

## KPIs Science Curriculum

	<b>EYFS</b>	<b>KS1</b>	<b>LKS2</b>	<b>UKS2</b>
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<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Working Scientifically</b></p>	<ul style="list-style-type: none"> <li>• Learn new vocabulary.</li> <li>• Use new vocabulary in different contexts.</li> <li>• Ask questions to find out more and to check what has been said to them.</li> <li>• Use talk to work out problems and organise thinking and activities. Explain how things work and why they might happen.</li> <li>• Make comments about what they have heard and ask questions to clarify their understanding. <ul style="list-style-type: none"> <li>• Explore the natural world around them.</li> </ul> </li> <li>• Describe what they see, hear and feel whilst outside.</li> <li>• Recognise some environments that are different to the one in which they live.</li> <li>• Understand the effect of changing seasons on the natural world around them.</li> </ul>	<ul style="list-style-type: none"> <li>• Ask simple questions and make simple predictions about what might happen.</li> <li>• Perform simple tests, using basic equipment, to collect data and evidence to answer questions.</li> <li>• Record findings in various formats using standard units – drawings, diagrams, photographs, prepared tables and charts, displays.</li> <li>• Talk about findings and draw simple conclusions to help answer questions.</li> <li>• Understand and use key vocabulary: question, answer, observe, equipment, identify, classify, sort, group, record, diagram, chart, map, data, compare, contrast, describe.</li> </ul>	<ul style="list-style-type: none"> <li>• Ask relevant questions, set up and carry out simple practical enquiries, comparative and fair tests to answer them.</li> <li>• Suggest what might happen in comparative and fair tests.</li> <li>• Make careful observations and comparisons, identifying simple patterns and changes, and take accurate measurements using standard units and a range of equipment including thermometers and data loggers.</li> <li>• Recognise what constitutes a fair test.</li> <li>• Record and communicate findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</li> <li>• Gather and record findings through drawings, photographs, labelled diagrams, keys, models, presentations, tables, graphs and displays, using scientific language.</li> <li>• Draw simple conclusions from results and use this to raise further questions, make predictions and suggest improvements. Recognise evidence that does and does not support ideas.</li> <li>• Report findings of enquiries, including both oral and</li> </ul>	<ul style="list-style-type: none"> <li>• Plan and carry out a range of different types of scientific enquiries to answer questions, including recognising and controlling different variables as necessary.</li> <li>• Identify trends and patterns and offer explanations for these.</li> <li>• Make predictions based on scientific knowledge and understanding.</li> <li>• Take measurements, using a range of scientific equipment, with increasing accuracy and precision, including taking repeat readings.</li> <li>• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs.</li> <li>• Use results to make to make predictions for further tests to set up further comparative and fair tests.</li> <li>• Report and present findings, including conclusions, causal relationships and explanations of reliability in both oral and written forms, using detailed scientific knowledge.</li> <li>• Understand and use key vocabulary: all LKS2 vocabulary, variables, plan, measurements, accuracy, precision, repeat readings, prediction, comparative test, fair test, identify, classify, describe, systematic,</li> </ul>
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			<p>written presentations, using appropriate scientific vocabulary.</p> <ul style="list-style-type: none"><li>• Understand and use key vocabulary: relevant, comparative test, fair test, systematic, careful, observation, accurate, measure, thermometer, data logger, gather, record, classify, present, drawings, diagrams, keys, bars, charts, tables, oral explanations, written explanations, conclusion, predictions, differences, similarities, changes, evidence, improve, secondary sources, guides, keys, construct, interpret.</li></ul>	<p>quantitative, diagrams, labels, classification, tables, graphs, charts, conclusions, causal relationships, refute, biology, chemistry, physics.</p>
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## Biology

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| <ul style="list-style-type: none"><li>• Explore the natural world around them, making observations and drawing pictures of animals and plants.</li><li>•</li></ul> | <ul style="list-style-type: none"><li>• Describe the basic needs of animals, including humans, for survival (water, food and air).</li><li>• Identify, name, draw and label basic parts of the human body and say which part of the body is associated with each sense.</li><li>• Describe what humans need to stay healthy (exercise, eating the right amounts of different types of food, and hygiene).</li><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><li>• Notice that animals, including humans, have offspring which grow into adults.</li><li>• Identify, name and describe the structure of a variety of common animals including fish, amphibians, reptiles, birds and mammals (including pets).</li><li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li><li>• Identify that most living things live in habitats to which they are suited and describe how different</li></ul> | <ul style="list-style-type: none"><li>• Identify that animals, including humans need the right type of nutrition and they cannot make their own food.</li><li>• Explains why humans and some animals have skeletons and muscles (i.e. for support, protection and movement) and understand the importance of a skeleton and how these can differ in animals.</li><li>• Identify the different types of teeth in humans and describe their function.</li><li>• Describe how the human digestive system works, knowing the different organs involved in digestion and how these function.</li><li>• Construct and interpret simple food chains to show this, identifying the producers, predator and prey.</li><li>• Use and understand classification keys, showing how living things can be groups in a variety of ways.</li><li>• Identify and explain the functions of the different parts of a flowering plant (roots, stem, leaves and flower) and how plants transport water.</li><li>• Explore and explain how the part the flower plays in the life cycle of a flowering plant, including pollination, seed</li></ul> | <ul style="list-style-type: none"><li>• Describe the ways in which nutrients and water are transported within animals, including humans.</li><li>• Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function.</li><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 that offspring normally 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 that adaptation may lead to evolution.</li><li>• Describe the life process of reproduction in some plants and animals, identifying the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</li><li>• Describe the changes as humans develop to old age.</li><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 and give reasons for classifying</li></ul> |
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habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.

- Describe changes across the four seasons including weather and length of day.
- Identify, name and describe the structure of a variety of common wild and garden plants including flowering plants, deciduous and evergreen trees.
- Describe the three things plants need to grow and stay healthy (water, light and a suitable temperature) and how seeds and bulbs grow into mature plants.
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dispersal and seed formation.

- Understand the requirements of plants for life and growth and how they vary from plant to plant.
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plants and animals based on specific characteristics.

- Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood.
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<b>Chemistry</b>	<ul style="list-style-type: none"> <li>• • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and name a variety of everyday materials, distinguishing between the object and the material from which it is made.</li> <li>• Describe and group everyday materials on the basis of their simple physical properties and refer to the properties to compare their suitability for particular uses.</li> <li>• Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Compare and group together different types of rocks based on their appearance and simple physical properties</li> <li>• Recognise and explain how soils are made from rocks and organic material.</li> <li>• Describe (in simple terms) how fossils are formed when things are trapped in-between rocks.</li> <li>• Compare and group materials based on their state of matter (solids, liquids or gases).</li> <li>• Observe and investigate that some materials can change state when they are heated and cooled.</li> <li>• Identify the part played by evaporation and condensation in the water cycle.</li> </ul>	<ul style="list-style-type: none"> <li>• Compare and group together everyday materials based on evidence from comparative and fair tests, including hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets and give reasons, based on this, for specific uses of everyday materials.</li> <li>• Use knowledge of solids, liquids and gases to decide how mixtures might be separated (inc. through filtering, sieving and evaporating) and describe how to recover a substance from a solution.</li> </ul>
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**Physics**

- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

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- Recognise that many devices need a source of electricity to work, identifying sources of electricity and appliances that run on it.
- Construct a simple series circuit, being able to identify and name the parts and understand how a switch works within it.
- Understand and explain common conductors and insulators and associate metals with being good conductors.
- Recognise that we need light in order to see and that dark is the absence of light.
- Recognise that shadows are formed when the light from a light source is blocked and recognise patterns in the way shadow size can change.
- Identify how sounds are made, associating some of them with something vibrating, and recognise that sounds get fainter as the distance from the sound source increases.
- Recognise that some forces need contact between the objects in order to work, but magnetic force can act at distance.
- Observe and investigate how magnets attract and repel different materials and identify, compare and group

- Use recognised symbols when representing a simple circuit in a diagram.
- Compare the functions of different components, giving reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off positions of switches.
- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.
- Recognise that light appears to travel in straight lines and reflects light from objects to explain how we see things.
- Explains why shadows have the same shape as the objects that cast them and/or why their size can vary.
- Describes the movement of the Earth, and other planets, relative to the Sun in the Solar System.
- Describes the movement of the Moon relative to the Earth.
- Use the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.
- Identify the effects of air resistance, water resistance and friction, which act between moving surfaces.
- Explain that unsupported objects fall towards the Earth because of the force of gravity

			<p>materials on their magnetic property.</p> <ul style="list-style-type: none"><li>• Explain how magnets work, describing the magnets as having two poles and how magnets can attract or repel based on which poles are facing.</li><li>•</li></ul>	<p>acting between the Earth and the falling object.</p> <ul style="list-style-type: none"><li>• Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li><li>•</li></ul>
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