Curriculum Overview: Science

'Nothing in life is to be feared; only understood!' **Marie Curie**

Our children live in an ever-changing, rapidly advancing world where new knowledge and new skills need to be acquired, understood and mastered at a rate previously unheard of.
We aim to enable children to learn the full range of knowledge, skills and understanding in order to appreciate their world as well as recognising and embracing their role in becoming citizens who make a positive contribution to our society; now and in the future.
Our community and its environment help shape the way in which we structure learning opportunities. We balance the celebration of all positive aspects of our local context with the ability to look beyond the Furness Peninsula in order to understand and embrace the wider world.
We are totally committed to learning of the highest standard in academic, personal and social forms and have these aspirations for all children in our care.

Our Science Curriculum draws on The National Curriculum in England with topics being organised over a two year rolling programme. Resources from the CUSP curriculum support the development of key language, vocabulary and knowledge in the subject whilst allowing opportunities to introduce and revisit key concepts. This approach enables pupils to deepen understanding and embed knowledge through lessons which are interesting and practical.

We will provide children with a greater understanding of the world and develop scientific knowledge and conceptual understanding. We will develop scientific enquiry and encourage children to ask and answer scientific questions about the world around them. We will equip children with the scientific knowledge required to understand the uses and implications of science, today and for the future in order to make sense of the world.

Our curriculum is...

So our learners are...

Planning Progression:

Y3/Y4 Cycle B (2022-23) Animals including humans Autumn 1 and 2	Explain what a healthy lifestyle is Name the food groups Identify foods from each food group Explain how each food group keeps my body healthy Explain the purpose of a food label Understand the traffic light system used on many food labels Identify that humans and some animals have skeletons Identify main human muscles and their purpose Explain the digestive process and the different stages Name the different types of teeth in my mouth Explain that we use different types of teeth to do different things Label a diagram to show a tooth
Sound Spring 1	Describe how sounds are made Explain how sound travels from a source to our ears Explain the place of vibration in hearing Find patterns between pitch and the object producing sound Find patterns between the volume of a sound and the strength of the vibrations that produced it Describe what happens to a sound as it travels away from its source
Rocks and Fossils Spring 2	Compare and group rocks based on appearance Compare and group rocks based on simple properties Explain how the use of rocks has changed over time Investigate the changes to rocks when they are in water Describe how fossils are formed Recognise that soils are made from rocks and organic matter Explore different soils
Plants Summer 1 and 2	Identify the different parts of a plant (roots, stem/trunk, leaves and flowers) Describe the function of different parts of a plant Explore the requirements of plants for life and growth (air, light, water, nutrients, room) Show how requirements for life vary from plant to plant Investigate the way water is transported within plants Explore the part flowers play in the lifecycle of flowering plants (pollination, seed formation, seed dispersal)
Y3/Y4 Cycle A (2023-24) Living things and habitats Autumn 1 and 2	Recognise that living things can be grouped in a variety of ways (include animals, flowering plants and non-flowering plants) Explore and use classification keys to help group living things Begin to put vertebrate animals into groups Identify and name living things in the local and wider environment Recognise that environments can change, over the year and over a longer period of time Know that human impact can have positive (nature reserves, garden ponds, ecological parks) and negative (population, litter, deforestation) Explain why animal diets may vary Explain what a food chain shows Name the producer, consumer & secondary consumer
Forces and magnets Spring 1	Compare how things move on different surfaces Notice that some forces need contact between two objects Notice that magnetic forces can act at a distance Observe how magnets attract or repel each other Notice that magnets attract some materials but not others Compare and group materials based on whether they are attracted to a magnet

	Identify some magnetic materials Explore the behaviour and everyday uses of magnets Describe magnets as having two poles Predict whether 2 magnets will attract or repel each other depending on which poles are facing
Electricity Spring 2	Identify common appliances that run on electricity Construct a simple series circuit Identify and name the components in a series circuit (cells, wires, bulbs, switches, buzzers) Draw a circuit diagram Predict and test whether a lamp will light in a simple circuit Describe the function of a switch in a circuit Recognise some common insulators and conductors Recognise metals as being good conductors
Light Summer 1	Recognise that we need light to see things Recognise that dark is the absence of light Notice that light is reflected from surfaces Notice how light behaves when reflected from mirrors Recognise that light from the sun can be dangerous Recognise that shadows are formed when light is blocked by an opaque object Find patterns in the way that the size of shadows change Find out what happens to a shadow when the light source moves or the distance between the light source and the object change.
States of matter Summer 2	Group materials together based on their state of matter (solids, liquids, gases) Describe and explore how some materials can change state (through heating/cooling) Measure the temperature at which materials change state Describe the water cycle Explain the part played by evaporation and condensation in the water cycle
Working Scientifically (Y3/4)	Ask relevant scientific questions Use observations and knowledge to answer scientific questions Set up a simple enquiry to explore a scientific question Set up a test to compare two things Set up a fair test and explain why it is fair Make careful and accurate observations, including the use of standard units Use equipment including thermometers and data loggers to make measurements Gather, record, classify and present data in different ways to answer scientific questions Use diagrams, keys, bar charts and tables; using scientific language Use findings to report in different ways, including oral and written explanations, presentation Draw conclusions and suggest improvements Make a prediction with a reason Identify differences, similarities and changes related to an inquiry
Y5/Y6 Cycle B (2022-23) Earth and space Autumn 1 and 2	Describe and explain the movement of the Earth and other planets relative to the sun Describe and explain the movement of the moon relative to the Earth Explain and demonstrate how night and day are created Explain the apparent movement of the sun across the sky Describe the Sun, Earth and Moon using the term spherical
Light Spring 1 and 2	Explain how light travels Explain that objects can be seen because they give out or reflect light into the eye Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes Explain why shadows have the same shape as the object that casts them

	Explain how simple optical instruments work (periscope, telescope, binoculars, mirror, magnifying glass etc)
Animals including humans Summer 1	Identify and name the main parts of the human circulatory system Describe the function of the heart, blood vessels and blood Discuss the impact of diet, exercise, drugs and lifestyle on health Describe the ways in which nutrients and water are transported in animals, including humans
Evolution and inheritance SRE (Year group dependent) Summer 2	Describe how the earth and living things have changed over time Explain how fossils can be used to find out about the past Explain how animals and plants are adapted to suit their environment Link adaptation over time to evolution Explain evolution Explain about reproduction and offspring Describe the process of reproduction in humans Know that offspring normally vary and are not identical to their parents
Y5/Y6 Cycle A (2023-24) Forces Autumn 1	Explain what gravity is and its impact on our lives Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify and explain the effect of air resistance Identify and explain the effect of water resistance Identify and explain the effect of friction Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect
Electricity Autumn 2	Explain how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer Compare and give reasons for why components work and do not work in a circuit Use recognised symbols when drawing a circuit diagram
Properties and changes in materials Spring 1 and 2	Compare and group materials based on their properties (including hardness, solubility, transparency, conductivity [electrical and thermal] and response to magnets Know that some materials will dissolve in liquid to form a solution Explain the process of dissolving Describe and show how to recover a substance from a solution Describe how some materials can be separated (filtering, sieving and evaporating) Know that some changes are reversible and some are not Explain that some changes resort in the formation of a new material that is not normally reversible Give evidenced reasons why materials should be used for specific purposes
Living things and habitats (lifecycles) Summer 1	Describe the life cycle of different living things (mammal, amphibian, insect, bird) Describe the changes as humans develop to old age Describe the differences between different life cycles Classify living things into broad groups according to observable characteristics and based on similarities and differences Describe how living things have been classified Give reasons for classifying plants and animals in a specific way Describe the process of reproduction in plants
Evolution and inheritance SRE (Year group dependent) Summer 2	Explain about reproduction and offspring Describe the process of reproduction in humans Know that offspring normally vary and are not identical to their parents

Working Scientifically (Y5/6)	Plan different types of scientific enquiry Control variables in an enquiry Measure accurately and precisely using a range of equipment Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Use the outcome of test results to make predictions and set up a further comparative fair test Report findings from enquiries in a range of ways Explain a conclusion from an enquiry Explain casual relationships in an enquiry Relate the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory Read, spell and pronounce scientific vocabulary accurately.