



# **Curriculum Map Science**

**Intent:**

At West Heath, it is our intention to recognise the importance of Science in every aspect of daily life. We give the teaching and learning of Science the prominence it requires, through both theory and practical opportunities. The Scientific area of learning is concerned with increasing pupils' knowledge and their understanding of our world, along with developing skills associated with Science as a process of enquiry. Our Science curriculum encourages the development and natural curiosity of the child, encourages respect for living organisms and the physical environment, whilst providing opportunities for evaluation and critical thinking. We intend to build a Science curriculum which develops learning and results in the acquisition of knowledge. We strive to enable children to become enquiry based, knowledge thirsty learners, who appreciate the Science of yesterday, today and the future.

**Implementation:**

Deliver a designated Science lesson of 90 minutes each week.

Follow a clear and comprehensive scheme of work in line with the National Curriculum, where teaching and learning should show progression across all key stages within the strands of Science.

Children have access to key language and meanings in order to understand and readily apply scientific vocabulary in their written and verbal communication.

Children will use a range of resources to develop their knowledge and understanding that is integral to their learning and further develop their understanding of working scientifically.

Clear and comprehensive scheme of work in line with the National Curriculum where teaching and learning plans for practical investigative opportunities within Science lessons.

Children will reflect on previous learning and cross curricular links will be made wherever possible.

Children will be able to build on prior knowledge and link ideas together, enabling them to question and become enquiry-based learners.

Attainment will be assessed each half term through related topic assessments and tasks.

Where applicable links to Science will be made to develop the children's topical learning.

**Impact:**

At West Heath, we ensure that pupils' have the opportunity to secure and retain knowledge that is pertinent to Science with a real life context. We want children to be able to question ideas and reflect on their own knowledge (new and gained). The Science curriculum encourages them to work collaboratively and practically to investigate and experiment, whilst building on a child's science capital. This then allows our pupils' to explain the process they have taken and be able to reason scientifically. Our Science curriculum is high quality, well thought out and is planned to demonstrate progression across key phases and subject areas. We focus on progression of knowledge and skills.

We measure the impact of our curriculum through the following methods:

- Assessing children's understanding of subject specific vocabulary before and after the unit is taught.
- Recording images and videos of the children's practical learning.
- Pupil voice.
- Moderation staff meetings where pupil's books are scrutinised and there is the opportunity for a dialogue between teachers to understand their class's work.
- Annual reporting of standards across the curriculum.
- Marking of work in books.
- End of subject module assessments to inform teacher judgement.

SCIENCE					
CURRICULUM MAP					
Year 1					
HEART: Excellence Respect Collaboration Honesty Resilience Determination Empathy					
AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
Everyday Materials	Animals	Plants	Seasonal changes	Humans and their senses	Working Scientifically
SOS – Everyday Materials	SOS- Holiday	SOS – On Safari	SOS – Seasonal Change	SOS – Who am I?	SOS – Polar adventure
<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Distinguish between an object and the material from which it is made</li> <li>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>Describe the simple physical properties of a variety of everyday materials</li> <li>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul> <b>Working Scientifically</b>	<u>HEAD</u>  Pupils should be taught: <ul style="list-style-type: none"> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> </ul> <b>Working Scientifically</b>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul> <b>Working Scientifically</b>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Observe changes across the four seasons.</li> <li>Observe and describe weather associated with the seasons and how day length varies</li> </ul> <b>Working Scientifically</b>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul> <b>Working Scientifically</b>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>asking simple questions and recognising that they can be answered in different ways</li> <li>observing closely, using simple equipment</li> <li>performing simple tests</li> <li>identifying and classifying</li> <li>using their observations and ideas to suggest answers to questions</li> <li>gathering and recording data to help in answering questions</li> </ul>

SCIENCE					
CURRICULUM MAP					
Year 2					
HEART: Excellence Respect Collaboration Honesty Resilience Determination Empathy					
AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
Uses of everyday materials	Use of everyday materials 2 <i>Working Scientifically</i>	Plants	Animals, including humans	Living things and their habitats	<i>Working Scientifically</i>
SOS – Material Monster	SOS – Move it	SOS – Young Gardeners	SOS – Healthy Me	SOS – Mini Worlds	SOS – Little Masterchef
<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</li> <li>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul> <i>Working scientifically</i>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>compare how things move on different surfaces</li> <li>asking simple questions and recognising that they can be answered in different ways</li> <li>observing closely, using simple equipment</li> <li>performing simple tests</li> <li>identifying and classifying</li> <li>using their observations and ideas to suggest answers to questions</li> <li>gathering and recording data to help</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Observe and describe how seeds and bulbs grow into mature plants.</li> <li>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul> <i>Working scientifically</i>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</li> <li>Notice that animals, including humans, have off spring which grow into adults.</li> <li>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul> <i>Working scientifically</i>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>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</li> <li>Identify and name a variety of plants and animals in their</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>asking simple questions and recognising that they can be answered in different ways</li> <li>observing closely, using simple equipment</li> <li>performing simple tests</li> <li>identifying and classifying</li> <li>using their observations and ideas to suggest answers to questions</li> <li>gathering and recording data to help in answering questions</li> </ul>

	in answering questions			habitats, including microhabitats <ul style="list-style-type: none"> <li>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.</li> </ul> <b>Working scientifically</b>	
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SCIENCE					
CURRICULUM MAP					
Year 3					
HEART: Excellence Respect Collaboration Honesty Resilience Determination Empathy					
AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
Rocks	Light	Animals, including humans	Plants	Forces and Magnets	Working Scientifically
SOS – Earth Rocks	SOS – Mirror Mirror	SOS – Food and our bodies	SOS –How does your garden grow?	SOS - Opposites Attract	SOS- We are Astronauts
<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</li> <li>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</li> <li>Recognise that soils are made from rocks and organic matter.</li> </ul> <p>Working Scientifically</p>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Recognise that they need light in order to see things and that dark is the absence of light</li> <li>Notice that light is reflected from surfaces</li> <li>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>Recognise that shadows are formed when the light from a light source is blocked by an opaque object</li> <li>Find patterns in the way that the size of shadows change.</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>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</li> <li>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul> <p>Working Scientifically</p>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>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</li> <li>Investigate the way in which water is transported within plants</li> <li>Explore the part that flowers play in the life cycle of flowering</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Compare how things move on different surfaces</li> <li>Notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>Observe how magnets attract or repel each other and attract some materials and not others</li> <li>Compare and group together a variety of everyday materials on the basis of whether they are</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>asking relevant questions and using different types of scientific enquiries to answer them</li> <li>setting up simple practical enquiries, comparative and fair tests</li> <li>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> </ul>

	Working Scientifically		<p>plants, including pollination, seed formation and seed dispersal</p> <p>Working Scientifically</p>	<p>attracted to a magnet, and identify some magnetic materials</p> <ul style="list-style-type: none"> <li>Describe magnets as having two poles</li> <li>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul> <p>Working Scientifically</p>	<ul style="list-style-type: none"> <li>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>using straightforward scientific evidence to answer questions or to support their findings</li> </ul>
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SCIENCE					
CURRICULUM MAP					
Year 4					
HEART: Excellence Respect Collaboration Honesty Resilience Determination Empathy					
AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
Sound	Animals, including humans	Living things and their habitats	States of Matter	Electricity	Working Scientifically
SOS – What’s that sound?	SOS – Teeth and Eating	SOS – Living Things	SOS – Looking at States	SOS – Power it up	SOS – Brilliant Bubbles
<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Identify how sounds are made, associating some of them with something vibrating.</li> <li>Recognise that vibrations from sounds travel through a medium to the ear.</li> <li>Find patterns between the pitch of a sound and features of the object that produced it.</li> <li>Find patterns between the volume of a sound and the strength of the</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Describe the simple functions of the basic parts of the digestive system in humans.</li> <li>Identify the different types of teeth in humans and their simple functions.</li> <li>Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul> <b>Working scientifically</b>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Recognise that living things can be grouped in a variety of ways.</li> <li>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</li> <li>Recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul> <b>Working scientifically</b>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Compare and group materials together, according to whether they are solids, liquids or gases.</li> <li>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).</li> <li>Identify the part played by evaporation and condensation in the water cycle and associate the rate of</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Identify common appliances that run on electricity.</li> <li>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li> <li>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.</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>asking relevant questions and using different types of scientific enquiries to answer them</li> <li>setting up simple practical enquiries, comparative and fair tests</li> <li>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>gathering, recording, classifying and</li> </ul>

<p>vibrations that produced it.</p> <ul style="list-style-type: none"> <li>Recognise that sounds get fainter as the distance from the sound source increases.</li> </ul> <p>Working scientifically</p>			<p>evaporation with temperature.</p> <p>Working scientifically</p>	<ul style="list-style-type: none"> <li>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</li> <li>Recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul> <p>Working scientifically</p>	<p>presenting data in a variety of ways to help in answering questions</p> <ul style="list-style-type: none"> <li>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>using straightforward scientific evidence to answer questions or to support their findings</li> </ul>
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SCIENCE					
CURRICULUM MAP					
Year 5					
HEART: Excellence Respect Collaboration Honesty Resilience Determination Empathy					
AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
Earth and Space	Animals, including humans	Living things and their habitats	Properties and changes of materials	Forces	Working Scientifically
SOS – Out of this world	SOS – Growing up and growing old	SOS – Circle of life	SOS – Material World	SOS – Let's get moving	SOS – Super Scientists
<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</li> <li>Describe the movement of the Moon relative to the Earth.</li> <li>Describe the Sun, Earth and Moon as approximately spherical bodies.</li> <li>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Describe the changes as humans develop to old age.</li> </ul> <b>Working Scientifically</b>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>Describe the life process of reproduction in some plants and animals</li> </ul> <b>Working Scientifically</b>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>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.</li> <li>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>recording data and results of increasing complexity using scientific diagrams and labels, classification keys,</li> </ul>

Working Scientifically			<ul style="list-style-type: none"> <li>• Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</li> <li>• Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</li> <li>• Demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>• 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.</li> </ul> <p>Working Scientifically</p>	<p>to have a greater effect.</p> <p>Working scientifically</p>	<p>tables, scatter graphs, bar and line graphs</p> <ul style="list-style-type: none"> <li>• using test results to make predictions to set up further comparative and fair tests</li> <li>• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations</li> <li>• identifying scientific evidence that has been used to support or refute ideas or arguments</li> </ul>
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SCIENCE					
CURRICULUM MAP					
Year 6					
HEART: Excellence Respect Collaboration Honesty Resilience Determination Empathy					
AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
Light	Animals, including humans	Living things and their habitats	Evolution and inheritance	Electricity	Working Scientifically
SOS – Let it shine	SOS – Staying Alive	SOS – Classifying Critters	SOS – We’re evolving	SOS – Electrifying	SOS – We are dinosaur hunters
<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>recognise that light appears to travel in straight lines</li> <li>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</li> <li>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</li> <li>use the idea that light travels in straight lines to explain why shadows have the</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>recognise the impact of diet, exercise, drugs and lifestyle on the way their body’s function</li> <li>describe the ways in which nutrients and water are transported within animals, including humans</li> </ul> <b>Working scientifically</b>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>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</li> <li>give reasons for classifying plants and animals based on specific characteristics</li> </ul> <b>Working scientifically</b>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>identify how animals and plants are adapted to suit their environment in different ways and</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>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</li> <li>use recognised symbols when representing a simple circuit in a diagram</li> </ul>	<u>HEAD</u>  Pupils should be taught to: <ul style="list-style-type: none"> <li>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>recording data and results of increasing complexity using scientific diagrams and labels, classification keys,</li> </ul>

<p>same shape as the objects that cast them</p> <p><b>Working scientifically</b></p>			<p>that adaptation may lead to evolution</p> <p><b>Working scientifically</b></p>	<p><b>Working scientifically</b></p>	<p>tables, scatter graphs, bar and line graphs</p> <ul style="list-style-type: none"> <li>• using test results to make predictions to set up further comparative and fair tests</li> <li>• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations</li> <li>• identifying scientific evidence that has been used to support or refute ideas or arguments</li> </ul>
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