

### EYFS-Educational programme-Understanding the World

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

### 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

Autumn 1: Identifying Materials (Year 1) <b>Chemistry</b>	Autumn 2: Seasonal Changes	Autumn 1 & 2: Animals Including Humans (Year 1) <b>Biology</b>	Autumn 2: Seasonal Changes
Spring 1: Living Things and Their Habitats (Year2) <b>Biology</b>	Spring 2: Animals including Humans (Year 2) <b>Biology</b>	Spring 1: Living Things and Their Habitats (Year 1) <b>Biology</b>	Spring 2: Scientists and Inventors <b>Biology, Chemistry, Physics</b>

Summer 1: Plants (Year 1) <b>Biology</b>	Summer 2: Investigations/The environment <b>Biology, Chemistry, Physics</b>	Summer 1: Uses of Everyday Materials (Year 2) <b>Chemistry</b>	Summer 2: Plants (Year 2) <b>Biology</b>
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### 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: Living Things and Their Habitats (Year 4) <b>Biology</b>	Autumn 2: Animals Including Humans (Year 4) <b>Biology</b>	Autumn 1: Sound (Year 4) <b>Physics</b>	Autumn 2: Investigations <b>Biology, Chemistry, Physics</b>
Spring 1: Animals Including Humans (Year 3) <b>Biology</b>	Spring 2: Materials- Rocks (Year 3) <b>Physics</b>	Spring 1: Materials- States of Matter (Year 4) <b>Chemistry</b>	Spring 2: Materials- Forces and Magnets (Year 3) <b>Physics</b>
Summer 1: Scientists and Inventors/ Investigations. <b>Biology, Chemistry, Physics</b>	Summer 2: Plants (Year 3) <b>Biology</b>	Summer 1: Electricity (Year 4) <b>Physics</b>	Summer 2: Light (Year 3) <b>Physics</b>

### 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: Materials- Forces (Year 5) <b>Physics</b>	Autumn 2: Light (Year 6) <b>Physics</b>	Autumn 1: Earth and Space (Year 5) <b>Physics</b>	Autumn 2: Properties of Materials (Year 5) <b>Chemistry</b>
Spring 1: Electricity (Year 6) <b>Physics</b>	Spring 2: Investigations <b>Biology, Chemistry, Physics</b>	Spring 1: Evolution and Inheritance (Year 6) <b>Biology</b>	Spring 2: Animals Including Humans (Year 5) <b>Biology</b>
Summer 1: Living Things and Their Habitats (Year 5) <b>Biology</b>	Summer 2: Animals Including Humans (Year 6) <b>Biology</b>	Summer 1: Investigations <b>Biology, Chemistry, Physics</b>	Summer 2: Living things and their habitats (Year 6) <b>Biology</b>

### 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.

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>Observe and explore the natural world and ask questions</li> <li>Observe and draw plants and animals</li> <li>Talk about what they notice</li> <li>Bread investigation to observe the impact of germs on hands/handwashing effectively</li> <li>Plant a seed and notice and talk about the changes as it grows</li> <li>Investigating through play</li> </ul>	<ul style="list-style-type: none"> <li>Know how to ask simple scientific questions.</li> <li>Know how to use simple equipment to make observations.</li> <li>Know how to carry out simple tests.</li> <li>Know how to explain to others what they have found out.</li> <li>Know how to use simple data to answer questions.</li> </ul>	<ul style="list-style-type: none"> <li>Know how to ask relevant scientific questions.</li> <li>Know how to use observations and knowledge to answer scientific questions.</li> <li>Know how to set up a simple enquiry to explore a scientific question.</li> <li>Know how to set up a fair test and explain why it is fair.</li> <li>Know how to set up a test to compare 2 things.</li> <li>Make careful and accurate observations, including the use of standard units.</li> <li>Know how to use equipment, including thermometers and data loggers to make measurements.</li> <li>Gather, record, classify and present data in different ways to answer scientific questions.</li> <li>Know how to use diagrams, keys, bar charts and tables; using scientific language.</li> </ul>	<ul style="list-style-type: none"> <li>Know how to plan different types of scientific enquiry.</li> <li>Know how to control variables in an enquiry.</li> <li>Measure accurately and precisely using a range of equipment.</li> <li>Know how to record data and results using scientific diagrams and labels, classification keys, tables, bar and line graphs.</li> <li>Use the outcome of test results to make predictions and set up further comparative and fair tests.</li> <li>Report findings from enquiries in a range of ways.</li> <li>Know how to explain a conclusion from enquiry.</li> <li>Explain causal relationships in an enquiry.</li> <li>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.</li> <li>Read, spell and pronounce scientific vocabulary accurately.</li> </ul>			

		<ul style="list-style-type: none"> <li>• Know how to use findings to report in different ways, including oral and written explanations.</li> <li>• Know how to draw conclusions and suggest improvements.</li> <li>• Know how to make a prediction with a reason.</li> <li>• Know how to identify differences, similarities and changes to a related enquiry.</li> </ul>	
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**Biology- Animals Including Humans**

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>• Learn about living and non-living things</li> <li>• Label basic parts of the human body</li> <li>• Explore using their senses, describe what they feel, hear and see when they are outside</li> <li>• Learn about keeping healthy including the importance of a balanced diet, exercise and oral health and hand washing</li> <li>• Observe the life cycle of a butterfly and talk about the changes that they see</li> <li>• Draw themselves and animals that they observe</li> <li>• Learn some nocturnal animals</li> </ul>	<ul style="list-style-type: none"> <li>• Know and name a variety of animals including fish, amphibians, reptiles, birds and mammals.</li> <li>• Classify and know animals by what they eat (Carnivore, herbivore and omnivore)</li> <li>• Know how to sort animals into categories (including animal groups)</li> <li>• Know how to sort living and non-living things.</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Know the basic stages of a life cycle for animals, including humans.</li> <li>• Know what humans and animals need to survive.</li> <li>• Know why exercise, a balanced diet and good hygiene are important for humans.</li> </ul>	<ul style="list-style-type: none"> <li>• Know about the importance of a nutritious balanced diet.</li> <li>• Know how nutrients, water and oxygen are transported within animals and humans.</li> <li>• Know about the skeletal system of a human.</li> <li>• Know about the muscular system of a human.</li> <li>• Know about the purpose of the skeleton in humans and animals.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and name parts of the Human Digestive System.</li> <li>• Know the functions of the organs in the human digestive system.</li> <li>• Identify and know the different types of teeth in humans.</li> <li>• Know the functions of different human teeth.</li> <li>• Use food chains to identify producers, predators and prey.</li> <li>• Construct food chains to identify producers, predators and prey.</li> </ul>	<ul style="list-style-type: none"> <li>• Create a timeline to indicate stages of growth in humans.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and name the main parts of the human circulatory system.</li> <li>• Know the function of the heart, blood vessels and blood.</li> <li>• Know the impact of diet, exercise drugs and life style on health.</li> <li>• Know the ways in which nutrients and water are transported in animals, including humans.</li> </ul>
<b>Challenge:</b>						
<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Can they begin to classify animals according to a number of given criteria?</li> <li>• Can they point out</li> </ul>	<ul style="list-style-type: none"> <li>• Can they explain that animals reproduce in different ways?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they explain how the muscular and skeletal systems work together to create</li> </ul>	<ul style="list-style-type: none"> <li>• Can they classify living things and non-living things by a number of characteristics that they have thought of?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they create a timeline to indicate stages of growth in certain animals, such as</li> </ul>	<ul style="list-style-type: none"> <li>• Can they explore the work of medical pioneers, for example, William Harvey</li> </ul>

	<p>differences between living things and non-living things?</p> <ul style="list-style-type: none"> <li>• Can they name some parts of the human body that cannot be seen?</li> <li>• Can they say why certain animals have certain characteristics?</li> <li>• Can they name a range of wild animals?</li> </ul>		<p>movement?</p> <ul style="list-style-type: none"> <li>• Can they classify living things and non-living things by a number of characteristics that they have thought of?</li> <li>• Can they explain how people, weather and the environment can affect living things?</li> <li>• Can they explain how certain living things depend on one another to survive?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they explain how people, weather and the environment can affect living things?</li> <li>• Can they explain how certain living things depend on one another to survive?</li> <li>•</li> </ul>	<p>frogs and butterflies?</p> <ul style="list-style-type: none"> <li>• Can they describe the changes experienced in puberty?</li> <li>• Can they draw a timeline to indicate stages in the growth and development of humans?</li> <li>•</li> </ul>	<p>and Galen and recognise how much we have learnt about our bodies?</p> <ul style="list-style-type: none"> <li>• Can they compare the organ systems of humans to other animals?</li> <li>• Can they make a diagram of the human body and explain how different parts work and depend on one another?</li> <li>• Can they name the major organs in the human body?</li> <li>• Can they locate the major human organs?</li> <li>• Can they make a diagram that outlines the main parts of a body?</li> </ul>
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**Biology- Living Things and their Habitats.**

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>Learn about things that are living and things that are not</li> <li>Learn about some mini-beasts and observe their habitats</li> <li>Observe plants and animals in a range of habitats (school grounds/forest school/farm)</li> <li>Build bug homes</li> </ul>		<ul style="list-style-type: none"> <li>Identify things that are living, dead and never alive.</li> <li>Know how a specific habitat provides for the basic needs of living things there.</li> <li>Identify and name plants and animals in a range of habitats.</li> <li>Match living things to their habitats.</li> <li>Know how animals find their food.</li> <li>Name some different sources of food for animals (herbivore, carnivore and omnivore)</li> <li>Know and explain a simple food chain.</li> </ul>		<ul style="list-style-type: none"> <li>Group living things in different ways.</li> <li>Use classification keys to group, identify and name living things.</li> <li>Create classification keys to group, identify and name living things.</li> <li>Know how changes to an environment could endanger living things.</li> </ul>	<ul style="list-style-type: none"> <li>Know the lifecycle of different living things. For example, mammal, amphibian, insect, bird.</li> <li>Know the differences between the different life cycles.</li> <li>Know the process of production in plants.</li> <li>Know the process of reproduction in animals.</li> </ul>	<ul style="list-style-type: none"> <li>Classify living things into broad groups according to observable characteristics and based on similarities and differences.</li> <li>Know how living things have been classified.</li> <li>Give reasons for classifying plants and animals in a specific way.</li> </ul>
Challenge						
		<ul style="list-style-type: none"> <li>Can they name some characteristics of an animal that help it to live in a particular habitat?</li> <li>Can they describe what animals need to survive and link this to their habitats?</li> </ul>	<ul style="list-style-type: none"> <li>Can they plan in advance which equipment they will need and use it well?</li> <li>Can they make precise measurements?</li> <li>Can they collect information in different ways?</li> <li>Can they record their measurements and observations systematically?</li> <li>Can they explain qualitative and quantitative data?</li> </ul>	<ul style="list-style-type: none"> <li>Can they give reasons for how they have classified animals and plants, using their characteristics and how they are suited to their environment?                             <ul style="list-style-type: none"> <li>Can they explore the work of pioneers in classification? (e.g. Carl Linnaeus)</li> </ul> </li> <li>Can they name and group a variety of living things based on feeding patterns? (producer,</li> </ul>	<ul style="list-style-type: none"> <li>Can they observe their local environment and draw conclusions about life-cycles, e.g. plants in the vegetable garden or flower border?</li> <li>Can they compare the life cycles of plants and animals in their local environment with the life cycles of those around the world, e.g. rainforests?</li> </ul>	<ul style="list-style-type: none"> <li>Can they explain why classification is important?</li> <li>Can they readily group animals into reptiles, fish, amphibians, birds and mammals?</li> <li>Can they sub divide their original groupings and explain their divisions?</li> <li>Can they group animals into vertebrates and invertebrates?</li> </ul>

				consumer, predator, prey, herbivore, carnivore, omnivore)		<ul style="list-style-type: none"> <li>• Can they find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification?</li> </ul>
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Biology- Evolution and Inheritance.						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
						<ul style="list-style-type: none"> <li>• Know how the Earth and living things have changed over time.</li> <li>• Know how fossils can be used to find out about the past.</li> <li>• Know about reproduction and offspring (recognising that</li> </ul>

						<p>offspring normally vary and are not identical to the parents)</p> <ul style="list-style-type: none"> <li>• Know how animals and plants are adapted to suit their environment.</li> <li>• Link adaptation over time to evolution.</li> <li>• Know about evolution and explain what it is.</li> </ul>
Challenge						
						<ul style="list-style-type: none"> <li>• Can they talk about the work of Charles Darwin, Mary Anning and Alfred Wallace?</li> <li>• Can they explain how some living things adapt to survive in extreme conditions?</li> <li>• Can they analyse the advantages and disadvantages of specific adaptations, such as being on two rather than four feet?</li> <li>• Can they begin to understand what is meant by DNA?</li> </ul>

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>Plant seeds and bulbs and observe them as they grow</li> <li>Water plants and talk about what we need to do to look after them</li> <li>Observe and draw plants in a variety of environments</li> <li>Plant potatoes and care for them, cooking and eating them when they have grown</li> </ul>		<ul style="list-style-type: none"> <li>Know how seeds and bulbs grow into plants.</li> <li>Know what plants need in order to grow and stay healthy (water, light and suitable temperature)</li> </ul>	<ul style="list-style-type: none"> <li>Know the function of different parts of flowering plants and trees.</li> <li>Know what different plants need to help them survive.</li> <li>Know how water is transported within plants.</li> <li>Know the plant life cycle, especially the importance of flowers.</li> </ul>			
Challenge						
<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li>Can they name the main parts of a flowering plant?</li> </ul>	<ul style="list-style-type: none"> <li>Can they describe what plants need to survive and link it to where they are found?</li> <li>Can they explain that plants grow and reproduce in different ways?</li> </ul>	<ul style="list-style-type: none"> <li>Can they classify a range of common plants according to many criteria (environment found, size, climate required, etc.)?</li> </ul>			

### Chemistry- Materials.

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>● Explore materials through play and junk modelling</li> <li>● Incorporate the language of materials into play</li> <li>● Investigate materials e.g. making a boat that can float</li> <li>● Talk about properties of materials and why some materials might be good for a specific job</li> <li>● Melting jelly</li> <li>● Investigating ice on a cold day/seeing it melt</li> </ul>	<ul style="list-style-type: none"> <li>● Distinguish between an object and the material it is made from.</li> <li>● Know the materials that an object is made from.</li> <li>● Know the difference between wood, plastic, glass, metal, water and rock.</li> <li>● Know about the properties of everyday materials</li> <li>● Group objects based on the materials they are made from.</li> </ul>	<ul style="list-style-type: none"> <li>● Identify and name a range of materials including wood, metal, plastic, glass, brick, rock, paper and cardboard.</li> <li>● Know why a material might or might not be used for a specific job.</li> <li>● Know how materials can be changed by squashing, bending, twisting and stretching.</li> </ul>	<ul style="list-style-type: none"> <li>● Compare and group rocks based on their appearance and physical properties, giving a reason.</li> <li>● Know how fossils are formed.</li> <li>● Know how soil is made.</li> <li>● Know about and explain the difference between sedimentary, metamorphic and igneous rock.</li> </ul>	<ul style="list-style-type: none"> <li>● Group materials based on their state of matter (solid, liquid or gas)</li> <li>● Know how some materials can change state.</li> <li>● Explore how materials can change state.</li> <li>● Measure the temperature at which materials change state.</li> <li>● Know about the water cycle.</li> <li>● Know the part played by evaporation and condensation in the water cycle.</li> </ul>	<ul style="list-style-type: none"> <li>● Compare and group materials based on their properties. Foreexample, solubility, conductivity.</li> <li>● Know how a material dissolves to form a solution;explaining the process of dissolving.</li> <li>● Know and show how to recover asubstance from asolution.</li> <li>● Know how some materials can be separated. For example, through filtering and evaporating.</li> <li>● Know and can demonstrate that some changes are reversible and someare not.</li> <li>● Know how some changes result in the formation of anew material and that this is usuallyirreversible.</li> <li>● Know about reversible and</li> </ul>	

Challenge

<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Can they describe things that are similar and different between materials?</li> <li>• Can they explain what happens to certain materials when they are heated, e.g. bread, ice, chocolate?</li> <li>• Can they explain what happens to certain materials when they are cooled, e.g. jelly, heated chocolate?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they describe the properties of different materials using words like, transparent or opaque, flexible, etc.?</li> <li>• Can they sort materials into groups and say why they have sorted them in that way?</li> <li>• Can they say which materials are natural and which are man made?</li> <li>• Can they explain how materials are changed by heating and cooling?</li> <li>• Can they explain how materials are changed by bending, twisting and stretching?</li> <li>• Can they tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted?</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Can they describe methods for separating mixtures? (filtration, distillation)</li> <li>• Can they work out which materials are most effective for keeping us warm or for keeping something cold?</li> <li>• Can they use their knowledge of materials to suggest ways to classify? (solids, liquids, gases)</li> <li>• Can they explore changes that are difficult to reverse, e.g. burning, rusting and reactions such as vinegar with bicarbonate of soda?</li> <li>• Can they explore the work of chemists who created new materials, e.g. Spencer Silver (glue on sticky notes) or Ruth Benerito (wrinkle free cotton)?</li> <li>•</li> </ul>	
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					irreversible changes. <ul style="list-style-type: none"> <li>• Give evidenced reasons why materials should be used for specific purposes.</li> </ul>	
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Chemistry- Materials- Forces.						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>• Play with resources which enable children to investigate how objects move and the impact of gravity e.g. rolling a ball on different surfaces, sliding different objects down the guttering/ramp, marble run</li> <li>• Explore magnetic toys</li> </ul>			<ul style="list-style-type: none"> <li>• Know about and describe how objects move on different surfaces,</li> <li>• Know how some forces require contact and some do not, giving examples.</li> <li>• Know about and explain how objects attract and repel in relation to objects and other magnets.</li> <li>• Predict whether objects will be magnetic and carry out an enquiry.</li> <li>• Know how to make magnets work.</li> <li>• Predict whether magnets will attract or repel and give a reason.</li> </ul>		<ul style="list-style-type: none"> <li>• Know what gravity is and its impact on our lives.</li> <li>• Identify and know the effect of air and water resistance.</li> <li>• Identify and know the effects of friction.</li> <li>• Explain how levers, pulleys and gears allow a smaller force to have a greater effect.</li> </ul>	
Challenge						
			<ul style="list-style-type: none"> <li>• Can they investigate the strengths of different magnets and find fair ways to compare them?</li> </ul>		<ul style="list-style-type: none"> <li>• Can they describe and explain how motion is affected by forces?</li> </ul>	

					<p>(including gravitational attractions, magnetic attraction and friction)</p> <ul style="list-style-type: none"><li>• Can they design very effective parachutes?</li><li>• Can they work out how water can cause resistance to floating objects?</li><li>• Can they explore how scientists, such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation?</li></ul>	
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Physics- Seasonal Changes						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>• Notice and talk about seasonal changes</li> <li>• Visit forest school throughout the year and talk about seasons</li> </ul>	<ul style="list-style-type: none"> <li>• Observe and know about the changes in seasons.</li> <li>• Name the seasons and know about the type of weather in each season.</li> </ul>					
<b>Challenge</b>						
<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Can they observe features in the environment and explain that these are related to a specific season?</li> <li>• Can they observe and talk about changes in the weather?</li> <li>• Can they talk about weather variation in different parts of the world?</li> </ul>					

Physics- Light and Electricity.						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>• Talk about light and dark</li> <li>• Learn about nocturnal animals</li> <li>• Learn about day and night</li> <li>• Talk about sun safety</li> </ul>			<ul style="list-style-type: none"> <li>• Know what dark is (the absence of light)</li> <li>• Know that light is needed in order to see.</li> <li>• Know that light is reflected from a surface.</li> <li>• Know and demonstrate how a shadow is formed.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and name appliances that require electricity to function.</li> <li>• Construct a series circuit.</li> <li>• Identify and name the components in a series circuit (including; cells, wires, bulbs, switches</li> </ul>		<ul style="list-style-type: none"> <li>• Know how light travels.</li> <li>• Know and demonstrate how we see objects.</li> <li>• Know why shadows have the same shape as the object that casts them.</li> <li>• Know how simple optical instruments</li> </ul>

			<ul style="list-style-type: none"> <li>• Explore shadow size and explain the changes.</li> <li>• Know the danger of direct sunlight and describe how to keep protected.</li> </ul>	<p>and buzzers)</p> <ul style="list-style-type: none"> <li>• Know how to draw a circuit diagram.</li> <li>• Predict and test whether a lamp will light within a circuit.</li> <li>• Know the function of a switch in a circuit.</li> <li>• Know the difference between a conductor and</li> </ul>		<p>work. For example, telescope and magnifying glass.</p> <ul style="list-style-type: none"> <li>• Know how the number of voltage of cells in a circuit links to the brightness of a lamp of volume of a buzzer.</li> </ul>
<p>Challenge</p>				<ul style="list-style-type: none"> <li>• Can they explain how a bulb might get lighter?</li> <li>• Can they recognise if all metals are conductors of electricity?</li> <li>• Can they work out which metals can be used to connect across a gap in a circuit?</li> <li>• Can they explain why cautions are necessary for working safely with electricity?</li> </ul>		<ul style="list-style-type: none"> <li>• Can they make their own traffic light system or something similar?</li> <li>• Can they explain the danger of short circuits?</li> <li>• Can they explain what a fuse is?</li> <li>• Can they explain how to make changes in a circuit?</li> <li>• Can they explain the impact of changes in a circuit?</li> <li>• Can they explain the effect of changing the voltage of a battery?</li> <li>• Can they explain how different colours of light can be created?</li> <li>• Can they use and explain how simple optical instruments work? (periscope, telescope, binoculars, mirror, magnifying glass, Newton's first reflecting telescope)</li> </ul>

						<ul style="list-style-type: none"><li>• Can they explore a range of phenomena, including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters.</li></ul>
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				an insulator, giving examples of each.		<ul style="list-style-type: none"> <li>• Compare and give reasons why components work and do not work in a circuit.</li> <li>• Draw circuit diagrams using correct symbols.</li> </ul>
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Physics- Sound						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>• Listen for sounds in the environment and describe what they can hear</li> <li>• Play with instruments and toys that make different sounds</li> </ul>				<ul style="list-style-type: none"> <li>• Know how sound is made.</li> <li>• Know how sound travels from a source to our ears.</li> <li>• Know how sounds are made, associating them with vibrating.</li> <li>• Know the correlation between pitch and the object producing a sound.</li> <li>• Know the correlation between the volume of a sound and the strength of the vibrations produced.</li> <li>• Know what happens to a sound as it travels away from the source.</li> </ul>		
Challenge						
<ul style="list-style-type: none"> <li>•</li> </ul>				<ul style="list-style-type: none"> <li>• Can they explain why sound gets fainter or louder according to the distance?</li> <li>• Can they explain</li> </ul>		

				<p>how pitch and volume can be changed in a variety of ways?</p> <ul style="list-style-type: none"><li>• Can they work out which materials give the best insulation for sound?</li></ul>		
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Physics- Earth and Space.						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					<ul style="list-style-type: none"> <li>• Know about &amp; explain the movement of the Earth &amp; other planets relative to the Sun.</li> <li>• Know about and explain the movement of the Moon relative to the Earth.</li> <li>• Know and demonstrate how night and day are created.</li> <li>• Describe the Sun, Earth &amp; Moon using the term spherical</li> </ul>	
Challenge					<ul style="list-style-type: none"> <li>•</li> </ul>	
					<ul style="list-style-type: none"> <li>• Can they compare the time of day at different places on the earth?</li> <li>• Can they create shadow clocks?</li> <li>• Can they begin to understand how older civilizations used the sun to create astronomical clocks, e.g. Stonehenge?</li> <li>• Can they explore the work of some scientists? (Ptolemy, Alhazen, Copernicus)</li> </ul>	