Whitefield Primary School – Long Term Curriculum Overview – Upper KS2

Science

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5 LC	**Can you feel the force?** **Why did the industrial revolution happen?**	**Would you have enjoyed being a child in Victorian times?** **Could you be the next CSI investigator?**	**How does climate affect people's lives?**	**Who were the Maya?**	**Why are plants important?**	**Why is our human body amazing?** **(heart, circulation, puberty, drugs)** **Do all animals and plants start life as an egg?**
Science area	Forces	Properties and changes of materials			Living things and habitats	Animals including humans/Living things and habitats
NC Links	Working scientifically ● planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ● taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate ● recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs ● using test results to make predictions to set up further comparative and fair tests ● reporting and presenting 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 ● Identifying scientific evidence that has been used to support or refute ideas or arguments.					
	Explain that unsupported objects fall towards the Earth because of the force of gravity Identify the effects of air resistance Investigate '**Does the size of a parachute effect the time it takes to fall?**' Change area of parachute Measure - how long it takes each to fall from the same height. Fair test Record – bar chart Identify the effects of water resistance	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 (Y5) Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution (Y5)			Describe the life process of reproduction in some plants and animals. (living things) (Y5) Describe the life process of reproduction in some plants and animals (Y5) *Observing changes* Observe an animal over a period of time e.g. butterfly Record the process using a diary, flip book or information cards. *Grouping and classifying* Compare how different animals reproduce and	Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood (Y6) Recognise the importance of diet, exercise, drugs and lifestyles on the way their bodies function. (Y6) Look at the impact of different exercises and duration of exercise has on heart rate and breathing rate. Investigate '**How does type of exercise and duration of exercise impact my heart rate and breathing rate?**'

	Investigate '**Which shape is most streamlined?**' Change the shape Measure – how long it takes for the shape to fall to the bottom Fair test Record – pic collage results table Identify the effects of friction that act between moving surfaces**.** Investigate '**Which surface causes the most friction?**' Change the surface Measure – amount of newton's needed to pull an object. Record – bar chart Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Investigate '**How many pennies will lift a bar of soap?**' https://www.sciencebuddies.org/science-fair-projects/project-ideas/Phys_p065/physics/lever-lift#procedure **Useful links** How do levers work? https://www.bbc.com/education/clips/zrp6n39	Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating (Y5) Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic (Y5) Demonstrate that dissolving, mixing and changes of state are reversible changes (Y5) 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.(Y5) See below for all investigation ideas			grow using a Venn diagram. *Measurement over time* Try growing new plants from different parts of the parent plant, for example seeds, stem and root cuttings, tubers, and bulbs. Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Study the work of naturalists e.g. David Attenborough and Jane Goodall *Grouping and classifying* Compare how different animals reproduce and grow using a Venn diagram. *Classification key* Observing and comparing the life cycles of plants and animals in their local environment with other animals around the world. Describe the changes as humans develop to old age. (Y5) Research the gestation periods of other animals and compare them with humans.	Study human life cycle & body changes, puberty Discover the effect on human body of tobacco, alcohol & other drugs

Properties and changes of materials Autumn 2

Question/Challenge	Type enquiry	Measure	Statistics
Explore reversible changes, including **melting,** evaporating, filtering, sieving, and dissolving.	Fair test	Change –food stuff Measure –time to melt (min/sec)	Bar chart
Explore reversible changes, including melting, **evaporating**, filtering, sieving, and dissolving.	Fair test	Change –Volume of liquid cm3 Measure- time to evaporate (days/hours)	Line graph
Explore reversible changes, including melting, evaporating, **filtering**, sieving, and dissolving.	Fair test	Change-Type of filter paper Measure- Clarity of water on a pupil made numerical scale	Bar chart
Explore reversible changes, including melting, evaporating, filtering, sieving, and **dissolving**.	Fair test	Change-temperature of water Measure- time to dissolve minutes/seconds or amount left after x minutes	Line graph
Explore changes that are difficult to reverse, for example, burning, **rusting** and other reactions, for example vinegar with bicarbonate of soda.	Observation over time	How long it takes a brilo pad to completely rust in vinegar	Photographic record over time
Explore changes that are difficult to reverse, for example, **burning,** rusting and other reactions, for example vinegar with bicarbonate of soda.	Measurement over time	Mass of a candle left to burn. Weighed at regular intervals	Line graph
Explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example **vinegar with bicarbonate of soda**.	Fair test	Change -mass of bicarbonate of soda (g) or volume of vinegar cm3 Measure- volume of gas produced or time to stop producing gas (min/Sec)	Line graph

Investigate questions such as 'Which materials would be the most effective for making a warm jacket, or wrapping ice cream to stop it melting.	Fair test	Change- material Measure- time to melt (min/sec)temperature to drop to room temperature (centigrade)	Bar chart
They might compare materials in order to make a switch in a circuit.	Grouping and classifying	Materials that conduct/don't conduct electricity	Venn diagram