Pinner Wood School

Year Group	5	Term	Spring 2	Subject	Science	Topic	Properties and changes of materials
						Key Question	What is the Matter with our Marvellous Mixtures?

Prior Learning and other Curriculum Links	Target Tracker statements (Skills)
Year 2 -find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. **Year 3** -compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces can act at a distance -observe how magnets attract or repel each other and attract some materials and not others - 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 - describe magnets as having two poles predict whether two magnets will attract or repel each other, depending on which poles are facing. **Year 4** -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	<u>Materials</u> - I can 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. - I can explain that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. - I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. - I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. - I can demonstrate that dissolving, mixing and changes of state are reversible changes. - I can 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.

	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		
Fundamentals	- 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 Facts/Sticky Knowledge**	• Definitions of; o Dissolve - to become incorporated into a liquid so as to form a solution o Soluable - able to be dissolved, especially in water o Insoluable - incapable of being dissolved • The processes of: o Evaporated - turn from liquid into vapour o Condensation - the conversion of a vapour or gas to a liquid o Freezing - transition where a liquid turns into a solid below its freezing point o Melthing - becoming liquefied by heat • The states of matter o Solid o Gas o Liquid

Our Curriculum Journey	**Journey:** Children will start this topic by exploring states of matter (solids, liquids and gases) and what they look like. Children to complete an experiement involving melting sugar cudes in hot and cold waters and writing up their experiments. Children then explore ways of separting mistures, thinking about the experiment they conducted. Children then go on to learn about soluble and insoluable materials, they then try the solid materials in all the other liquids and draw up a table documenting their findings. The children to think about how they could reverse the change - how could they get the salt and sugar back into a solid state. The children finish off with exploring various pictures of buildings/objects and discuss what they are made out of.		
Key Vocabulary (revisited)	solid, liquid, hard, soft, pour, flow, pile, pool, surface, horizontal, runny, viscous, sticky, grain, powder, ice, water, temperature, cool, cooling, warm, warming, hot, degree Celsius, melt, melting, freeze, freezing, solidify, solidifying, heating, states of matter, change of state, melting point, freezing point, process, gas,	**Key Vocabulary (new)**	material, compare, contrast, separate, mixture, sieve, filter, evaporate, solid, liquid, gas, powder, particle, dissolve, soluble, solution, impurity, pure, purity, suspension, . saturated, saturation, reversible, non-reversible, microbes, bacteria, types of oil, liquid, solid, detergent, sticky, filter, mechanical, residue, environment.