

## Science Overview



Every child a leader – Every chance taken – Every day counts

The national curriculum for science aims to ensure that all pupils:

Receive a high-quality science education, which provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

- **develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics**
- **develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them**
- **are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future**

### National Curriculum Knowledge

KS1	Lower KS2	Upper KS2
<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>	<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> <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>	<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, tables, scatter graphs, bar and line graphs</li> <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 argument</li> </ul>

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Value	Resilience	Integrity	Democracy	Creativity	Gratitude	Diversity
Key Events	Black History Month (October) Mental Health Day Harvest Festival Show Racism the Red Card	Remembrance Day Anti-bullying Week World Kindness Day	Safer Internet Day	World Book Day		Sports Week Science Week

## Skills Progression – Working Scientifically – Disciplinary Knowledge

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Units Covered	<p>A1 Materials, floating, autumn trees, what happens at night?</p> <p>A2 What is in the sky, planting bulbs</p> <p>Sp1 Materials, toys working, animals and plants</p> <p>Sp2 What is the moon, trees, animals and plants</p> <p>Su1 and 2 animals and plants</p>	<p>Plants <b>(Summer 1&amp;2)</b></p> <p>Animals including humans <b>(Autumn 1&amp;2)</b></p> <p>Everyday materials <b>(Spring 1&amp;2)</b></p> <p>Seasonal changes <b>(Autumn, Spring and Summer)</b></p>	<p>Plants <b>(Summer 1&amp;2)</b></p> <p>Animals including humans <b>Autumn 1</b></p> <p>Uses of everyday materials <b>(Spring 1&amp;2)</b></p> <p>Living things and their habitats <b>(Autumn 2)</b></p>	<p>Plants <b>(Spring 2)</b></p> <p>Animals including humans <b>(Autumn 1)</b></p> <p>Rocks <b>(Autumn 2)</b></p> <p>Light <b>(Summer 1 and 2)</b></p> <p>Forces and Magnets <b>(Spring 1)</b></p>	<p>Animals including humans <b>(Summer 2)</b></p> <p>Living things and their habitats <b>(Summer 1)</b></p> <p>States of matter <b>(Autumn 1)</b></p> <p>Sound <b>(Autumn 2)</b></p> <p>Electricity <b>(Spring 1&amp;2)</b></p>	<p>Animals including humans <b>(Summer 1)</b></p> <p>Living things and their habitats <b>(Spring 2)</b></p> <p>Properties and changes of materials <b>(Summer 2)</b></p> <p>Earth and space <b>(Autumn 1&amp;2)</b></p> <p>Forces <b>(Spring 1)</b></p>	<p>Living things and their habitats <b>(Autumn 1)</b></p> <p>Animals including humans <b>(Autumn 2)</b></p> <p>Evolution and inheritance <b>(Spring 1 and 2)</b></p> <p>Light <b>(Summer 1)</b></p> <p>Electricity <b>(Summer 2)</b></p>

To ask scientific questions	Show a natural curiosity about things around them	Be able to ask a Yes/No questions to aid sorting  Ask one or two simple questions linked to a topic  Ask simple questions and recognise that they can be answered in different ways	Identify a question to investigate from a scenario or choose a question from a range provided  Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum	Ask relevant questions and use different types of scientific enquiries to answer them	Ask relevant questions and use an understanding of different types of scientific enquiries to best answer them	Be able to ask a range of Yes/No questions to aid sorting and decide which ways of sorting will give useful information  Ask a range of questions recognising that some can be answered through research and others may not  Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Ask a range of questions and identify the type of enquiry that will help to answer the questions. Ask further questions based on results
To plan an enquiry		Choose equipment to use and decide what to do.	Choose equipment to use and decide what to do and what to observe or measure in order to answer the question	Choose from a range of sources provided Decide what to measure or observe. Decide how often to take a measurement	Be able to put appropriate headings onto intersecting Venn and Carroll diagrams	Identify specific clear questions that will help to sort without ambiguity  Choose suitable sources to use	Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary
To make predictions	Children in EYFS/ KS1 are not expected to make scientific predictions, as they do not have the subject knowledge to do this. That does not mean that you should not ask children what they think may happen, but this will be based on experience or may simply be a guess.			Suggest what might happen  Use results from an investigation to make a prediction about a further result	Use results from an investigation to make a prediction about a further result	Use test results to make predictions for further investigations	Use test results to make predictions for further investigations, using a subject rich vocabulary
To observe closely	Show a natural curiosity about things around them	Decide what to measure or observe. Decide how often to take a	Use simple equipment to observe closely including changes over time Decide what to	Make systematic and careful observations using equipment where appropriate	Make systematic and careful observations and where appropriate, take accurate	Take measurements, using a range of scientific equipment, with increasing accuracy and	Take measurements, using a range of scientific equipment, with

		measurement. Use simple equipment to observe closely	measure or observe. Decide how often to take a measurement.		measurements using standard units, using a range of equipment including thermometers and data loggers	precision, taking repeat readings when appropriate	increasing accuracy and precision, taking repeat readings when appropriate
To take measurements		Take simple measurements on a standard scale, with support	When appropriate, measure using standard units where all the numbers are marked on the scale	Measure using standard units where not all the numbers are marked on the scale.  Use thermometers to measure over time.	Measure using standard units where not all the numbers are marked on the scale, and take repeat readings where necessary  Use data loggers to measure over time.	Measure using standard units, using equipment that has scales involving decimals	Measure using standard units, using equipment that has scales involving decimals
To gather/record results		Sort objects into two group using a basic Venn diagram or simple table  Record data in simple prepared tables, pictorially or by taking photographs	Record data in simple, prepared tables and tally charts  Sort objects and living things into two group using a basic Venn diagram or simple table	Record findings using simple scientific language presented in different ways Prepare own tables to record data	Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables  Prepare own tables to record data, ensuring spacing and accuracy is used to present findings effectively.	Report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations	Prepare own tables to record data, including columns for taking repeat readings, with high standard of measurement and presentation  Report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations

To present results		<p>Present what they have learnt verbally or using pictures</p> <p>Present what they learnt verbally, using pictures or block diagrams</p> <p>Record data in simple prepared tables, pictorially or by taking photographs</p>		<p>Present what they learnt verbally or using labelled diagrams</p> <p>Sort objects and living things into groups using intersecting Venn and Carroll diagrams</p> <p>Present data in bar charts</p>	<p>Use ICT package to present data as a scattergram</p> <p>Present data in time graphs</p>	<p>Choose an appropriate form of presentation, including line graphs</p> <p>Choose an appropriate form of presentation, including scatter graphs</p>	<p>Create branching databases (tree diagrams) and keys</p> <p>Present what they learnt in a range of ways e.g. different graphic organisers</p>
To interpret results		<p>Talk about the number of objects in each group i.e. which has more or less</p> <p>Be able to answer their questions using simple sentences</p>	<p>Answer their question in simple sentences using their observations or measurements</p>	<p>Be able to answer their questions using simple scientific language</p>	<p>Spot patterns in the data particularly two criteria with no examples e.g. there are no living things with wings</p> <p>Refer directly to their evidence when answering their question</p>	<p>Be able to answer their questions using scientific evidence gained from a range of sources</p> <p>Be able to answer their questions identifying patterns</p>	<p>Be able to answer their questions, describing the change over time</p> <p>Be able to answer their question, describing causal relationships</p>
Classify and find patterns		<p>Identify and classify</p>	<p>Identify, group and classify</p>	<p>Gather, record, classify and present data in a variety of way</p> <p>Be able to put appropriate headings onto intersecting Venn and Carroll diagrams</p> <p>Be able to ask a range of Yes/No questions to aid sorting</p>	<p>Gather, record, classify and present data in a variety of ways to help in answering questions</p>	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs</p>	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p>

Comparative and fair testing		Perform simple tests	Perform simple comparative tests	Set up simple practical enquiries, comparative and fair tests  Be able to compare objects based on more sophisticated, observable features. Present observations in labelled diagrams	Set up simple practical enquiries, comparative and fair tests	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate, explaining why.
Conclude	Children in KS1 are not expected to draw conclusions. They are expected to make observations, which will help them to answer questions. They do not have the subject knowledge to give reasons for what they observe so they cannot draw scientific conclusions.	Use observations and ideas to suggest answers to questions noticing similarities, differences and patterns  Report on findings from enquiries, including oral and written explanations displays or presentations of results and conclusions  Use results to draw simple conclusions, make predictions for new values and suggest improvements  Identify differences, similarities or changes related to simple scientific ideas  Use straightforward scientific evidence to	Report on findings from enquiries, including oral and written explanations displays or presentations of results and conclusions  Use results to draw conclusions, make predictions for new values, suggest improvements and raise further questions  Identify differences, similarities or changes related to simple scientific ideas and processes  Use scientific evidence to answer questions or to support findings	Identify scientific evidence that has been used to support or refute ideas or arguments  Use test results to make predictions to set up further comparative and fair tests  Provide oral or written explanations for their findings	Identify and discuss scientific evidence that has been used to support or refute ideas or argument  Use test results to make predictions to set up further comparative and fair tests, and predict results based on recent enquiries		

		answer questions or to support findings			
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## Substantive Knowledge Progression

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Units Covered	The natural world around  <b>(Autumn, Spring and Summer)</b>	Plants <b>(Summer 1&amp;2)</b> Animals including humans <b>(Autumn 1&amp;2)</b> Everyday materials <b>(Spring 1&amp;2)</b> Seasonal changes <b>(Autumn, Spring and Summer)</b>	Plants <b>(Summer 1&amp;2)</b> Animals including humans <b>(Autumn 1)</b> Uses of everyday materials <b>(Spring 1&amp;2)</b> Living things and their habitats <b>(Autumn 2)</b>	Plants <b>(Spring 2)</b> Animals including humans <b>(Autumn 1)</b> Rocks <b>(Autumn 2)</b> Light <b>(Summer 1)</b> Forces and Magnets <b>(Spring 1)</b>	Animals including humans <b>(Summer 2)</b> Living things and their habitats <b>(Summer 1)</b> States of matter <b>(Autumn 1)</b> Sound <b>(Autumn 2)</b> Electricity <b>(Spring 1&amp;2)</b>	Animals including humans <b>(Summer 1)</b> Living things and their habitats <b>(Spring 2)</b> Properties and changes of materials <b>(Summer 2)</b> Earth and space <b>(Autumn 1&amp;2)</b> Forces <b>(Spring 1)</b>	Living things and their habitats <b>(Autumn 1)</b> Animals including humans <b>(Autumn 2)</b> Evolution and inheritance <b>(Spring 1)</b> Light <b>(Summer 1)</b> Electricity <b>(Summer 2)</b>
Knowledge Progression - <b>Plants</b>	Explore the natural world around them, making observations and drawing pictures of animals and plants  <b>Autumn 1&amp;2, Spring 1&amp;2, Summer 1&amp;2</b>	Identify and describe the basic structure of a variety of common flowering plants, including trees  Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.  Identify and name a variety of plants	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  Identify and name a variety of plants in their habitats, including microhabitats. (Y2 - Living things and their	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.  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.  Investigate the way in which water is		Describe the life process of reproduction in some plants and animals. <b>(Y5 - Living things and their habitats)</b>  <b>Spring 2</b>	

		in their habitats, including microhabitats  <b>Summer 1&amp;2</b>	habitats)  <b>Summer 1 &amp; 2</b>	transported within plants.  Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal  <b>Spring 2</b>			
Knowledge Progression - <b>Animals including humans</b>	Explore the natural world around them, making observations and drawing pictures of animals, body parts and plants  <b>Spring 1&amp;2 Summer 1&amp;2</b>	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals  Identify and name a variety of common animals that are carnivores, herbivores and omnivores  Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)  Identify, name,	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  <b>Autumn 1</b>	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  Identify that humans and some other animals have skeletons and muscles for support, protection and movement  <b>Autumn 1</b>	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 Construct and interpret a variety of food chains, identifying producers, predators and prey  <b>Summer 2</b>	Describe the changes as humans develop to old age  Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird (Y5 - Living things and their habitats)  Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)  <b>Summer 1</b>	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  Describe how living things are classified into broad groups according to common observable



		<p>draw and label the basic parts of the human body and say which part of the body is associated with each sense</p> <p><b>Autumn 1&amp;2</b></p>					<p>characteristics and based on similarities and differences, including microorganisms, plants and animals (Y6 - Living things and their habitats)</p> <p>Give reasons for classifying plants and animals based on specific characteristics (Y6 - Living things and their habitats)</p> <p><b>Autumn 2</b></p>
<p>Knowledge Progression - <b>Living things and their habitats</b></p>	<p>Explore the natural world around them, making observations and drawing pictures of animals and plants</p> <p><b>Autumn 2</b></p>		<p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>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</p> <p>Identify and name a variety of plants and</p>		<p>Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group, identify and name a variety of living things, including plants, in their local and wider environment</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things</p> <p>Construct and interpret a variety of</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Describe the life process of reproduction in some plants and animals</p> <p><b>Spring 2</b></p>	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals</p> <p>Give reasons for classifying plants and animals based on specific characteristics</p> <p>Recognise that living things produce offspring of the</p>

		<p>animals in their habitats, including microhabitats</p> <p>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>Notice that animals, including humans, have offspring, which grow into adults (Y2 - Animals including humans)</p> <p><b>Autumn 2</b></p>		<p>food chains, identifying producers, predators and prey (Y4 - Animals, including humans)</p> <p><b>Summer 1</b></p>		<p>same kind, but normally offspring vary and are not identical to their parents (Y6 - Evolution and inheritance)</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution (Y6 - Evolution and inheritance)</p> <p><b>Autumn 1</b></p>
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<p>Knowledge Progression - <b>Evolution and inheritance</b></p>							<p>Pupils should be taught to:          recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago;</p> <p>recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents;</p> <p>identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p> <p><b>Spring 1</b></p>
<p>Knowledge Progression - <b>materials</b></p>	<p>Understand some important processes and changes in the natural world around them, including the</p>	<p>Everyday Materials          Pupils should be taught to:</p> <p>distinguish between an object</p>	<p>Uses of Everyday Materials          Pupils should be taught to:</p> <p>identify and compare the suitability of a variety of everyday</p>	<p>Link - Rocks          Pupils should be taught to:</p> <p>compare and group together different kinds of rocks on the basis of their</p>	<p>Link - States of Matter          Pupils should be taught to:</p> <p>compare and group materials together, according to whether they are solids, liquids</p>	<p>Link - Properties and Changes of Materials          Pupils should be taught to:</p> <p>compare and group together everyday</p>	

	<p>seasons and changing states of matter</p> <p><b>Autumn 1&amp;2</b> <b>Spring 1&amp;2</b> <b>Summer 1</b></p>	<p>and the material from which it is made;</p> <p>identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock;</p> <p>describe the simple physical properties of a variety of everyday materials;</p> <p>compare and group together a variety of everyday materials on the basis of their simple physical properties</p> <p><b>Spring 1&amp;2</b></p>	<p>materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses;</p> <p>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p> <p><b>Spring 1 &amp; 2</b></p>	<p>appearance and simple physical properties;</p> <p>describe in simple terms how fossils are formed when things that have lived are trapped within rock;</p> <p>recognise that soils are made from rocks and organic matter</p> <p><b>Autumn 2</b></p>	<p>or gases;</p> <p>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);</p> <p>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p> <p><b>Autumn 1</b></p>	<p>materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets;</p> <p>know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution;</p> <p>use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating;</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</p>	
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						<p>dissolving, mixing and changes of state are reversible changes;</p> <p>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>Summer 2</b></p>	
<p>Knowledge Progression - <b>Seasonal changes</b></p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• observe changes across the 4 seasons;</li> <li>• observe and describe weather associated with the seasons and how day length varies.</li> </ul> <p><b>Autumn 1&amp;2</b>  <b>Spring 1</b> / <b>Spring 1&amp;2</b>  <b>Summer 1&amp;2</b></p>						
<p>Knowledge Progression - <b>Rocks</b></p>				<p>compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>describe in simple</p>			

				<p>terms how fossils are formed when things that have lived are trapped within rock</p> <p>recognise that soils are made from rocks and organic matter</p> <p><b>Autumn 2</b></p>			
<p>Knowledge Progression- <b>Earth and Space</b></p>	<p>What is in the sky? Understand that there are many other planets in our own Solar System and beyond. Learn about the Moon.</p> <p><b>Autumn 2</b> <b>Spring 2</b></p>					<p>Pupils should be taught to:</p> <p>describe the movement of the Earth and other planets relative to the sun in the solar system;</p> <p>describe the movement of the moon relative to the Earth;</p> <p>describe the sun, Earth and moon as approximately spherical bodies;</p> <p>use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p>	

						<b>Autumn 1&amp;2</b>	
<p>Knowledge Progression - <b>Light</b></p>	<p>What happens at night? Children will be taught about day and night.</p> <p><b>Autumn 1</b></p>			<p>recognise that they need light in order to see things and that dark is the absence of light;</p> <p>notice that light is reflected from surfaces;</p> <p>recognise that light from the sun can be dangerous and that there are ways to protect their eyes;</p> <p>recognise that shadows are formed when the light from a light source is blocked by an opaque object;</p> <p>find patterns in the way that the size of shadows change</p> <p><b>Summer 1</b></p>			<p>recognise that light appears to travel in straight lines;</p> <p>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;</p> <p>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;</p> <p>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>Summer 1</b></p>
<p>Knowledge Progression - <b>Forces</b></p>	<p>What floats? Buoyancy.</p>			<p>compare how things move on different surfaces;</p>		<p>explain that unsupported objects fall towards</p>	

	<p>How does my toy work? What makes it move? Children will be taught about the forces of pull and push.</p> <p><b>Autumn 1&amp;2</b> <b>Spring 1&amp;2</b> <b>Summer 1</b></p>			<p>notice that some forces need contact between 2 objects, but magnetic forces can act at a distance;</p> <p>observe how magnets attract or repel each other and attract some materials and not others;</p> <p>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;</p> <p>describe magnets as having 2 poles;</p> <p>predict whether 2 magnets will attract or repel each other, depending on which poles are facing</p> <p><b>Spring 1</b></p>		<p>the Earth because of the force of gravity acting between the Earth and the falling object;</p> <p>identify the effects of air resistance, water resistance and friction, that act between moving surfaces;</p> <p>recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</p> <p><b>Spring 1</b></p>	
<p>Knowledge Progression - <b>Sound</b></p>					<p>identify how sounds are made, associating some of them with something vibrating;</p> <p>recognise that</p>		



					<p>vibrations from sounds travel through a medium to the ear;</p> <p>find patterns between the pitch of a sound and features of the object that produced it;</p> <p>find patterns between the volume of a sound and the strength of the vibrations that produced it;</p> <p>recognise that sounds get fainter as the distance from the sound source increases.</p> <p><b>Autumn 2</b></p>		
<p>Knowledge Progression - <b>Electricity</b></p>	<p>How does it move?</p> <p>Children will be taught that some toys need batteries/ electricity.</p> <p><b>Autumn 2</b> <b>Spring 1&amp;2</b> <b>Summer 1</b></p>				<p>identify common appliances that run on electricity;</p> <p>construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers;</p> <p>identify whether or not a lamp will light in a simple series circuit, based on</p>		<p>associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit;</p> <p>compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the</p>

					<p>whether or not the lamp is part of a complete loop with a battery;</p> <p>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>recognise some common conductors and insulators, and associate metals with being good conductors</p> <p><b>Spring 1&amp;2</b></p>		<p>on/off position of switches;</p> <p>use recognised symbols when representing a simple circuit in a diagram</p> <p><b>Summer 2</b></p>
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