Science Long Term Plan

Revised September 2025

Intent:

- **To provide children with an understanding of how science impacts us everyday**
- **To inspire and inform children of future possibilities for them in science both locally and nationally**
- **To give children a broad range of scientific experiences**
- **To develop children's enquiry skills so they can 'think like a scientist'**

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Pre-school (2 year olds)	***Throughout the year*** *our two-year-old children will be exploring all of the below science strands through the area of* ***Understanding the World****. These* ***will not be taught as single units*** *or lessons but key knowledge and skills from the progression documents, from each strand below, will be introduced through* ***multiple opportunities*** *to* ***explore*** *and* ***discover*** *the scientific* ***vocabulary*** *and* ***concepts*** *which will be built on every year through our science curriculum.*					
	Plants- ***basic plant growing needs, identifying differences between natural objects*** **Everyday Materials-** ***Natural materials, material properties*** **Animals-** ***Animal names, parts of animals*** **Forces in motion-** ***Push and pull*** **Humans-** ***Their own family, differences between families, naming important body parts, Using their senses*** **Energy- light -** ***Light and dark, day and night*** **and sound-** ***Recognising familiar sounds incl animal sounds*** **Seasonal Changes-** ***changes in their environment throughout the year***					
Pre-school (3 year olds)	**Humans** ***Simple Life cycle (3 stages)*** ***Keeping themselves healthy***	**Energy- light** ***Light and dark, day and night, shadows*** **and sound** ***Creating sounds***	**Animals** ***Life cycles, identify and name baby animals and changes over time***	**Plants & Animals** ***Key plant growing needs, features of natural environment*** ***Parts of a plant***	**Forces in motion** ***Using Push and pull to change the shape of some solid objects***	**Everyday Materials** ***Waterproof materials, natural and man-made materials***

	Knowing their senses					
	Seasonal Changes will run across the whole year and crosses over many of the areas of study above					
FIVE TYPES OF SCIENTIFIC ENQUIRY	**Comparative / fair testing**	How do plants grow?				
	Research	What do plants need to grow? What do animals eat? Do all animals eat the same food? How does it work? How can we move objects?				
	Observation over time	Is every object made out of the same material? How does a puppy change over 12 weeks?				
	Pattern seeking	What colours can we find outside? Does this change across the seasons?				
	Identifying, grouping and classifying	Is every object made out of the same material?				
Reception	**Humans** ***How they've grown and changed Managing their own hygiene and personal needs***	**Everyday Materials and changing Materials** ***Heating and freezing water, identify natural and man-made materials***	**Animals** ***Stages of a life cycle, different animal environments and behaviours***	**Plants & Animals** ***life cycles of plants, caring for the natural world***	**Energy- light** ***How the sun affects day and night, light sources, shadows*** **and sound** ***Pitch, volume***	**Forces in motion** ***Push and pull as a magnetic force, objects fall to earth***
	Seasonal Changes will run across the whole year and crosses over many of the areas of study above					
FIVE TYPES OF SCIENTIFIC ENQUIRY	**Comparative / fair testing**	What do plants need to grow? How do animals change as they grow				
	Research	How do animals change as they grow? How does the environment change with				
	Observation over time	How does the environment change with the seasons?				
	Pattern seeking	How does rainfall and temperature change over time?				
	Identifying, grouping and classifying	What does it do? What is it for? Who would use it? Where is it from?				
1	**Seasonal changes** ***Order and associated months, changes in daylight, associated weather***	**Everyday Materials** ***Similarities and differences, properties, grouping materials***	**Humans** ***Basic structure, body parts and senses***	**Animals** ***Comparing and grouping***	**Plants** ***Common names, basic structure and ongoing nature journal Deciduous and evergreen trees***	**Making Connections:** **investigating science through stories** ***Revision and building on previous units***
FIVE TYPES OF SCIENTIFIC ENQUIRY	**Comparative / fair testing**	**Performing simple tests. Gathering and record data to help in answering questions**. Which of our senses is the most accurate at identifying food?				
	Research	**Asking simple questions and recognising that they can be answered in different ways.** Are all plants green? Do all animals hunt?				
	Observation over time	**Observing closely, using simple equipment.**				
	Pattern seeking	How does rainfall and temperature change over time in our school grounds?				
	Identifying, grouping and classifying	**Identifying and classify using observations and ideas to suggest answers to questions.**				

2	**Living things and their habitats** ***Life processes, habitats, food chains***	**Micro-Habitats** ***Mini-beasts***	**Uses of Everyday Materials** ***Suitability of materials, different purposes***	**Animals including Humans** ***Health and growth Survival and life cycles stages***	**Plants** ***Growing plants, Seeds and germination***	**Making Connections:** **Plant based materials** ***Revision and building on previous units***

FIVE TYPES OF SCIENTIFIC ENQUIRY	**Comparative / fair testing**	**Performing simple tests. Gathering and record data to help in answering questions.** Would a chocolate teapot really be so bad?
	Research	**Asking simple questions and recognising that they can be answered in different ways.** Do plants flower all year round? How have animals and plants adapted to live in their habitats? Is plastic the best material for a window?
	Observation over time	**Observing closely, using simple equipment.**
	Pattern seeking	Do all animals grow and live the same way?
	Identifying, grouping and classifying	**Identifying and classify using observations and ideas to suggest answers to questions.** Are all objects a living thing?

3	**Animals including Humans** ***Movement and skeleton, Health and nutrition.***	**Forces and magnets** ***Friction, contact and non-contact forces, magnetic materials***	**Rocks and soil** ***Fossils, grouping rocks, properties of rocks, formation of rocks and soils***	**Light and shadows** ***Light sources, reflection, How and why shadows change linked to the sun***	**Plants** ***Function of plant parts and growth All stages of plant life cycle including reproduction and pollination***	**Making Connections:** **Does hand span affect grip strength?** ***Revision and building on previous units***

FIVE TYPES OF SCIENTIFIC ENQUIRY	**Comparative / fair testing**	**Set up simple practical enquiries, comparative and fair tests.**
	Research	**Ask relevant questions and using different types of scientific enquiries to answer them.** How does soil affect how plants grow? Use secondary sources to explain your answer?
	Observation over time	**Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.**
	Pattern seeking	**Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support findings.** Can you find patterns in different people's diets to draw conclusions about how to eat healthily?
	Identifying, grouping and classifying	**Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.** Are all metals magnetic? How can scientists sort rocks? Use a comparative test to classify rocks based on their properties.

4	**Animals including Humans** ***Teeth and digestive system Food chains,***	**Electricity and circuits** ***Power sources, conductors and insulators***	**States of Matter** ***Properties of solids, liquids and gases, changing states, water cycle***	**Sound and vibrations** ***vibrations Insulation and pitch***	**Living things and their habitats** ***Biodiversity, classification and human impact on environments***	**Making Connections:** **How does the flow of liquids compare?** ***Revision and building on previous units***

FIVE TYPES OF SCIENTIFIC ENQUIRY	**Comparative / fair testing**	**Set up simple practical enquiries, comparative and fair tests.** **Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.** What effect does the food we eat and drink have on our teeth? Which materials make the best conductors or insulators? How can we find out?
	Research	**Ask relevant questions and using different types of scientific enquiries to answer them.** What happens to the food we eat? How does sound travel?
	Observation over time	**Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.** How is the environment changing?
	Pattern seeking	**Identify differences, similarities or changes related to simple scientific ideas and processes.** **Use straightforward scientific evidence to answer questions or to support findings.** How can we change the pitch or volume of a sound?
	Identifying, grouping and classifying	**Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.** How can living things be classified? How can you tell the difference between a vertebrate and an invertebrate?

5	**Mixtures and separating materials** ***Dissolving, solutions, filtering, sieving, evaporation***	**Material properties and changes** ***solubility, transparency, conductivity, magnetism Reversible and irreversible,***	**Earth and space** ***Our solar system, Movement and position of the sun, moon, planets***	**Unbalanced forces** ***gravity, air resistance, water resistance, how mechanisms affect force***	**Living Things and their Habitats** ***Reproduction, Life cycles and habitats***	**Humans Timelines** **(short unit)** ***Stages of growth and development and gestation*** **Making Connections: (short unit)** **Does the size of an asteroid affect the diameter of it's impact crater?** ***Revision and building on previous units***

FIVE TYPES OF SCIENTIFIC ENQUIRY	**Comparative / fair testing**	**Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Use test results to make predictions to set up further comparative and fair tests.** How do forces affect the speed of an object?
	Research	**Identifying scientific evidence that has been used to support or refute ideas or arguments.** How important is the work of naturalists such as David Attenborough and Jane Goodall?
	Observation over time	**Report 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.** How do plants and animals change over time?

	Pattern seeking	**Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.** Are the life cycles of plants and animals in the local environment the same as in other habitats around the world?
	Identifying, grouping and classifying	**Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.** What material properties could be used to sperate and identify solids, liquids and gases?

6	**Living things and their habitats** ***Classification***	**Light and reflection** ***How we see things, Changing the direction of light, Shadows and reflective surfaces***	**Evolution and inheritance** ***Adaptations and evolution, fossils***	***Humans (Animals)*** ***Circulatory system, organs and exercise***	**Electricity- Circuits, batteries and switches** ***Circuit diagrams, changing circuits and circuit components***	**Making Connections:** **Are some sunglasses safer than others?** ***Revision and building on previous units***

FIVE TYPES OF SCIENTIFIC ENQUIRY	**Comparative / fair testing**	**Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Use test results to make predictions to set up further comparative and fair tests.**
	Research	**Identifying scientific evidence that has been used to support or refute ideas or arguments.** How can fossil evidence be used to support the theory of evolution?
	Observation over time	**Report 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.**
	Pattern seeking	**Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.** What happens when you add more bulbs or batteries etc to a circuit?
	Identifying, grouping and classifying	**Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.** To what extent has Charles Linnaeus' theory of classification impacted how people define animals and plants today.