

## SCIENCE Curriculum Intent

Our children at Hurst Hill have an entitlement to the powerful knowledge and experiences that will enable them to lead healthy and successful lives. We ensure they have the knowledge and skills to be able to take care of themselves and the world around them.

### Hurst Hill Primary School – SCIENCE Working Scientifically – Progression Document

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Planning and Predicting		Suggest what might happen and ways to test ideas.	With help, suggest some ideas and questions. Think about how to collect evidence. Suggest what might happen. Think about and discuss whether comparisons and tests are fair or unfair.	Respond to suggestions. With help put forward ideas about testing. Make predictions. With help, consider what constitutes a fair test. With help plan and carry out a fair test.	Recognise why it is important to collect data to answer questions. Suggest questions that can be tested. Put forward ideas about testing and make predictions. With help, consider what constitutes a fair test.	Recognise that scientific ideas are based on evidence and creative thinking. Make predictions based on scientific knowledge. Suggest methods of testing including a fair test. Suggest how to collect evidence. Select suitable equipment.	Consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new ideas and explanations for phenomena. Make predictions based on scientific knowledge and understanding. Suggest methods of testing including a fair test and how to collect evidence, ensuring it is sufficient and appropriate.
Investigating and Observing	<p><b>Understanding the World – The World</b></p> <p>40-60 months Looks closely at similarities, differences, patterns and change.</p> <p>ELG Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.</p>	Make observations using appropriate senses. Explore using the five senses. Make simple comparisons and groupings. Ask simple scientific questions.	Make observations and comparisons using simple equipment, following simple instructions. Ask simple scientific questions. Use first-hand experience and, with help, simple information sources to answer questions.	Make observations and comparisons. Measure length, volume of liquid and time in standard measures using simple measuring equipment. Use first-hand experience and simple information sources to answer questions.	Make relevant observations and comparisons. Make measurements of temperature, time and force as well as measurements of length. Begin to think about why measurements of length should be repeated. With help, carry out a fair test recognising and explaining why it is fair.	Carry out a fair test explaining why it is fair. Understand why observations and measurements need to be repeated. Select information from provided sources.	Carry out a fair test identifying key factors to be considered. Make a variety of relevant observations and measurements using simple apparatus correctly. Decide when observations and measurements need to be checked, by repeating, to give more reliable data. Select information from a range of sources.
Recording, Analysing and Evaluating		Communicate findings in simple ways. Collect evidence to try and answer a question. Suggest what I have found out.	Record findings in simple ways including tables, graphs etc. Say whether what happened was what was expected and draw simple conclusions. Identify and classify things.	Communicate findings in a variety of ways. Say whether what happened was what was expected. With help, identify simple patterns and suggest explanations.	Explain what the evidence shows in a scientific way and whether it supports predictions. Suggest improvements in their work.	Communicate findings in a variety of ways. Identify simple trends and patterns. Communicate findings in tables, bar charts and line graphs, whilst making appropriate use of ICT. Identify trends and patterns and offer explanations for these. To draw conclusions and communicate them in appropriate scientific language. Suggest improvements in their work giving reasons.	Communicate findings in tables, bar charts and line graphs, whilst making appropriate use of ICT. Identify trends and patterns and results that do not appear to fit the pattern. Provide explanations for differences in observations and measurements. Draw conclusions and communicate them in appropriate scientific language. Make practical suggestions for improving methods in their work giving suggestions. Describe and evaluate their own and others scientific ideas using evidence. Raise further questions to be investigated.

## Hurst Hill Primary School – SCIENCE – National Curriculum and Progression Document

		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Biology	Plants	<p><b>Physical Development – Health and Self-Care</b></p> <p>ELG Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal</p>	<p>Can identify and name a variety of common wild and garden plants, including deciduous and evergreen. Can identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p>Can observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>Can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Can explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Can investigate the way in which water is transported within plants. Can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>			
	Animals inc Humans	<p>needs successfully, including dressing and going to the toilet independently.</p> <p><b>Understanding the World – The World</b></p> <p>30-50 months Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world.</p>	<p>Can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Can identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</p> <p>Can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p>	<p>Notice that animals, including humans, have offspring which grow into adults Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p>Identify that animals, including humans, need the right amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Identify that humans and some animals have skeletons and muscles for support, protection and movement</p>	<p>Construct and interpret a variety of food chains identifying producers, predators and prey. Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions</p>	<p>Describe the changes as humans develop from birth to old age</p>	<p>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 their bodies function Describe the ways in which nutrients and water are transported within animals, including humans.</p>
	Living Things and their habitats	<p>the place where they live or the natural world. Can talk about some of the things they have observed such as plants, animals, natural and found objects. Talks about why things happen and how things work. Developing an understanding of growth, decay and changes over time. Shows care and concern for living things and the environment.</p>		<p>Can explore and compare the differences between things that are living, dead, and things that have never been alive. Can identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other Can identify and name a variety of plants and animals in their habitats, including micro-habitats. Can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</p>		<p>Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometime pose dangers to living things.</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals.</p>	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics.</p>
Chemistry		<p>40-60 months Looks closely at similarities, differences, patterns and change.</p> <p>ELG Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.</p>	<p><b>Everyday Materials</b> Can distinguish between an object and the material from which it is made Can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Can describe the simple physical properties of a variety of everyday materials. Can compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p><b>Use of Everyday Materials</b> Can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p><b>Rocks</b> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter.</p>	<p><b>States of matter</b> Compare and group materials together, according to whether they are solids, liquids or gases Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p><b>Properties and changes of material</b> 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 Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes 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.</p>	<p><b>Evolution and Inheritance</b> Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>
	Physics		<p><b>Seasonal Changes</b> Can observe changes across the four seasons. Can observe and describe weather associated with the seasons and how day length varies.</p>		<p><b>Light</b> Recognise that they need light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that light from the sun can be dangerous and that there are ways to protect their eyes Recognise that shadows are formed when the light from a light source is blocked by a solid object Find patterns in the way that the size of shadows change.</p>	<p><b>Sound</b> Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from sounds travel through a medium to the ear Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it Recognise that sounds get fainter as the distance from the sound source increases.</p>	<p><b>Earth and Space</b> Describe the movement of the Earth, and other 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 Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p><b>Light</b> Recognise that light appears to travel in straight lines Use the idea that light travels in straight lines to explain that objects are 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 Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>
				<p><b>Forces and magnets</b> Compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces can act at a distance Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having two poles Predict whether two magnets will attract or repel each</p>	<p><b>Electricity</b> Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p>	<p><b>Forces</b> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	<p>Electricity Associate the brightness of a lamp or the volume of a buzzer with 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 Use recognised symbols when representing a simple circuit in a diagram.</p>	

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