



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

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

<b>Nursery</b>						
<b>Working scientifically</b>	<ul style="list-style-type: none"> <li>- Explore materials with different properties</li> <li>- Explore natural materials indoors and outside</li> <li>- Use all the senses in hands on exploration of materials</li> <li>- Plant seeds and care for growing animals</li> <li>- Being to understand the need to respect and care for the natural environment</li> <li>- Explore how things work</li> <li>- Explore collections of materials with similar and or different properties</li> <li>- To explore and sort groups</li> <li>- Be aware of the effect their behaviour can have on the environment</li> </ul>					
<b>Nursery</b>	<b>Animals including humans</b>	<b>Autumn</b>	<b>Winter</b>	<b>Spring</b>	<b>Plants and living things</b>	<b>Materials</b>
<b>Key knowledge</b>	<ul style="list-style-type: none"> <li>• Know how humans develop from babies</li> <li>• Know the names of different body parts</li> <li>• Know that sleep, food, hygiene are important for our health</li> <li>• Know the effects of exercise on the body e.g. heart beats faster, get hotter</li> <li>To know that they are a person</li> <li>To know that they were a baby then a toddler then a child and parents are adults</li> </ul>	<ul style="list-style-type: none"> <li>• Observe animals and the natural world closely through a variety of means e.g. magnifiers &amp; photographs</li> <li>To know about and recognise the signs of Autumn</li> </ul>	<ul style="list-style-type: none"> <li>To know about and recognise the signs of Winter/that the weather is changing</li> <li>To know some important processes and changes in the natural world including states of matter (freezing)</li> <li>To know (in a basic form) why Winter happens (days have less sun)</li> <li>To know that winter is cold and that changes occur in the environment when it is winter - frost, ice, snow</li> <li>To know that specific clothes are needed in the winter- warm and waterproof</li> </ul>	<ul style="list-style-type: none"> <li>To know about and recognise the signs of Spring</li> <li>To know about features of my own immediate environment and how they might vary from another. To plant seeds</li> <li>To know that the weather is changing</li> <li>To know that plants change at different times of the year</li> <li>To know that Spring is a season</li> <li>To know what changes occur in the environment when it is Spring - new growth, longer days, warmer days</li> </ul>	<ul style="list-style-type: none"> <li>• Most plants start growing from a seed or bulb</li> <li>• All plants need water &amp; light to grow &amp; survive</li> <li>• Observe plants closely through a variety of means e.g. magnifiers &amp; photographs</li> <li>• Use all the senses in hands-on exploration of plants</li> <li>• Understand the key features of the life cycle of a plant.</li> <li>• Know how to care for plants</li> <li>• Know about the different seasons &amp; the effect they have on plants, trees &amp; creatures</li> </ul>	

**Reception**

<p><b>Working scientifically</b></p>	<ul style="list-style-type: none"> <li>- To identify features</li> <li>- To identify features of the seasons</li> <li>- To talk about and describe what they can see and feel</li> <li>- Provide first-hand experiences to support children in making sense of micro environments</li> <li>- To sequence life cycles</li> <li>- To predict and investigate: what a plant needs to grow, materials ,seasons, plant growth over time</li> <li>- To record the differences between the seasons</li> <li>- To compare similarities and differences between animals</li> <li>- Give opportunities to record findings (eg drawing, writing, making a model, photography)</li> <li>- To reach a conclusion</li> <li>- To know why things change and happen</li> </ul>					
<p><b>Topic</b></p>	<p><b>Animals including humans</b></p>	<p><b>Autumn</b></p>	<p><b>Winter</b></p>	<p><b>Spring</b></p>	<p><b>Plants and living things</b></p>	<p><b>Materials and their Materials</b></p>
<p><b>Key knowledge</b></p>	<p>Can describe/compare themselves, family, friends and community.</p> <ul style="list-style-type: none"> <li>• Can create pictures of themselves, family, friends and community and identify their distinguishing features.</li> <li>• Can talk about what they see when using a mirror.</li> <li>• Can compare hand, foot and fingerprints and talk about how they are Different.</li> <li>• Can talk about how they look after themselves and how other people look after them.</li> </ul>	<p>Children will explore and ask questions about the natural world around them.</p> <p>To know that the weather and plants around them are changing</p> <p>To know that Autumn is a season and why it happens</p> <p>To know that leaves on some trees are dying (changing colour) and some are not</p> <p>To know that Autumn is a season and leads on from Summer and leads into Winter</p>	<p>Children will talk about features of the environment they are in and learn about the different environments.</p> <p>To know that the weather is changing and that Winter is a season</p> <p>To know that leaves on some trees are still green To know why Winter happens (days have less sun and plants need sunshine)</p> <p>To know what changes occur in the environment when it is winter - frost, ice, snow</p> <p>To know that Winter is a season and leads on from Autumn</p>	<p>To know the names of basic features of animals To know that young and adult animals have specific names To know that animals need warmth, food, water, sleep, shelter and caring for to live.</p> <p>To know that different animals live in different parts of the world To know that different animals have adaptations for survival (hibanation - retrieval) camouflage , herbivore, carnivore, omnivore To know that some animals are born and some hatch To know the basic stages of the life cycle of an animal</p>	<p>Children will make observations about animals discussing similarities and differences. To know that Spring is a season</p> <p>To know that leaves on some trees are still green and that some leaves are starting to grow</p> <p>To know what changes occur in the environment when it is Spring - new growth, longer days, warmer days</p> <p>To know that Spring is a season and leads on from Winter (the world is going round the sun) To know the names of parts of plants</p> <p>To know that plants need specific conditions for successful growth.</p>	<p>Children will know some important processes and changes in the natural world, including states of matter.</p> <p>Children will make observations about plants discussing similarities and differences.To know that we use different materials for different reasons (retrieve knowledge of warm clothes in winter) To know that things are made from different materials for a purpose - fabric, metal, wood, plastic, man made/natural To know that properties identify different materials - heavy/light, float/sink, waterproof, insulating</p>

Year 1

Working scientifically  
KS1



**Ask questions**

- Question why things happen
- Ask simple questions and recognise that they can be answered in different ways
- Ask relevant questions and use different types of scientific enquiries to answer them

**Make observations and take measurements**

- Talk about things found
- Observing closely, using simple equipment
- Making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

**Engage in practical enquiry to answer questions**

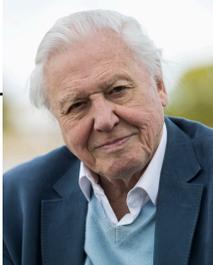
- Notice simple similarities and differences
- Performing simple tests
- Identifying and classifying
- Setting up simple practical enquiries, comparative and fair tests

**Record and present evidence**

- Create simple representations of people and objects
- Gathering and recording data to help in answering questions
- 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

**Answer questions and conclude**

- Begin to use science words when talking and have own ideas about what is seen
- Using their observations and ideas to suggest answers to questions
- Using straightforward scientific evidence to answer questions or to support their findings

Topic	Animals including humans (Biology)	Materials (Chemistry)	Plants (Biology)	Seasonal Change (Physic)
<b>Key knowledge</b>	<ul style="list-style-type: none"> <li>• I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>• I can compare a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>• I can identify and name a variety of common animals that are carnivores, omnivores and herbivores.</li> <li>• I can identify, name, draw and label the basic parts of the human body.</li> <li>• I can identify which part of the body is associated with each sense.</li> <li>• I can compare humans.</li> </ul>	<ul style="list-style-type: none"> <li>• I can identify a variety of everyday materials.</li> <li>• I can describe the physical properties of a variety of everyday materials.</li> <li>• I can distinguish between an object and the material from which it is made.</li> <li>• I can compare and group together a variety of everyday materials on the basic of their simple physical properties.</li> </ul>	<ul style="list-style-type: none"> <li>• I can identify different plants.</li> <li>• I can identify and describe the basic structure of plants.</li> <li>• I understand that plants can grow.</li> <li>I can name a variety of common wild plants.</li> <li>• I can sort a variety of plants.</li> <li>• I can name a variety of common plants that we can eat.</li> <li>• I can identify, name and describe that basic structure of deciduous and evergreen trees.</li> </ul>	<ul style="list-style-type: none"> <li>• I can observe and describe the changes across the four seasons.</li> <li>• I can iobserve how day length varies.</li> <li>• I can describe weather associated with the seasons.</li> </ul>
<b>Key scientist for this topic</b>	David Attenborough (Natural historian and broadcaster) 	Charles Macintosh 	Maria Sibylla Merian (German artist, scientific illustrator and naturalist) 	Jim Cantore (Meteorologist and storm tracker) 

## Year 2

Working scientifically  
KS1



### **Ask questions**

- Question why things happen
- Ask simple questions and recognise that they can be answered in different ways
- Ask relevant questions and use different types of scientific enquiries to answer them

### **Make observations and take measurements**

- Talk about things found
- Observing closely, using simple equipment
- Making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

### **Engage in practical enquiry to answer questions**

- Notice simple similarities and differences
- Performing simple tests
- Identifying and classifying
- Setting up simple practical enquiries, comparative and fair tests

### **Record and present evidence**

- Create simple representations of people and objects
- Gathering and recording data to help in answering questions
- 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

### **Answer questions and conclude**

- Begin to use science words when talking and have own ideas about what is seen
- Using their observations and ideas to suggest answers to questions
- Using straightforward scientific evidence to answer questions or to support their findings

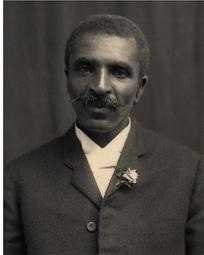
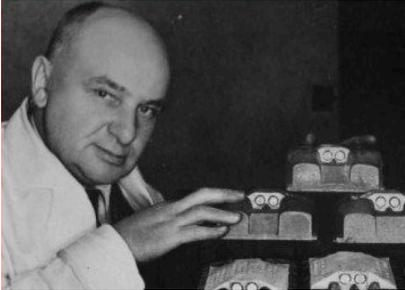
Topic	<b>Living things and their habitats (Biology)</b>	<b>Materials and their properties (Chemistry)</b>	<b>Plants (Biology)</b>	<b>Animals including humans (Biology)</b>
<b>Key knowledge</b>	<ul style="list-style-type: none"> <li>• I can explore and compare the differences between things that are living, dead and things that have never been alive.</li> <li>• I can identify and name a variety of plants and animals in their habitats, including microhabitats.</li> <li>• I can identify and name a variety of plants and animals in their habitats.</li> <li>• I can identify that most living things live in a habitat to which they are suited.</li> <li>• I can construct a simple food chain.</li> </ul>	<ul style="list-style-type: none"> <li>• I can identify a variety of everyday materials.</li> <li>• I can distinguish between an object and the material it is made from.</li> <li>• I can investigate the properties of different materials.</li> </ul>	<ul style="list-style-type: none"> <li>• I can identify that fruit, vegetables and herbs are types of plant that we eat.</li> <li>• I can observe and describe how seeds grow into mature plants.</li> <li>• I know what plants need to grow and stay healthy.</li> <li>• I can explain the life cycle of plants.</li> </ul>	<ul style="list-style-type: none"> <li>• I can find out about and describe the basic needs of animals, including humans for survival.</li> <li>• I can notice that animals, including humans, have offspring which grow into adults.</li> <li>• I can describe the importance for humans to exercise.</li> <li>• I can describe the importance for humans to eat the right amounts of different food types.</li> <li>• I can describe the importance for humans to have good hygiene.</li> <li>• I can describe the importance for humans to look after themselves.</li> </ul>

<b>Key scientist for this topic</b>	William Kirby (Study of insects) 	Victoria Callaghan (Develops sustainable packaging) 	Thomas Wyatt Turner (botanist who studied plant disease) 	Florence Nightingale (nurse and founder of modern nursing) 
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**Year 3**

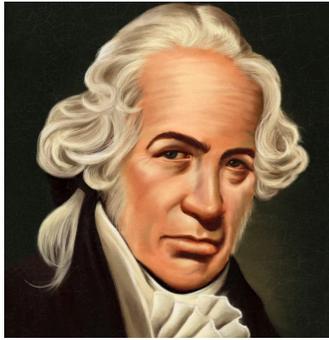
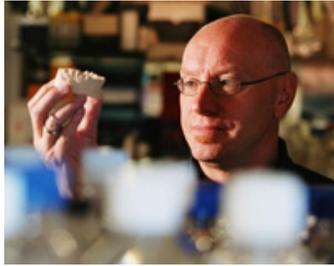
Working scientifically Lower KS2  	<p><b>Ask questions</b></p> <ul style="list-style-type: none"> <li>- Ask simple questions and recognise that they can be answered in different ways</li> <li>- Ask relevant questions and use different types of scientific enquiries to answer them</li> <li>- Plan different types of scientific enquiries to answer question, including recognising and controlling variables where necessary</li> </ul> <p><b>Make observations and take measurements</b></p> <ul style="list-style-type: none"> <li>- Observing closely, using simple equipment</li> <li>- Making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, take repeat readings when appropriate</li> </ul> <p><b>Engage in practical enquiry to answer questions</b></p> <ul style="list-style-type: none"> <li>- Performing simple tests</li> <li>- Setting up simple practical enquiries, comparative and fair tests</li> <li>- Plan different types of scientific enquiries to answer question, including recognising and controlling variables where necessary</li> </ul> <p><b>Record and present evidence</b></p> <ul style="list-style-type: none"> <li>- Gather and record data to help in answering questions</li> <li>- 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</li> <li>- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> </ul> <p><b>Answer questions and conclude</b></p> <ul style="list-style-type: none"> <li>- Using their observations and ideas to suggest answers to questions</li> <li>- Use straightforward scientific evidence to answer questions or to support findings</li> <li>- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> </ul>
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Topic	Animals including humans (Biology)	Forces and magnets (Physics)	Plants (Biology)	Light (Physics)	Rocks (Chemistry)
<b>Key knowledge</b>	<ul style="list-style-type: none"> <li>• I can identify that humans have bones for support, protection and movement.</li> </ul>	<ul style="list-style-type: none"> <li>• I can compare how different things move.</li> <li>• I can compare how objects</li> </ul>	<ul style="list-style-type: none"> <li>• I can explore the requirements of plants for life and growth.</li> <li>• I can identify, locate and</li> </ul>	<ul style="list-style-type: none"> <li>• I can recognise that there needs to be light in order to see things and that darkness is absence of light.</li> </ul>	<ul style="list-style-type: none"> <li>• I can compare and group together different kinds of rocks on the basis of their</li> </ul>

	<ul style="list-style-type: none"> <li>• I can identify that some other animals have bones for support, protection and movement.</li> <li>• I understand that animals, including humans, need the right type of nutrition.</li> </ul>	<p>move on different surfaces.</p> <ul style="list-style-type: none"> <li>• I can explore how magnetic forces act at a distance.</li> <li>• I can compare and group various everyday materials based on whether they are attracted to a magnet.</li> <li>• I can predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> <li>• I can record my findings using simple scientific vocabulary.</li> </ul>	<p>describe the function of different parts of the flowering plants.</p> <ul style="list-style-type: none"> <li>• I can identify, locate and describe the function of roots in plants.</li> <li>• I can investigate the way in which water is transported within plants.</li> <li>• I can explore the part that flowers play in the life cycle of flowering plants including pollination.</li> <li>• I can explore the part that flowers play in the life cycle of flowering plants, including seed formation and seed dispersal.</li> </ul>	<ul style="list-style-type: none"> <li>• I can notice that light is reflected from surfaces.</li> <li>• I can recognise that light from the sun can be dangerous and that there are ways to protect your eyes and skin from the sun.</li> <li>• I can recognise that shadows are formed when light from a light source is blocked by an opaque object.</li> <li>• I know that shadows take on the shape of the opaque object.</li> <li>• I can predict where a shadow will form in relation to an opaque object and a light source.</li> <li>• I can find patterns in the way that the length of shadows change.</li> </ul>	<p>properties.</p> <ul style="list-style-type: none"> <li>• I can explain how some rocks are formed.</li> <li>• I can explain how the Earth is made up of different layers of rocks and soils.</li> <li>• I can describe how fossils are formed when things that have lived are trapped within rock.</li> </ul>
<p><b>Key scientist for this topic</b></p>	<p>Marie Curie (physicist who invented the first mobile x-ray machine)</p> 	<p>William Gilbert (Developed the theory of magnetism)</p> 	<p>George Washington Carver (agricultural scientist)</p> 	<p>Percy Shaw (inventor of the cat's eye)</p> 	<p>Anjana Khatwa (Geologist)</p> 

**Year 4**

<p>Working scientifically Lower KS2</p> 	<p><b><u>Ask questions</u></b></p> <ul style="list-style-type: none"> <li>- Ask simple questions and recognise that they can be answered in different ways</li> <li>- Ask relevant questions and use different types of scientific enquiries to answer them</li> <li>- Plan different types of scientific enquiries to answer question, including recognising and controlling variables where necessary</li> </ul> <p><b><u>Make observations and take measurements</u></b></p> <ul style="list-style-type: none"> <li>- Observing closely, using simple equipment</li> <li>- Making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, take repeat readings when appropriate</li> </ul> <p><b><u>Engage in practical enquiry to answer questions</u></b></p> <ul style="list-style-type: none"> <li>- Performing simple tests</li> <li>- Setting up simple practical enquiries, comparative and fair tests</li> <li>- Plan different types of scientific enquiries to answer question, including recognising and controlling variables where necessary</li> </ul>
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	<p><b><u>Record and present evidence</u></b></p> <ul style="list-style-type: none"> <li>- Gather and record data to help in answering questions</li> <li>- 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</li> <li>- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> </ul> <p><b><u>Answer questions and conclude</u></b></p> <ul style="list-style-type: none"> <li>- Using their observations and ideas to suggest answers to questions</li> <li>- Use straightforward scientific evidence to answer questions or to support findings</li> <li>- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> </ul>				
<p><b>Topic</b></p>	<p><b>Living things and their habitats (Biology)</b></p>	<p><b>States of matter (Chemistry)</b></p>	<p><b>Animals including humans (Biology)</b></p>	<p><b>Electricity (Physics)</b></p>	<p><b>Sound (Physics)</b></p>
<p><b>Key knowledge</b></p>	<ul style="list-style-type: none"> <li>• I can recognise that living things can be grouped in a variety of ways.</li> <li>• I can explore and use classification keys to group, identify and name a variety of living things in my local environment.</li> <li>• I can recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul>	<ul style="list-style-type: none"> <li>• I can identify solids, liquids and gases.</li> <li>• I can take accurate measurements using thermometers.</li> <li>• I can observe that some materials change state when they are heated or cooled.</li> <li>• I can identify the part played by evaporation and condensation in the water cycle.</li> <li>• I can associate the rate of evaporation with temperature.</li> </ul>	<ul style="list-style-type: none"> <li>• I can name the basic parts of the digestive system and describe their functions.</li> <li>• I can identify the different teeth and describe their functions.</li> <li>• I can construct and interpret a variety of food chains.</li> <li>• I understand what producers, predators and prey are.</li> </ul>	<ul style="list-style-type: none"> <li>• I can identify common appliances that use electricity.</li> <li>• I can construct a simple circuit and name the parts of the circuit.</li> <li>• I can identify if a bulb will light up in a circuit.</li> <li>• I can recognise common conductors and insulators.</li> <li>• I can investigate switches.</li> </ul>	<ul style="list-style-type: none"> <li>• I can identify how sounds are made, associating some of them with something vibrating.</li> <li>• I can recognise that vibrations from sounds travel through a medium to the ear.</li> <li>• I can find patterns between the pitch of a sound and features of the object that produced it.</li> <li>• I can find patterns between the volume of a sound and the strength of the vibrations.</li> </ul>
<p><b>Key scientist for this topic</b></p>	<p>Liz Bonnin (TV presenter and wildlife conservationist).</p>	<p>Daniel Fahrenheit (Physicist who invented the Fahrenheit temperature)</p> 	<p>Paul Sharpe (Bioengineer who studies how to regrow teeth)</p> 	<p>Lewis Howard Latimer (Electronic engineer)</p> 	<p>Isaac Newton (who measured the speed of sound)</p> 

Year 5

Working scientifically  
Upper KS2



**Ask questions**

- Ask relevant questions and use different types of scientific enquiries to answer them
- Plan different types of scientific enquiries to answer question, including recognising and controlling variables where necessary
- Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience

**Make observations and take measurements**

- Making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, take repeat readings when appropriate
- Make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements

**Engage in practical enquiry to answer questions**

- Setting up simple practical enquiries, comparative and fair tests
- Plan different types of scientific enquiries to answer question, including recognising and controlling variables where necessary
- Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate

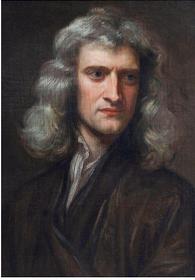
**Record and present evidence**

- 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
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements

**Answer questions and conclude**

- Use straightforward scientific evidence to answer questions or to support findings
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identify scientific evidence that has been used to support or refute ideas or arguments
- Report and present 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
- Use test results to make predictions to set up further comparative and fair tests

Topic	Earth and Space (Physics)	Living things and their habitats (Biology)	Forces (Physics)	Materials (Chemistry)	Animals including humans (Biology)
Key knowledge	<ul style="list-style-type: none"> <li>• I can describe the planets in the solar system.</li> <li>• I can describe the sun, Earth and moon as approximately spherical bodies.</li> <li>• I can describe the movement of the Earth, and other planets, relative to the sun in the solar system.</li> <li>• I can describe the movement of the moon relative to the earth.</li> <li>• I can use the idea of the Earth's rotation to explain day</li> </ul>	<ul style="list-style-type: none"> <li>• I can discuss the seven life processes.</li> <li>• I can explain how mammals reproduce.</li> <li>• I can explain how animals reproduce.</li> <li>• I understand reproduction in plants.</li> <li>• I can describe the differences in the life cycle of mammals, amphibians, reptiles, insects and birds.</li> <li>• I can explain the life cycle of plants.</li> </ul>	<ul style="list-style-type: none"> <li>• I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and falling objects.</li> <li>• I can identify the effect of friction between moving surfaces.</li> <li>• I can identify the effect of air resistance.</li> <li>• I can identify the effect of water resistance.</li> <li>• I can recognise that some mechanisms including levers, pulleys and gears allow a smaller</li> </ul>	<ul style="list-style-type: none"> <li>• I can compare and group materials according to whether they are solids, liquids or gases and name their properties.</li> <li>• I can describe the properties of materials using scientific vocabulary.</li> <li>• I can investigate the thermal insulation of different materials.</li> <li>• I can compare and group materials based on their response to magnets.</li> <li>• I know that some materials dissolve in a liquid to make a</li> </ul>	<ul style="list-style-type: none"> <li>• I can describe the human life cycle.</li> <li>• I understand how a foetus develops in the womb.</li> <li>• I can describe what happens when I am a teenager.</li> <li>• I can describe what happens when I am a senior.</li> </ul>

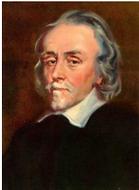
	and night and apparent movement of the sun across the sky. • I can describe the movement of the moon relative to the Earth.		force to have a greater effect.	solution • I can predict how I could separate mixtures. • I can explain why some changes are irreversible.	
<b>Key scientist for this topic</b>	Galileo Galilei (Astronomer, mathematician and physicist who made the first telescope) 	Ernest Everett Just (early development of marine invertebrates) 	Isaac Newton (Mathematician and physicist who developed theories of gravity) 	Jamie Garcia (chemist who discovered a fully recyclable plastic) 	Virginia Apgar (evaluating the well-being of new born babies) 

**Year 6**

<p>Working scientifically Upper KS2</p> 	<p><b><u>Ask questions</u></b></p> <ul style="list-style-type: none"> <li>- Ask relevant questions and use different types of scientific enquiries to answer them</li> <li>- Plan different types of scientific enquiries to answer question, including recognising and controlling variables where necessary</li> <li>- Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience</li> </ul> <p><b><u>Make observations and take measurements</u></b></p> <ul style="list-style-type: none"> <li>- Making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, take repeat readings when appropriate</li> <li>- Make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements</li> </ul> <p><b><u>Engage in practical enquiry to answer questions</u></b></p> <ul style="list-style-type: none"> <li>- Setting up simple practical enquiries, comparative and fair tests</li> <li>- Plan different types of scientific enquiries to answer question, including recognising and controlling variables where necessary</li> <li>- Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate</li> </ul> <p><b><u>Record and present evidence</u></b></p> <ul style="list-style-type: none"> <li>- 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</li> <li>- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>- Make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest</li> </ul>
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possible improvements  
**Answer questions and conclude**

- Use straightforward scientific evidence to answer questions or to support findings
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identify scientific evidence that has been used to support or refute ideas or arguments
- Report and present 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
- Use test results to make predictions to set up further comparative and fair tests

Topic	Living things and their habitats (Biology)	Electricity (Physics)	Animals including humans (Biology)	Evolution and inheritance (Biology)	Light (Physics)
<b>Key knowledge</b>	<ul style="list-style-type: none"> <li>• I can describe how living things can be classified into broad groups.</li> <li>• I understand how I can use classification keys to help group, identify and name a variety of living things.</li> <li>• I can describe how living things can be classified into broad groups.</li> <li>• I understand that microorganisms are also living things.</li> <li>• I can describe how living things can be classified into broad groups.</li> <li>• I know that scientists have developed different ways to classify living things.</li> </ul>	<ul style="list-style-type: none"> <li>• I can use symbols when drawing a simple circuit diagram.</li> <li>• I can associate the brightness of a lamp with the number and voltage of cells used in the circuit.</li> <li>• I can investigate variations in how components function.</li> <li>• I can name renewable and non-renewable sources of energy.</li> </ul>	<ul style="list-style-type: none"> <li>• I can identify and name the main parts of the human circulatory system.</li> <li>• I can identify and name the main parts of the heart.</li> <li>• I can describe how water and nutrients are transported in humans.</li> <li>• I can identify how humans can live a healthy lifestyle.</li> </ul>	<ul style="list-style-type: none"> <li>• I can identify how plants are adapted to their environments.</li> <li>• I can identify how animals are adapted to their environment.</li> <li>• I can explain natural selection and how it may lead to evolution.</li> <li>• I can explain how adaptations may lead to evolution.</li> <li>• I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</li> <li>• I can 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> </ul>	<ul style="list-style-type: none"> <li>• I can recognise that light appears to travel in straight lines.</li> <li>• I can 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>• I can explain how the eye works.</li> <li>• I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> <li>• I can explain how shadows change during the day.</li> </ul>
<b>Key scientist for this topic</b>	Carl Linnaeus (Botanist and zoologist) 	Mildred S Dressedlhaus (whose research led to the development of the rechargeable batteries) 	William Harvey (doctor who discovered the nature of blood circulation and the function of the heart as a pump) 	Emma Dunne (Paleontologic who investigates how ancient climate changes) 	Colin Webb (Professor of laser physics) 

