career in science and STEM, particularly girls who are currently underrepresented.