

National Curriculum Science Key Stage 1

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

Pupils should be taught about:

- Plants (Year 1&2)
- Animals Including Humans (Year 1&2)
- Living things and their habitats (Year 1&2)
- Everyday Materials and their Uses (Year 1&2)
- Seasonal Changes (Year 1)

Key Stage 1 Cycle A

Key Stage 1 Cycle B

On-going throughout the year: Seasonal Changes (Year 1)

On-going throughout the year: Seasonal Changes (Year 1)

Autumn 1:
Animals Including Humans (Year 2)

Autumn 2:
Everyday Materials (Year 1)

Autumn 1 & 2:
Uses of Everyday Materials (Year 2)

Spring 1:
Everyday Materials (continuation)

Spring 2:
Living Things and Their Habitats (Year 2)

Spring 1:
Animals Including Humans (Year 1)

Spring 2:
Plants (Year 2)

Summer 1:
Plants (Year 1)

Summer 2:
Investigations.

Summer 1:
Living Things and Their Habitats (Year 1)

Summer 2:
Investigations.

National Curriculum Science Lower Key Stage 2

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

Pupils should be taught about:

- Animals including Humans (Year 3&4)
- Living things and their Habitats (Year 4)
- Rocks (Year 3)
- Plants (Year 3)
- Light (Year 3)
- Sound (Year 4)
- Electricity (Year 4)
- Forces and Magnets (Year 3)

Lower Key Stage 2 Cycle A

Lower Key Stage 2 Cycle B

Autumn 1: Materials- Rocks (Year 3)	Autumn 2: Light (Year 3)	Autumn 1: Animals Including Humans (Year 4)	Autumn 2: Materials- Forces and Magnets (Year 3)
Spring 1: Materials- States of Matter (Year 4)	Spring 2: Sound (Year 4)	Spring 1: Living Things and Their Habitats (Year 4)	Spring 2: Electricity (Year 4)
Summer 1: Plants (Year 3)	Summer 2: Investigations.	Summer 1: Animals Including Humans (Year 3)	Summer 2:

National Curriculum Science Upper Key Stage 2

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science 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 and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

Pupils should be taught about:

- Animals Including Humans (Year 5&6)
- Living things and their habitats (Year 5&6)
- Properties and Changes of Materials (Year 5)
- Earth and Space (Year 5)
- Forces (Year 5)
- Light (Year 6)
- Electricity (Year 6)

Upper Key Stage 2 Cycle A		Upper Key Stage 2 Cycle B	
Autumn 1: Living things and their habitats (Year 6)	Autumn 2: Light (Year 6)	Autumn 1: Living Things and Their Habitats (Year 5)	Autumn 2: Animals Including Humans (Year 5)
Spring 1: Evolution and Inheritance (Year 6)	Spring 2: Earth and Space (Year 5)	Spring 1: Materials- Forces (Year 5)	Spring 2:
Summer 1: Electricity (Year 6)	Summer 2: Animals Including Humans (Year 6)	Summer 1: Properties of Materials (Year 5)	

Working Scientifically.

NC: 'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. Types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> Know how to ask simple scientific questions. Know how to use simple equipment to make observations. Know how to carry out simple tests. Know how to explain to others what they have found out. Know how to use simple data to answer questions. 		<ul style="list-style-type: none"> Know how to ask relevant scientific questions. Know how to use observations and knowledge to answer scientific questions. Know how to set up a simple enquiry to explore a scientific question. Know how to set up a fair test and explain why it is fair. Know how to set up a test to compare 2 things. Make careful and accurate observations, including the use of standard units. Know how to use equipment, including thermometers and data loggers to make measurements. Gather, record, classify and present data in different ways to answer scientific questions. Know how to use diagrams, keys, bar charts and tables; using scientific language. Know how to use findings to report in different ways, including oral and written explanations. Know how to draw conclusions and suggest improvements. Know how to make a prediction with a reason. Know how to identify differences, similarities and changes to a related enquiry. 		<ul style="list-style-type: none"> Know how to plan different types of scientific enquiry. Know how to control variables in an enquiry. Measure accurately and precisely using a range of equipment. Know how to record data and results using scientific diagrams and labels, classification keys, tables, bar and line graphs. Use the outcome of test results to make predictions and set up further comparative and fair tests. Report findings from enquiries in a range of ways. Know how to explain a conclusion from enquiry. Explain causal relationships in an enquiry. Know how to 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. 	
Progressive focus across Key Stages in Working Scientifically at Great Horwood C of E School:					
<ul style="list-style-type: none"> Predictions. 		<ul style="list-style-type: none"> Predictions and recording results. 		<ul style="list-style-type: none"> Predictions, recording results and conclusions. 	

Biology- Animals Including Humans

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> Know and name a variety of animals including fish, amphibians, reptiles, birds and mammals. Classify and know animals by what they eat (Carnivore, herbivore and omnivore) Know how to sort animals into categories (including animal groups) Know how to sort living and non-living things. Know how to name the parts of the human body that can be seen. Know how to link the correct part of the human body to each sense. 	<ul style="list-style-type: none"> Know the basic stages of a life cycle for animals, including humans. Know what humans and animals need to survive. Know why exercise, a balanced diet and good hygiene are important for humans. 	<ul style="list-style-type: none"> Know about the importance of a nutritious balanced diet. Know how nutrients, water and oxygen are transported within animals and humans. Know about the skeletal system of a human. Know about the muscular system of a human. Know about the purpose of the skeleton in humans and animals. 	<ul style="list-style-type: none"> Identify and name parts of the Human Digestive System. Know the functions of the organs in the human digestive system. Identify and know the different types of teeth in humans. Know the functions of different human teeth. Use food chains to identify producers, predators and prey. Construct food chains to identify producers, predators and prey. 	<ul style="list-style-type: none"> Create a timeline to indicate stages of growth in humans. 	<ul style="list-style-type: none"> Identify and name the main parts of the human circulatory system. Know the function of the heart, blood vessels and blood. Know the impact of diet, exercise drugs and life style on health. Know the ways in which nutrients and water are transported in animals, including humans.

Biology- Living Things and their Habitats.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<ul style="list-style-type: none"> Identify things that are living, dead and never alive. Know how a specific habitat provides for the basic needs of living things there. Identify and name plants and animals in a range of habitats. Match living things to their habitats. 		<ul style="list-style-type: none"> Group living things in different ways. Use classification keys to group, identify and name living things. Create classification keys to group, identify and name living things. Know how changes to an environment could endanger 	<ul style="list-style-type: none"> Know the lifecycle of different living things. For example, mammal, amphibian, insect, bird. Know the differences between the different life cycles. Know the process of production in plants. Know the process of 	<ul style="list-style-type: none"> Classify living things into broad groups according to observable characteristics and based on similarities and differences. Know how living things have been classified. Give reasons for classifying plants and animals in a

Italics – Target Tracker Statements

	<ul style="list-style-type: none"> • Know how animals find their food. • Name some different sources of food for animals (herbivore, carnivore and omnivore) • Know and explain a simple food chain. 		living things.	reproduction in animals.	specific way.
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Biology- Evolution and Inheritance.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					<ul style="list-style-type: none"> • Know how the Earth and living things have changed over time. • Know how fossils can be used to find out about the past. • Know about reproduction and offspring (recognising that offspring normally vary and are not identical to the parents) • Know how animals and plants are adapted to suit their environment. • Link adaptation over time to evolution. • Know about evolution and explain what it is.

Biology- Plants					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<ul style="list-style-type: none"> • Know how seeds and bulbs grow into plants. • Know what plants need in order to grow and stay healthy (water, light and suitable temperature) 	<ul style="list-style-type: none"> • Know the function of different parts of flowing plants and trees. • Know what different plants need to help them survive. • Know how water is transported within plants. • Know the plant life cycle, especially the importance of flowers. 			

Chemistry- Materials.					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> • Distinguish between an object and the material it is made from. • Know the materials that an object is made from. • Know the difference between wood, plastic, glass, metal, water and rock. • Know about the properties of everyday materials. • Group objects based on the materials they are made from. 	<ul style="list-style-type: none"> • Identify and name a range of materials including wood, metal, plastic, glass, brick, rock, paper and cardboard. • Know why a material might or might not be used for a specific job. • Know how materials can be changed by squashing, bending, twisting and stretching. 	<ul style="list-style-type: none"> • Compare and group rocks based on their appearance and physical properties, giving a reason. • Know how fossils are formed. • Know how soil is made. • Know about and explain the difference between sedimentary, metamorphic and igneous rock. 	<ul style="list-style-type: none"> • Group materials based on their state of matter (solid, liquid or gas) • Know how some materials can change state. • Explore how materials can change state. • Measure the temperature at which materials change state. • Know about the water cycle. • Know the part played by evaporation and condensation in the water cycle. 	<ul style="list-style-type: none"> • Compare and group materials based on their properties. For example, solubility, conductivity. • Know how a material dissolves to form a solution; explaining the process of dissolving. • Know and show how to recover a substance from a solution. • Know how some materials can be separated. For example, through filtering and evaporating. • Know and can demonstrate 	

				<p>that some changes are reversible and some are not.</p> <ul style="list-style-type: none"> • Know how some changes result in the formation of a new material and that this is usually irreversible. • Know about reversible and irreversible changes. • Give evidenced reasons why materials should be used for specific purposes. 	
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Chemistry- Materials- Forces.					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<ul style="list-style-type: none"> • Know about and describe how objects move on different surfaces, • Know how some forces require contact and some do not, giving examples. • Know about and explain how objects attract and repel in relation to objects and other magnets. • Predict whether objects will be magnetic and carry out an enquiry. • Know how to make magnets work. • Predict whether magnets will attract or repel and give a reason. 		<ul style="list-style-type: none"> • Know what gravity is and its impact on our lives. • Identify and know the effect of air and water resistance. • Identify and know the effects of friction. • Explain how levers, pulleys and gears allow a smaller force to have a greater effect. 	

Physics- Seasonal Changes					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> Observe and know about the changes in seasons. Name the seasons and know about the type of weather in each season. 					

Physics- Light and Electricity.					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<ul style="list-style-type: none"> Know what dark is (the absence of light) Know that light is needed in order to see. Know that light is reflected from a surface. Know and demonstrate how a shadow is formed. Explore shadow size and explain the changes. Know the danger of direct sunlight and describe how to keep protected. 	<ul style="list-style-type: none"> Identify and name appliances that require electricity to function. Construct a series circuit. Identify and name the components in a series circuit (including; cells, wires, bulbs, switches and buzzers) Know how to draw a circuit diagram. Predict and test whether a lamp will light within a circuit. Know the function of a switch in a circuit. Know the difference between a conductor and an insulator, giving examples of each. 		<ul style="list-style-type: none"> Know how light travels. Know and demonstrate how we see objects. Know why shadows have the same shape as the object that casts them. Know how simple optical instruments work. For example, telescope and magnifying glass. Know how the number of voltage of cells in a circuit links to the brightness of a lamp or volume of a buzzer. Compare and give reasons why components work and do not work in a circuit. Draw circuit diagrams using correct symbols.

Physics- Sound					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			<ul style="list-style-type: none"> • Know how sound is made. • Know how sound travels from a source to our ears. • Know how sounds are made, associating them with vibrating. • Know the correlation between pitch and the object producing a sound. • Know the correlation between the volume of a sound and the strength of the vibrations produced. • Know what happens to a sound as it travels away from the source. 		

Physics- Earth and Space.					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				<ul style="list-style-type: none"> • Know about & explain the movement of the Earth & other planets relative to the Sun. • Know about and explain the movement of the Moon relative to the Earth. • Know and demonstrate how night and day are created. • Describe the Sun, Earth & Moon using the term spherical 	