

**A Scientist in Reception will explore, investigate, compare, observe, identify, describe and learn...**

<b>BIOLOGY</b>	<b>Plants</b>	<ul style="list-style-type: none"> <li>• Draw information from a simple map. (Living things and their habitats)</li> <li>• Explore the natural world around them. (Living things and their habitats)</li> <li>• Describe what they see, hear and feel whilst outside. (Living things and their habitats)</li> <li>• Recognise some environments that are different to the one in which they live. (Living things and their habitats)</li> <li>• Understand the effect of changing seasons on the natural world around them. (Seasonal changes)</li> </ul>
	<b>Living Things and their Habitats</b>	<ul style="list-style-type: none"> <li>• Draw information from a simple map.</li> <li>• Explore the natural world around them.</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> </ul>
	<b>Animals including Humans</b>	<ul style="list-style-type: none"> <li>• Talk about members of their immediate family and community.</li> <li>• Name and describe people who are familiar to them.</li> <li>• Recognise some environments that are different to the one in which they live.</li> </ul>
	<b>Evolution and Inheritance</b>	<ul style="list-style-type: none"> <li>• Recognise some environments that are different to the one in which they live. (Living things and their habitats)</li> </ul>
<b>CHEMISTRY</b>	<b>Materials</b>	<ul style="list-style-type: none"> <li>• Explore the natural world around them.</li> <li>• Describe what they see, hear and feel whilst outside.</li> </ul>
	<b>Rocks</b>	<ul style="list-style-type: none"> <li>• Explore the natural world around them. (Living things in their habitats)</li> <li>• Describe what they see, hear and feel whilst outside. (Living things in their habitats)</li> </ul>

PHYSICS	Seasonal Changes	<ul style="list-style-type: none"> <li>• Explore the natural world around them.</li> <li>• Describe what they see, hear and feel whilst outside.</li> <li>• Understand the effect of changing seasons on the natural world around them.</li> </ul>
	Light	<ul style="list-style-type: none"> <li>• Describe what they see, hear and feel whilst outside.</li> </ul>
PHYSICS	Forces	<ul style="list-style-type: none"> <li>• Explore the natural world around them.</li> <li>• Describe what they see, hear and feel whilst outside.</li> </ul>
	Sound	<ul style="list-style-type: none"> <li>• Describe what they see, hear and feel whilst outside.</li> </ul>
	Earth and Space	<ul style="list-style-type: none"> <li>• Explore the natural world around them.</li> <li>• Describe what they see, hear and feel whilst outside.</li> </ul>

## Disciplinary Knowledge

### Children at the End of Reception will be able to work scientifically using these enquiry skills...

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#### Enquiry Approaches

##### Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



##### Research

Using secondary sources of information to answer scientific questions.



##### Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



##### Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



##### Identifying, grouping and classifying

Making observations to name, sort and organise items.



##### Problem-solving

Applying prior scientific knowledge to find answers to problems.



#### Enquiry Skills

##### Asking questions

Asking questions that can be answered using a scientific enquiry.



##### Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



##### Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



##### Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



##### Recording data

Using tables, drawings and other means to note observations and measurements.



##### Interpreting and communicating results

Using information from the data to say what you found out.



##### Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.



**Plan**

- Children will be able to choose the resources they need for their chosen activity and say when they do or don't need help.

<b>Do</b>	<ul style="list-style-type: none"> <li>➤ Children will know about similarities and differences in relation to places, objects, materials and living things.</li> <li>➤ Children will make observations of animals and plants.</li> <li>➤ Children will explore a variety of materials, tools, and techniques, experimenting with colour, design, texture, form and function.</li> <li>➤ Children will select and use technology for particular purposes.</li> </ul>
<b>Record</b>	<ul style="list-style-type: none"> <li>➤ Children will represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.</li> </ul>
<b>Review</b>	<ul style="list-style-type: none"> <li>➤ Children will talk about the feature of their own immediate environment and how environments might vary from one another.</li> <li>➤ Children will explain why some things occur and talk about changes.</li> </ul>

<b>A Year 1 Scientist will know and remember this Substantive Knowledge...</b>		
<b>BIOLOGY</b>	<b>Plants</b>	<ul style="list-style-type: none"> <li>● Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>● Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul>

	<p><b>Living Things and their Habitats</b></p>	<ul style="list-style-type: none"> <li>• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Plants)</li> <li>• Identify and describe the basic structure of a variety of common flowering plants, including trees. (Plants)</li> <li>• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Animals including humans)</li> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Animals including humans)</li> <li>• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Animals, including humans)</li> <li>• Observe changes across the four seasons. (Seasonal change)</li> </ul>
	<p><b>Animals including Humans</b></p>	<ul style="list-style-type: none"> <li>• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</li> <li>• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul>
<p><b>CHEMISTRY</b></p>	<p><b>Materials</b></p>	<ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made.</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</li> <li>• Describe the simple physical properties of a variety of everyday materials.</li> <li>• Compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul>
	<p><b>Rocks</b></p>	<ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made. (Everyday materials)</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Everyday materials)</li> <li>• Describe the simple physical properties of a variety of everyday materials. (Everyday materials)</li> <li>• Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Everyday materials)</li> </ul>

<b>PHYSICS</b>	<b>Seasonal Changes</b>	<ul style="list-style-type: none"> <li>Observe changes across the four seasons.</li> <li>Observe and describe weather associated with the seasons and how day length varies.</li> </ul>
	<b>Light</b>	<ul style="list-style-type: none"> <li>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Animals, including humans)</li> <li>Describe the simple physical properties of a variety of everyday materials. (Materials)</li> </ul>
	<b>Sound</b>	<ul style="list-style-type: none"> <li>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Animals, including humans)</li> </ul>
	<b>Earth and Space</b>	<ul style="list-style-type: none"> <li>Observe changes across the four seasons. (Seasonal changes)</li> <li>Observe and describe weather associated with the seasons and how day length varies. (Seasonal changes)</li> </ul>

**A Year 2 Scientist will know and remember this Substantive Knowledge...**

<b>BIOLOGY</b>	<b>Plants</b>	<ul style="list-style-type: none"> <li>Observe and describe how seeds and bulbs grow into mature plants.</li> <li>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> <li>Identify and name a variety of plants and animals in their habitats, including microhabitats. (Living things and their habitats)</li> </ul>
	<b>Living Things and their Habitats</b>	<ul style="list-style-type: none"> <li>Explore and compare the differences between things that are living, dead, and things that have never been alive.</li> <li>Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.</li> <li>Identify and name a variety of plants and animals in their habitats, including microhabitats.</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. (Animals including humans)</li> </ul>
	<b>Animals including Humans</b>	<ul style="list-style-type: none"> <li>Notice that animals, including humans, have offspring which grow into adults.</li> <li>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</li> <li>Describe the importance for humans of 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. (Living things and their habitats)</li> </ul>
	<b>Evolution and Inheritance</b>	<ul style="list-style-type: none"> <li>Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. (Living things and their habitats)</li> <li>Notice that animals, including humans, have offspring which grow into adults. (Animals, including humans)</li> </ul>

CHEMISTRY	Materials	<ul style="list-style-type: none"> <li>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</li> <li>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul>
	Rocks	<ul style="list-style-type: none"> <li>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Uses of everyday materials)</li> </ul>
PHYSICS	Forces	<ul style="list-style-type: none"> <li>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Uses of everyday materials)</li> </ul>

### Disciplinary Knowledge

Children at the End of Key Stage 1 will be able to work scientifically using these enquiry skills...

## Enquiry Approaches

- Comparative / fair testing**  
 Changing one variable to see its effect on another, whilst keeping all others the same. 
- Research**  
 Using secondary sources of information to answer scientific questions. 
- Observation over time**  
 Observing changes that occur over a period of time ranging from minutes to months. 
- Pattern-seeking**  
 Identifying patterns and looking for relationships in enquiries where variables are difficult to control. 
- Identifying, grouping and classifying**  
 Making observations to name, sort and organise items. 
- Problem-solving**  
 Applying prior scientific knowledge to find answers to problems. 

## Enquiry Skills

- Asking questions**  
 Asking questions that can be answered using a scientific enquiry. 
- Making predictions**  
 Using prior knowledge to suggest what will happen in an enquiry. 
- Setting up tests**  
 Deciding on the method and equipment to use to carry out an enquiry. 
- Observing and measuring**  
 Using senses and measuring equipment to make observations about the enquiry. 
- Recording data**  
 Using tables, drawings and other means to note observations and measurements. 
- Interpreting and communicating results**  
 Using information from the data to say what you found out. 
- Evaluating**  
 Reflecting on the success of the enquiry approach and identifying further questions for enquiry. 

Children will be able to use appropriate scientific language from the national curriculum to:

<p>...ask questions and recognise that they can be answered in different ways.</p>	<p><b>Ask simple questions and recognise they can be answered in different ways.</b></p> <ul style="list-style-type: none"> <li>➤ While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions.</li> <li>➤ The children answer questions developed with the teacher often through a scenario.</li> <li>➤ The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.</li> </ul>
<p>...make observations and taking measurements.</p>	<p><b>Observing closely, using simple equipment.</b></p>



	<ul style="list-style-type: none"> <li>➤ Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.</li> <li>➤ They begin to take measurements, initially by comparisons, then using non-standard units.</li> </ul>
...engage in practical enquiry to answer questions.	<p><b>Performing simple tests.</b></p> <ul style="list-style-type: none"> <li>➤ The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.</li> </ul> <p><b>Identifying and classifying.</b></p> <ul style="list-style-type: none"> <li>➤ Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting.</li> <li>➤ They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.</li> </ul>
...record and present evidence.	<p><b>Gathering and recording data to help in answering questions.</b></p> <ul style="list-style-type: none"> <li>➤ The children record their observations e.g., using photographs, videos, drawings, labelled diagrams or in writing.</li> <li>➤ They record their measurements e.g., using prepared tables, pictograms, tally charts and block graphs.</li> <li>➤ They classify using simple prepared tables and sorting rings.</li> </ul>
...answer questions and make conclusions.	<p><b>Using their observations and ideas to suggest answers to questions.</b></p> <ul style="list-style-type: none"> <li>➤ Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g., observations they have made, measurements they have taken or information they have gained from secondary sources.</li> <li>➤ The children recognise 'biggest and smallest', 'best and worst' etc. from their data.</li> </ul>

**A Year 3 Scientist will know and remember this Substantive Knowledge...**

BIOLOGY	Plants	<ul style="list-style-type: none"> <li>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</li> <li>Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.</li> <li>Investigate the way in which water is transported within plants.</li> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul>
	Living Things and their Habitats	<ul style="list-style-type: none"> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Plants)</li> </ul>
	Animals including Humans	<ul style="list-style-type: none"> <li>Identify that animals including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.</li> <li>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul>
	Evolution and Inheritance	<ul style="list-style-type: none"> <li>Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Rocks)</li> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Plants)</li> </ul>
CHEMISTRY	Materials	<ul style="list-style-type: none"> <li>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Rocks)</li> <li>Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Rocks)</li> <li>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. (Forces and magnets)</li> </ul>
	Rocks	<ul style="list-style-type: none"> <li>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</li> <li>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</li> <li>Recognise that soils are made from rocks and organic matter.</li> </ul>
PHYSICS	Light	<ul style="list-style-type: none"> <li>Recognise that they need light in order to see things and that dark is the absence of light.</li> <li>Notice that light is reflected from surfaces.</li> <li>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</li> <li>Recognise that shadows are formed when the light from a light source is blocked by an opaque object.</li> <li>Find patterns in the way that the size of shadows change.</li> </ul>
	Forces	<ul style="list-style-type: none"> <li>Compare how things move on different surfaces.</li> <li>Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</li> <li>Observe how magnets attract or repel each other and attract some materials and not others.</li> <li>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.</li> <li>Describe magnets as having two poles.</li> <li>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul>
	Seasonal Changes	<ul style="list-style-type: none"> <li>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Light)</li> </ul>

**A Year 4 Scientist will know and remember this Substantive Knowledge...**

<b>BIOLOGY</b>	<b>Plants</b>	<ul style="list-style-type: none"> <li>Recognise that living things can be grouped in a variety of ways. (Living things and their habitats)</li> <li>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Living things and their habitats)</li> <li>Recognise that environments can change and that this can sometimes pose dangers to living things. (Living things and their habitats)</li> </ul>
	<b>Living Things and their Habitats</b>	<ul style="list-style-type: none"> <li>Recognise that living things can be grouped in a variety of ways.</li> <li>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</li> <li>Recognise that environments can change and that this can sometimes pose dangers to living things.</li> <li>Construct and interpret a variety of food chains, identifying producers, predators and prey. (Animals, including humans)</li> </ul>
	<b>Animals including Humans</b>	<ul style="list-style-type: none"> <li>Describe the simple functions of the basic parts of the digestive system in humans.</li> <li>Identify the different types of teeth in humans and their simple functions.</li> <li>Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul>
	<b>Evolution and Inheritance</b>	<ul style="list-style-type: none"> <li>Recognise that environments can change and that this can sometimes pose dangers to living things. (Living things and their habitats)</li> </ul>
<b>CHEMISTRY</b>	<b>Materials</b>	<ul style="list-style-type: none"> <li>Compare and group materials together, according to whether they are solids, liquids or gases.</li> <li>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).</li> <li>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> <li>Recognise some common conductors and insulators, and associate metals with being good conductors. (Electricity)</li> </ul>
<b>PHYSICS</b>	<b>Sound</b>	<ul style="list-style-type: none"> <li>Identify how sounds are made, associating some of them with something vibrating.</li> <li>Recognise that vibrations from sounds travel through a medium to the ear.</li> <li>Find patterns between the pitch of a sound and features of the object that produced it.</li> <li>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</li> <li>Recognise that sounds get fainter as the distance from the sound source increases.</li> </ul>
	<b>Electricity</b>	<ul style="list-style-type: none"> <li>Identify common appliances that run on electricity.</li> <li>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li> <li>Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.</li> <li>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</li> <li>Recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>

## Disciplinary Knowledge

Children at the End of Lower Key Stage 2 will be able to work scientifically using these enquiry skills...

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### Enquiry Approaches

#### Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



#### Research

Using secondary sources of information to answer scientific questions.



#### Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



#### Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



#### Identifying, grouping and classifying

Making observations to name, sort and organise items.



#### Problem-solving

Applying prior scientific knowledge to find answers to problems.



### Enquiry Skills

#### Asking questions

Asking questions that can be answered using a scientific enquiry.



#### Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



#### Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



#### Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



#### Recording data

Using tables, drawings and other means to note observations and measurements.



#### Interpreting and communicating results

Using information from the data to say what you found out.



#### Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.



Children will be able to use appropriate scientific language from the national curriculum to:

<p>...ask questions and recognise that they can be answered in different ways.</p>	<p><b>Asking relevant questions and using different types of scientific enquiries to answer them.</b></p> <ul style="list-style-type: none"> <li>➤ The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions.</li> <li>➤ The children answer questions posed by the teacher.</li> <li>➤ Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their question.</li> </ul>
<p>...make observations and taking measurements.</p>	<p><b>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</b></p> <ul style="list-style-type: none"> <li>➤ The children make systematic and careful observations.</li> <li>➤ They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.</li> </ul>
<p>...engage in practical enquiry to answer questions.</p>	<p><b>Setting up simple practical enquiries, comparative and fair tests.</b></p> <ul style="list-style-type: none"> <li>➤ The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher.</li> <li>➤ They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.</li> </ul>
<p>...record and present evidence.</p>	<p><b>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</b></p> <ul style="list-style-type: none"> <li>➤ The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams.</li> <li>➤ Children are supported to present the same data in different ways in order to help with answering the question.</li> </ul>
<p>...answer questions and make conclusions.</p>	<p><b>Using straightforward scientific evidence to answer questions or to support their findings.</b></p> <ul style="list-style-type: none"> <li>➤ Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence.</li> </ul> <p><b>Identifying differences, similarities or changes related to simple scientific ideas and processes.</b></p> <ul style="list-style-type: none"> <li>➤ Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships.</li> <li>➤ Using results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions.</li> </ul>

	<ul style="list-style-type: none"> <li>➤ They draw conclusions based on their evidence and current subject knowledge.</li> </ul>
...evaluate and raise further questions and predictions.	<p><b>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</b></p> <ul style="list-style-type: none"> <li>➤ They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry.</li> </ul> <p><b>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</b></p> <ul style="list-style-type: none"> <li>➤ Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface.</li> <li>➤ Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.</li> </ul>
...communicate their findings.	<p><b>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</b></p> <ul style="list-style-type: none"> <li>➤ They communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary.</li> </ul>

A Year 5 Scientist will know and remember this Substantive Knowledge...		
BIOLOGY	Plants	<ul style="list-style-type: none"> <li>• Describe the life process of reproduction in some plants and animals. (Living things and their habitats)</li> </ul>
	Living Things and their Habitats	<ul style="list-style-type: none"> <li>• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</li> <li>• Describe the life process of reproduction in some plants and animals.</li> </ul>
	Animals including Humans	<ul style="list-style-type: none"> <li>• Describe the changes as humans develop to old age.</li> <li>• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Living things and their habitats)</li> <li>• Describe the life process of reproduction in some plants and animals. (Living things and their habitats)</li> </ul>
	Evolution and Inheritance	<ul style="list-style-type: none"> <li>• Describe the life process of reproduction in some plants and animals. (Living things and their habitats)</li> </ul>
CHEMISTRY	Materials	<ul style="list-style-type: none"> <li>• Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</li> <li>• Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</li> <li>• Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</li> <li>• Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</li> <li>• Demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>• Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</li> </ul>

<b>PHYSICS</b>	<b>Forces</b>	<ul style="list-style-type: none"> <li>• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> <li>• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</li> <li>• Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul>
	<b>Earth and Space</b>	<ul style="list-style-type: none"> <li>• Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</li> <li>• Describe the movement of the Moon relative to the Earth.</li> <li>• Describe the Sun, Earth and Moon as approximately spherical bodies.</li> <li>• Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>
	<b>Seasonal Changes</b>	<ul style="list-style-type: none"> <li>• Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. (Earth and space)</li> </ul>
	<b>Light</b>	<ul style="list-style-type: none"> <li>• Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Properties and changes of materials)</li> </ul>

<b>A Year 6 Scientist will know and remember this Substantive Knowledge...</b>		
<b>BIOLOGY</b>	<b>Plants</b>	<ul style="list-style-type: none"> <li>• Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. (Living things and their habitats)</li> <li>• Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats)</li> </ul>
	<b>Living Things and their Habitats</b>	<ul style="list-style-type: none"> <li>• Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals.</li> <li>• Give reasons for classifying plants and animals based on specific characteristics.</li> <li>• Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. (Evolution and inheritance)</li> <li>• Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. (Evolution and inheritance)</li> </ul>
	<b>Animals including Humans</b>	<ul style="list-style-type: none"> <li>• Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</li> <li>• Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</li> <li>• Describe the ways in which nutrients and water are transported within animals, including humans.</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. (Living things and their habitats)</li> <li>• Give reasons for classifying plants and animals based on specific characteristics. (Living things and their habitats)</li> </ul>
	<b>Evolution and Inheritance</b>	<ul style="list-style-type: none"> <li>• Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</li> <li>• Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</li> <li>• Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul>

<b>CHEMISTRY</b>	<b>Rocks</b>	<ul style="list-style-type: none"> <li>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (Evolution and inheritance)</li> </ul>
<b>PHYSICS</b>	<b>Light</b>	<ul style="list-style-type: none"> <li>Recognise that light appears to travel in straight lines.</li> <li>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</li> <li>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</li> <li>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> </ul>
	<b>Electricity</b>	<ul style="list-style-type: none"> <li>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</li> <li>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</li> <li>Use recognised symbols when representing a simple circuit in a diagram.</li> </ul>

### Disciplinary Knowledge

Children at the End of Upper Key Stage 2 will be able to work scientifically using these enquiry skills...

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#### Enquiry Approaches

- Comparative / fair testing**  
 Changing one variable to see its effect on another, whilst keeping all others the same.
- Research**  
 Using secondary sources of information to answer scientific questions.
- Observation over time**  
 Observing changes that occur over a period of time ranging from minutes to months.
- Pattern-seeking**  
 Identifying patterns and looking for relationships in enquiries where variables are difficult to control.
- Identifying, grouping and classifying**  
 Making observations to name, sort and organise items.
- Problem-solving**  
 Applying prior scientific knowledge to find answers to problems.

#### Enquiry Skills

- Asking questions**  
 Asking questions that can be answered using a scientific enquiry.
- Making predictions**  
 Using prior knowledge to suggest what will happen in an enquiry.
- Setting up tests**  
 Deciding on the method and equipment to use to carry out an enquiry.
- Observing and measuring**  
 Using senses and measuring equipment to make observations about the enquiry.
- Recording data**  
 Using tables, drawings and other means to note observations and measurements.
- Interpreting and communicating results**  
 Using information from the data to say what you found out.
- Evaluating**  
 Reflecting on the success of the enquiry approach and identifying further questions for enquiry.



**Children will be able to use appropriate scientific language from the national curriculum to:**

<p><b>...ask questions and recognise that they can be answered in different ways.</b></p>	<p><b>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</b></p> <ul style="list-style-type: none"> <li>➤ Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry.</li> <li>➤ Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.</li> </ul>
<p><b>...make observations and taking measurements.</b></p>	<p><b>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</b></p> <ul style="list-style-type: none"> <li>➤ The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.</li> <li>➤ During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).</li> </ul>
<p><b>...engage in practical enquiry to answer questions.</b></p>	<p><b>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</b></p> <ul style="list-style-type: none"> <li>➤ The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample.</li> </ul>
<p><b>...record and present evidence.</b></p>	<p><b>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</b></p> <ul style="list-style-type: none"> <li>➤ The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g., using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g., using tables, Venn diagrams, Carroll diagrams and classification keys.</li> <li>➤ Children present the same data in different ways in order to help with answering the question.</li> </ul>

<p>...answer questions and make conclusions.</p>	<p><b>Identifying scientific evidence that has been used to support or refute ideas or arguments.</b></p> <ul style="list-style-type: none"> <li>➤ Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer.</li> <li>➤ They talk about how their scientific ideas change due to new evidence that they have gathered.</li> <li>➤ They talk about how new discoveries change scientific understanding.</li> </ul>
<p>...evaluate and raise further questions and predictions.</p>	<p><b>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</b></p> <ul style="list-style-type: none"> <li>➤ In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings.</li> </ul>
<p>...communicate their findings.</p>	<p><b>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</b></p> <ul style="list-style-type: none"> <li>➤ They communicate their findings to an audience using relevant scientific language and illustrations.</li> </ul>



**Science Vocabulary Progression**

vocabulary taught through a different unit

<p><b>A Scientist in Reception will learn and use this vocabulary...</b></p>	
<p><b>Working Scientifically</b></p>	<p>look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group</p>

<b>BIOLOGY</b>	<b>Plants</b>	tree, bush, herb, names of plants they see (Living things and their habitats)
	<b>Living Things and their Habitats</b>	plant, tree, bush, flower, vegetable, herb, weed, animal, names of plants and animals they see, name of a contrasting environment (e.g. beach, forest)
	<b>Animals including Humans</b>	names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice, hair (e.g. black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (e.g. blue, brown, green, grey), skin (e.g. black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman
	<b>Evolution and Inheritance</b>	plant, tree, bush, flower, vegetable, herb, weed, animal, names of plants and animals they see, name of a contrasting environment (e.g. beach, forest) (Living things and their habitats)
<b>CHEMISTRY</b>	<b>Materials</b>	ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back
<b>PHYSICS</b>	<b>Seasonal Changes</b>	spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers
	<b>Light</b>	Sun, sunny, light, shadow, shady, clouds, torch, see-through, not see-through, source, light source
<b>PHYSICS</b>	<b>Forces</b>	float, sink, up, down, top, bottom, surface, move, roll, drop, fly, turn, spin, fall, fast, slow, faster, slower, fastest, slowest, further, furthest, wind, air, water, blow, bounce
	<b>Sound</b>	sound, noise, listen, hear, music, voices, bird song, traffic, sirens, thunder, high, low, loud, quiet, soft, volume, crackle, thunder, hum, buzz, roar

	<b>Earth and Space</b>	Sun, Moon, Earth, star, planet, sky, day, night, space, round, bounce, float
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**A Scientist in Year 1 will learn and use this vocabulary...**

	<b>Working Scientifically</b>	observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing, picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore, equipment, resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions, interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources
<b>BIOLOGY</b>	<b>Plants</b>	leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, names of trees in the local area, names of garden and wild flowering plants in the local area
	<b>Living Things and their Habitats</b>	names of garden and wild flowering plants in the local area (Plants) head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, names of animals experienced first-hand from each vertebrate group (Animals, including humans) weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length (Seasonal changes)
	<b>Animals including Humans</b>	head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, names of animals experienced first-hand from each vertebrate group, parts of the human body including those within the school's RSE policy, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ears, tongue
<b>BIOLOGY</b>	<b>Evolution and Inheritance</b>	leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud (Plants)
<b>CHEMISTRY</b>	<b>Materials</b>	object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through
	<b>Rocks</b>	object, material, rock, brick, clay, hard, soft, waterproof, absorbent, rough, smooth, shiny, dull, see-through, not see-through (Everyday materials)
<b>PHYSICS</b>	<b>Seasonal Changes</b>	weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length

	<b>Light</b>	senses, see, eyes (Animals, including humans) shiny, dull, see-through, not see-through (Materials)
	<b>Sound</b>	senses, hear, ear (Animals, including humans)

**A Scientist in Year 2 will learn and use this vocabulary...**

	<b>Working Scientifically</b>	observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing, picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore, equipment, resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions, interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources
<b>BIOLOGY</b>	<b>Plants</b>	light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling names of plants in local habitats and micro-habitats (Living things and their habitats)
	<b>Living Things and their Habitats</b>	living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny, wet, damp, dry, hot, cold, names of living things in the habitats and micro-habitats studied  light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling (Plants) offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/chicken, cat/kitten, caterpillar/butterfly) (Animals, including humans)
	<b>Animals including Humans</b>	offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/chicken, kitten/cat, caterpillar/butterfly), survive, survival, water, food, air, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g. meat, fish, vegetables, bread, rice, pasta, dairy)  living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival (Living things and their habitats)
	<b>Evolution and Inheritance</b>	light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling (Plants)  living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, conditions, light, dark, shady, sunny, wet, damp, dry, hot, cold (Living things and their habitats)
	<b>Materials</b>	opaque, transparent, translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching
<b>CHEMISTRY</b>	<b>Rocks</b>	opaque, transparent, translucent, reflective, non-reflective (Uses of everyday materials)

PHYSICS	Light	opaque, transparent, translucent, reflective, non-reflective (Uses of everyday materials)
	Forces	flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching (Uses of everyday materials)

**A Scientist in Year 3 will learn and use this vocabulary...**

<b>Working Scientifically</b>		practical work, fair testing, relationships, accurate, thermometer, data logger, stopwatch, timer, estimate, data, diagram, identification key, chart, bar chart, prediction, similarity, difference, evidence, information, findings, criteria, values, properties, characteristics, conclusion, explanation, reason, evaluate, improve
BIOLOGY	Plants	photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport
	Living Things and their Habitats	photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (e.g. wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport
	Animals including Humans	nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine
	Evolution and Inheritance	photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (e.g. wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil (Plants) soil, fossil, bone, flesh, minerals (Rocks)
CHEMISTRY	Materials	rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorbs water, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, types of soil (e.g. peaty, sandy, chalky, clay) (Rocks) magnetic force, magnet, attract, magnetic material, metal, iron, steel (Forces and magnets)
	Rocks	rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorbs water, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, types of soil (e.g. peaty, sandy, chalky, clay)
PHYSICS	Light	light, light source, dark, absence of light, surface, shadow, reflect, mirror, Sun, sunlight, dangerous

	<b>Forces</b>	force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole
	<b>Earth and Space</b>	light, light source, Sun, sunlight, dangerous (Light)

**A Scientist in Year 4 will learn and use this vocabulary...**

	<b>Working Scientifically</b>	practical work, fair testing, relationships, accurate, thermometer, data logger, stopwatch, timer, estimate, data, diagram, identification key, chart, bar chart, prediction, similarity, difference, evidence, information, findings, criteria, values, properties, characteristics, conclusion, explanation, reason, evaluate, improve
<b>BIOLOGY</b>	<b>Plants</b>	classification, classification keys (Living things and their habitats)
	<b>Living Things and their Habitats</b>	classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate herbivore, carnivore, omnivore, producer, predator, prey (Animals, including humans)
	<b>Animals including Humans</b>	digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, large intestine, rectum, anus, incisor, canine, molar, premolar, herbivore, carnivore, omnivore, producer, predator, prey
	<b>Evolution and Inheritance</b>	environment, habitat, human impact, positive, negative, migrate, hibernate (Living things and their habitats) herbivore, carnivore, omnivore, producer, predator, prey (Animals, including humans)
<b>CHEMISTRY</b>	<b>Materials</b>	solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle electrical conductor, electrical insulator, metal, non-metal (Electricity)
	<b>Sound</b>	sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, quiet, loud, insulation
	<b>Electricity</b>	electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol

**A Scientist in Year 5 will learn and use this vocabulary...**

<b>Working Scientifically</b>		variables, independent variable, dependent variable, control variable, evidence, justify, argument (science), causal relationship, accuracy, precision, scatter graphs, bar graphs, line graphs, force meter
<b>BIOLOGY</b>	<b>Plants</b>	life cycle, reproduce, sexual, fertilises, asexual, plantlets, runners, tubers, cuttings (Living things and their habitats)
	<b>Living Things and their Habitats</b>	life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, cuttings
	<b>Animals including Humans</b>	puberty, the vocabulary to describe sexual characteristics in line with the school's RSE policy life cycle, foetus, baby, child, adolescent, adult, reproduce, sexual, sperm, fertilises, egg, live young (Y5 - Living things and their habitats)
	<b>Evolution and Inheritance</b>	life cycle, reproduce, sexual, fertilises, asexual, plantlets, runners, tubers, cuttings (Living things and their habitats)
<b>CHEMISTRY</b>	<b>Materials</b>	thermal insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material
	<b>Forces</b>	force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears
	<b>Earth and Space</b>	Sun, Moon, Earth, planets (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, Solar System, rotate, star, orbit

**A Scientist in Year 6 will learn and use this vocabulary...**

<b>Working Scientifically</b>		variables, independent variable, dependent variable, control variable, evidence, justify, argument (science), causal relationship, accuracy, precision, scatter graphs, bar graphs, line graphs, force meter
<b>BIOLOGY</b>	<b>Plants</b>	flowering, non-flowering, mosses, ferns, conifers (Living things and their habitats)



	<b>Living Things and their Habitats</b>	vertebrates, fish, amphibians, reptiles, birds, mammals, warm-blooded, cold-blooded, invertebrates, insects, spiders, snails, worms, flowering, non-flowering, mosses, ferns, conifers
	<b>Animals including Humans</b>	heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, cycle, circulatory system, diet, drugs, lifestyle
	<b>Evolution and Inheritance</b>	offspring, sexual reproduction, vary, characteristics, adapted, inherited, species, evolve, evolution
	<b>Rocks</b>	evolution
<b>PHYSICS</b>	<b>Light</b>	straight lines, light rays
	<b>Electricity</b>	circuit diagram, circuit symbol, voltage