

Whole School Science Plan

<p>Intent</p> <p>With these aspirations, our INTENT for the Science curriculum is:</p>	<p>To promote children's curiosity about the world around them and to enable them to answer scientific questions about their world</p>	<p>To encourage children to ask and answer questions and to solve problems so they can begin to understand the uses and implications of science today, and for the future.</p>	<p>To develop scientific knowledge and understanding through the disciplines of biology, chemistry and physics</p>	<p>To develop the skills of investigation, including observing, measuring, predicting, explaining, communicating and evaluating</p>	<p>To develop the use of computing in investigating and recording</p>	<p>To develop the use of scientific language, and enrich their vocabulary to support their understanding of the world around them</p>
<p>Implementation</p>						
<p>Planning</p> <p>Our Science curriculum follows the National Curriculum objectives and is taught in units throughout the year so children can achieve depth in their learning. Units have been carefully planned to ensure children build on prior learning and make links between units. All children are given the opportunity to investigate (working scientifically) in each topic. All pupils have the opportunity of visits and visitors to bring their science learning to life; for example, visiting the Herstmonceux Science Centre, having animals brought into the classroom and Space lab.</p>		<p>Recording</p> <p>In EYFS and KS1 the children's books include photographs of activities, children's comments, thoughts and written work. Children refer to their book regularly to support retrieval. In KS2, children have a science book and work can be recorded in writing, diagrams and photographs. We ensure that time is given to writing a conclusion following an investigation. These conclusions demonstrate the depth of the children's knowledge and understanding.</p>		<p>Assessment</p> <p>Science is assessed at the end of each teaching unit on Sonar which links directly to the objectives used for planning. Teachers use their professional judgement based on both oral and written responses to key enquiry questions. The subject leader looks at assessments and discusses with teachers any trends in gaps or misconceptions. Assessments are based upon a variety of sources: quizzes, tests, discussions, written/recorded reports.</p>		
<p>EYFS</p> <p>Our children's journey in science starts in EYFS which is why our progression document begins here. Science at Foundation Stage is covered in the 'Understanding the World' area of the EYFS Curriculum. It is introduced through activities that encourage every child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them.</p>			<p>SEND</p> <p>Our children with SEND access the science curriculum through careful teacher assessment. Lessons are carefully planned and resourced to enable all children to access their learning at an appropriate level, helping them to engage and be challenged. Children are supported in a variety of ways e.g. support from Teaching Assistant, or peers, differentiated activities.</p>			

Impact
<p>Demonstrate a love of science work and an interest in further study and work in this field</p> <p>Retain knowledge that is pertinent to Science with a real life context.</p> <p>Children will develop a secure understanding of each key block of knowledge</p> <p>Be able to question ideas and reflect on knowledge.</p> <p>Be able to articulate their understanding of scientific concepts and be able to reason scientifically using extensive specialist vocabulary. Children will use technical terminology accurately and precisely.</p> <p>Apply mathematical skills through their work, organising, recording and interpreting results.</p> <p>Work collaboratively and practically to investigate and experiment</p>

Year Group	Autumn	Spring	Summer
EYFS	<p style="text-align: center; color: #0070C0;">Me and My World</p> <p>Animals including humans-Make observations of animals.</p> <p>Seasonal Changes – discuss the features of my immediate environment. discuss how my environment may vary to another. explore seasonal changes of an autumnal walk</p> <p>Properties of Materials – discuss similarities and differences in relation to materials. exploring freezing and melting.</p>	<p style="text-align: center; color: #0070C0;">Vroom Vroom</p> <p>Properties of Materials – discuss similarities and differences in relation to materials. Exploring floating and sinking through an experiment.</p> <p>Take part in the cooking process and exploring how heat changes what it may look like by cooking gingerbread men and currant buns.</p>	<p style="text-align: center; color: #0070C0;">Down on the Farm</p> <p>Animals including human</p> <p>understand the life cycle of a chicken. Explore and understand the changes in animals, adults and babies.</p> <p>make observations of animals and explain why some things occur and talk about changes.</p> <p>discuss similarities and differences in relation to animals.</p> <p>understand and explain the importance of good health (diet and exercise).</p> <p>Plants – make observations of plants and explain why some things occur and talk about changes. discuss similarities and differences in relation to</p>

			living things.
1	<p>Out and About with the Jolly Postman</p> <p>Seasonal Changes – explain changes through autumn, winter, spring and summer. describe the weather in autumn, winter, spring and summer and that the days get longer and shorter.</p> <p>Everyday Materials - explain the difference between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. describe some everyday materials including properties of materials, looking at most suitable waterproof material.</p>	<p>To Infinity and Beyond</p> <p>Animals including humans - Name the basic body parts of the human body. name, draw and label the basic parts of the human body and say which part of the body is to with which sense.</p> <p>Seasonal Changes - explore all seasons of the year (Winter to Spring Focus) Looking at all seasons of the year (Spring).</p>	<p>Woodland Wonders</p> <p>Animals including humans- identify a variety of common animals. name a variety of common animals that are carnivores describe and compare the structure of a variety of common animals. Understand and explain the life cycle of a frog.</p> <p>Plants name some common wild and garden plants, including deciduous and evergreen trees. name and describe the basic structure of a variety of common flowering plants, including trees. observe closely the germination of seeds.</p>
2	<p>Fire and Ice</p> <p>Animals including humans- To understand what we need to stay alive and healthy. Explain the needs of animals, including humans, for survival. Explain the importance of exercise, eating healthily and keeping clean Know what our senses are. Identify the difference between living and dead things.</p> <p>Everyday Materials - Observing ice over time.</p> <p>Animals including humans – Explain the differences between things that are living, dead and things that have never been alive. Explain that most living things live in habitats which</p>	<p>Scales and Tales</p> <p>Animals including humans - explain that animals, including humans, have babies which grow into adults. To consider how all living creatures have similar basic needs.</p> <p>Everyday Materials - Say why I would choose a material for a particular job. Explain how objects made from some materials can be changed Name common materials glass, wood, metal etc. Look at materials that keep us warm.</p> <p>Plants – Explain how seeds and bulbs grow into plants.</p> <p>Describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>Splish, Splash, Splosh</p> <p>Electricity - Identify what makes a circuit.</p> <p>Understand the dangers of electricity.</p> <p>Everyday Materials - Development of useful materials: say why I would choose a material for a particular job. e.g. mackintosh rubber. What is waterproof?</p>

	<p>suit them and depend on each other. Name some plants and animals in their habitats including micro-habitats. The adaptations of penguins and polar bears./The life cycle of a penguin.</p> <p>Everyday Materials - Observing ice over time looking at the properties of ice and investigating how ice melts linking to reversible changes.</p>	<p>Know that plants need light, water and a suitable temperature for healthy growth. Habitats - Identify where most living things live in habitats to which they are suited. Explain how animals get their food from plants and other animals using a simple food chain.</p>	
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<p>3</p>	<p>Raiders and Invaders</p> <p>Animals including humans- explain why humans and some other animals have skeletons and muscles.</p> <p>Animals including humans- Importance of exercise and eating the correct amounts of food.</p>	<p>Footprints in the Past</p> <p>Rocks and Fossils Explain that soils are made from rocks and organic matter.</p> <p>Describe simply how fossils are formed when things that have lived are trapped within a rock. Examine and do practical experiments on various types of rocks in order to group them on the basis of their appearance and simple physical properties.</p> <p>.</p> <p>Forces and Magnets Compare how things move on different surfaces. See that some forces need contact between two objects, but magnetic forces can act at a distance. Compare and group some materials on the basis of whether or not they are attracted to a magnet, and Identify some magnetic materials. Observe how magnets attract or repel each other and attract some materials and not others. Predict whether two magnets will attract or repel each other, depending on which poles are facing</p>	<p>An African Adventure</p> <p>Plants Explain what different parts of flowering plants do. Explore the requirements of plants for life and growth and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p>Animals including humans- Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Understand and use the vocabulary herbivores and carnivores.</p> <p>Light – Show that light is reflected from surfaces. Explain that I need light in order to see things and that dark is the absence of light. Explain that light from the sun can be dangerous and that there are ways to protect eyes.</p>
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4	<p>Journey into the Unknown</p> <p>Animals including humans- explain some parts of the digestive system in humans. explain the different types of teeth in humans and what they do. describe and explain a variety of food chains, naming producers, predators and prey. describe teeth and explain the different types of teeth e.g. molar, incisor, canine.</p> <p>Electricity – talk about common appliances that run on electricity. construct and draw with labels a simple series electrical circuit which includes cells, wires, bulbs, switches and buzzers. predict if a lamp will light or not in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. explain that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. show that some materials are conductors and</p>	<p>Stones n Bones</p> <p>Sound – explain how sounds are made, and show that some of them are linked to vibrations. explain that vibrations from sounds travel through a medium to the ear. describe patterns between the pitch of a sound and features of the object that produced it. show that there is a pattern between the volume of a sound and the strength of the vibrations that produced it. show that sounds get fainter as the distance from the sound source increases.</p> <p>Animals including humans - understand and explain food chains. understand and explain the role of prey and predator. understand and explain how animals have adapted to their habitats.</p>	<p>Amazon Adventures</p> <p>States of Matter – group materials together, according to whether they are solids, liquids or gases, including tricky ones like gels, foams, mists and pastes. demonstrate and explain that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius. talk about the part played by evaporation and condensation in the water cycle, and can show a link between the rate of evaporation and temperature. Understand and explain the stages of the water cycle.</p> <p>Living Things – show that living things can be grouped together in various ways. explore and use classification keys to help group, identify and name a variety of living things. explain that environments can change and that</p>

	<p>some are insulators, and can explain that metals are good conductors.</p>		<p>this sometimes means that living things are put in danger. Understand and consider ways to make a positive impact on the environment</p> <p>name a variety of living things in the local and wider environment.</p>
<p>5</p>	<p>Aiming High</p> <p>Properties of Materials/States of Matter- compare and group together everyday materials on basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <p>explain that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from solution.</p> <p>use knowledge of solids, liquids and gases to decide how mixtures might be separated, including by filtering, sieving and evaporating, explain the properties of solids, liquids and gases with a focus on dissolving</p> <p>give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>explain that some changes result in the formation of new materials, and that kind of change is not usually reversible, including changes associated</p>	<p>Groovy Greeks/Out of This World</p> <p>Forces- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>demonstrate the effects of air resistance, water resistance and friction, that act between moving surfaces.</p> <p>show that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p>Earth and Space- describe the movement of the Earth, and planets, relative to the Sun in the solar system. describe the movement of the Moon relative to the Earth. describe the Sun, Earth and Moon as approximately spherical bodies. explain day and night, and the apparent movement of the sun across the sky, using the idea of the Earth's rotation. understand the properties of planets and compare the planets.</p>	<p>Romans – The Empire Strikes Back</p> <p>Living Things - Understand and explain the reproduction in plants with a focus on germination and pollination.</p> <p>Understand and identify the difference between annual plants and perennials.</p> <p>Animals including human- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. describe how some animals and plants reproduce. understand and explain the changes as humans as we develop into old age. know about different types of reproduction, including sexual and asexual. timeline to indicate the stages in growth and development of humans. Understand the changes experienced in puberty.</p>

	with burning and the action of acid on bicarbonate of soda.		
6	<p>The Battle of Britain</p> <p>Animals including humans- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. recognise the impact of diet, exercise, drugs and lifestyle on the way the body functions. describe the ways in which nutrients and water are transported within animals, including humans</p> <p>Understand and explain the impact of diet, exercise and lifestyle.</p> <p>.</p> <p>Living Things- explain reasons for classifying plants and animals based on specific characteristics. describe how [plants, animals and micro-organisms are classified into broad groups according to common observable characteristics and based on similarities and differences. understand classification and be able to classify living things.</p>	<p>Magical Mysteries</p> <p>Light – show that light appears to travel in straight lines explain that light travels in straight lines and that objects are seen because they give out or reflect light into the eye. demonstrate and 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. demonstrate that light travels in straight lines to show why shadows have the same shape as the objects that cast them.</p> <p>Electricity- show that the brightness of a lamp or the volume of a buzzer depends on the number and voltage of cells used in the circuit. compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. draw a diagram using recognised symbols to represent a simple circuit.</p>	<p>Legacy</p> <p>Evolution- explain that the kinds of living things that live on the earth now are different from those that inhabited the Earth millions of years ago and that fossils provide this information. explain that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. understand how animals and plants are adapted to suit their environment in different ways and can explain that adaptation may lead to evolution.</p> <p>Inheritance - Recognise that living things produce offspring of the same kind, but normally offspring may vary and are not identical to their parents.</p>

The content written in red relates to Sex Education and the PSHE curriculum. Please refer to the JIGSAW PSHE Scheme of Learning to support your teaching of this.