Science Curriculum Overview

Year ONE Outcomes

- Can read, spell and use simple scientific vocabulary and language to ask questions about the world, and communicate ideas.
- Is curious, experiencing and observing phenomena, looking more closely at the natural and humanly-constructed–world.
- Can work scientifically; observing changes over time, noticing patterns, grouping and classifying things, performing simple comparative tests using simple equipment.
- Can gather and record data and use data to help me answer my questions
- Can describe the characteristics of the different types of animals (fish, amphibians, reptiles, birds and mammals), and compare their structures, differentiating between carnivores, herbivores and omnivores
- Can describe the basic parts of the human body related to senses
- Can describe how the world changes across the four seasons, including the physical changes in the environment, weather and length of day
- Can distinguish between objects and the materials they are made from and identify and name the materials such as wood, plastic, glass, metal, water and rock
- Can identify, name and describe the basic structure of wild and garden flowering plants and deciduous and evergreen trees

Animals including Humans/ Seasonal Changes	**Animals including Humans/ Seasonal Changes**	**Everyday Materials/ Seasonal Changes**
Everyday Materials/ Seasonal Changes	**Plants**	**Plants/ Seasonal Changes**

Year TWO Outcomes

- Can observe phenomena, looking closely at the natural and humanly-constructed world around them.
- Is curious and asks questions.
- Can use different types of scientific enquiry to answer questions, including: observing changes over a period of time; noticing patterns; grouping and classifying things; carrying out simple comparative tests; finding things out using secondary sources of information.
- Can ‘Work scientifically’.
- Can read, spell and use scientific vocabulary at a level consistent with the increasing word reading and spelling knowledge at key stage 1.

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- Can understand the difference between things that are alive, things that are dead and those that have never been alive.
- Understands what a habitat is and why it suits a particular living thing.
- Can name plants and animals that live in specific habitat.
- Understands and explain basic food chains.
- Can make observations about how animals (including humans) grow into adulthood, describe their basic survival needs and requirements for exercise, food and hygiene
- Can explain how seeds and bulbs grow into plants and understand that plants need water, light and a suitable temperature to live.
- Can explain how a range of everyday materials are suitable for specific purposes based on their specific properties.
- Understands and explains if and how the shape of different solids can be changed.

Living Things and their Habitats	**Animals including Humans**	**Uses of everyday Materials**
Uses of everyday Materials	**Plants**	**Plants**

Year THREE Outcomes

- Can identify different rocks based on their appearance and physical properties.
- Can explain what soil is.
- Can explain how fossils form.
- Knows what nutrition animals, including humans, require to survive, where their food comes from.
- Understands why humans and some other animals require skeletons and muscles for support, protection and movement.
- Understands how the force of friction affects how objects move on different surfaces, and that some forces act without contact (magnetic force)
- Understands why magnets attract or repel each other and have two poles.
- Understands and can explain why some materials are attracted to magnets but others are not.
- Can make predictions based on their scientific knowledge.
- Understands the functions of parts of flowering plants, and their requirements for life including the lifecycle of a flowering plant.
- Understands that darkness is the absence of light and that light is necessary to see, and can damage parts of the eye that allow animals to see.

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Rocks	Animals including Humans	Forces and Magnets
Light	Plants	Plants

Year FOUR Outcomes

- Understands that a material can exist in a solid, liquid or gaseous state, what this means for the atoms of the material.
- Knows and can explain that some materials change state when they are heated or cooled
- Understands evaporation and condensation as part of the water cycle, associating the rate of evaporation with temperature
- Can identify common electrical appliances and construct simple series circuits, naming basic components and representing them in pictorial form
- Understands that bulbs will light in a closed circuit with a cell or battery present, that switches open and close circuits and predict whether a bulb will light in a given series circuit.
- Can recognise some conductors and insulators, associating metals as good conductors of electricity
- Can describe the simple functions of the basic parts of digestive system, including identifying the name and function of different human teeth
- Can construct and interpret a variety of food chains, understanding producers, prey and predators within
- Understands that living things can be grouped in a range of ways.
- Can use classification keys to group, identify and name a variety of living things (local and wider environment) and recognise that if environments change.
- Understands that sound is produced when something vibrates and that vibrations from sound travels through a medium to the ear and recognises that sounds get fainter as the distance from the sound source increases
- Can find patterns between the pitch of a sound and the object that produced it, associating the volume of the sound with the strength of the vibrations that produced it
- Can use different types of scientific enquiries (observing over time, identifying/classifying, pattern seeking, research, fair testing) to answer scientific questions
- Can recognise when a simple fair test is necessary; talk about criteria for grouping/sorting/classifying; use simple keys
- Can help to set up a simple practical enquiry, comparative test or fair test
- Can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables
- Can use results to draw simple conclusions, make predictions for new values, suggest improvements to an enquiry and raise further questions

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States of the Matter	Electricity	Sound
Sound	Animals (including Humans)	Living Things and Their Habitats

Year FIVE Outcomes

- Demonstrates a deeper understanding of a wide range of scientific ideas, by talking about and exploring ideas, asking questions about scientific phenomena and analysing functions, relationships and interactions more systematically.
- Recognises that scientific ideas change and develop over time.
- Can select the most appropriate way to answer scientific questions using different types of scientific enquiry, including: Observing changes over different periods of time; Noticing patterns; Grouping and classifying things; Carrying out comparative and fair tests; Finding things out using a wide range of secondary sources of information.
- Can draw conclusions based on their data and observations.
- Can use evidence to justify ideas.
- Can use scientific knowledge and understanding to explain findings.
- Can explain how the solar system developed and know how and why planets in the Solar System orbit the sun.
- Understands the moons orbit planets and the Earth rotates as it orbits, understanding the impact of this.
- Can explain why properties of different materials make them more suitable for specific purposes and why materials can change between the solid, liquid and gaseous states.
- Can explain the differences between dissolving, mixing and changes of states.
- Knows that some materials can dissolve, mix or change state and can explain whether this can be reversed and why some changes are irreversible.
- Can explain the forces and effects of gravity, air resistance, water resistance and friction and why some mechanisms allow smaller forces to have greater effects.
- Can explain the life cycles of mammals, amphibians and insects.

Earth and Space	Earth and Space	Living Things and their Habitats Properties and Changes of Materials
Properties and Changes of Materials	Forces	Living Things and their Habitats

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Year SIX Outcomes

- Understands that light appears to travel in straight lines (which is why shadows are the same shape as the object casting them) and that light reflects from objects into our eyes so we can see them.
- Knows the parts and functions of the circulatory system and understands how this system transports nutrients and water in humans, recognising the impact that diet, exercise, drugs and lifestyle can have on how the body functions.
- Understands how living things have changed (adapted) over time and why – using knowledge of fossils to develop understanding of evolution – and be able to explain why offspring vary from parents and why these variations may enhance their survival.
- Understands what a battery is and compare and give reasons for variations in how components function in a series circuit (brightness of bulbs/loudness of buzzers/ on/off position of switches) using recognised symbols to representing a simple circuit diagram (switches, bulbs, buzzers, motors) when building a circuit to perform a useful function.
- Understands how Carl Linnaeus developed the Linnaean Classification system (separating living things into broad groups according to common observable characteristics) and that broad classification groupings can be sub-divided based on similarities and differences.
- Are able to use direct observation to classify animals, creating a key to show this and giving the reasons for why plants or animals have been classified using a classification system
- Can select and plan the most appropriate type of scientific enquiry, explaining which variables need to be controlled, where necessary, in a test and why
- Can choose and take measurements, using a range of scientific equipment, with increasing accuracy and precision and recognises when it is necessary to take repeat measurements to increase the accuracy of results.
- Can record data and results using scientific diagrams and labels, classification keys, tables, bar graphs and line graphs
- Can use fair tests to make predictions and use these to set up further comparative and fair tests
- Can report and present findings, including conclusions, causal relationships and explanations or results, in oral and written forms, including displays or other presentations
- Can identify scientific evidence that has been used to support or refute ideas/arguments and begin to separate fact from opinion in secondary research sources

Light	**Animals (including Humans)**	**Evolution and Inheritance**
Electricity	**Living Things and Their Habitats**	**Spaced learning/ Climate Change**

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HILL WEST Primary FOUR OAKS

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