



Science Skills and Knowledge Overview

KS1 and KS2 National Curriculum																													
Teaching sequence in science	<ul style="list-style-type: none"> Start by recapping prior knowledge linking to the unit. Refer to the PLAN Matrices for prior objectives to be recapped. Fill in any gaps in knowledge before teaching the new unit. Teachers use the PLAN matrices to ensure good subject knowledge and pre-empt misconceptions to address. Every lesson starts with a Rapid Recall of the previous lesson. 1 or 2 questions recapping the essential knowledge taught. Working Scientifically Skills are woven through the teaching of scientific knowledge. All skills are regularly practised during the year. Enquiries are carried out wherever it is purposeful, providing regular opportunities to experience the 5 types of enquiry over the year. Specify key vocabulary to be used and its meaning. Make links with scientists and their work, celebrating the achievements of women and ethnic minorities too. Children talk about how they worked scientifically at the end of each lesson, referring to their 'Working Scientifically' mats at the front of their books. A Chance to Shine assessment of knowledge is completed at the end of each unit. 	Key Concepts - Learning, working and talking like a scientist	Being introduced to the key terms and vocabulary that a scientist would use and encouraging use of correct vocabulary when writing and talking about science																										
			<table border="1"> <thead> <tr> <th>Concepts</th> <th>Explanation</th> </tr> </thead> <tbody> <tr> <td>Structure</td> <td>What something is made of or how it's built</td> </tr> <tr> <td>Function</td> <td>Job</td> </tr> <tr> <td>Variation</td> <td>Differences between living things of the same species</td> </tr> <tr> <td>Adaptation</td> <td>The process by which animals, plants and other living things have changed to suit their habitat</td> </tr> <tr> <td>Cause and effect</td> <td>Cause is why something happens Effect is what has happened as a result</td> </tr> <tr> <td>Changes</td> <td>Changing from one material/state to another</td> </tr> <tr> <td>Evolution</td> <td>The way that living things change over time</td> </tr> <tr> <td>Growth</td> <td>Increasing in size</td> </tr> <tr> <td>Energy</td> <td>Strength and power. There are many forms such as thermal (heat), radiant (light) or kinetic (movement)</td> </tr> <tr> <td>Process</td> <td>A series of actions or steps</td> </tr> <tr> <td>Similarity and Difference</td> <td>Similarity is sameness or a likeness between things and differences are a point or way in which people or things are dissimilar</td> </tr> <tr> <td>Working scientifically</td> <td>The processes of science: asking questions, planning enquiries, measuring and gathering data, reasoning and arguing with scientific evidence and analysing and interpreting data.</td> </tr> </tbody> </table>	Concepts	Explanation	Structure	What something is made of or how it's built	Function	Job	Variation	Differences between living things of the same species	Adaptation	The process by which animals, plants and other living things have changed to suit their habitat	Cause and effect	Cause is why something happens Effect is what has happened as a result	Changes	Changing from one material/state to another	Evolution	The way that living things change over time	Growth	Increasing in size	Energy	Strength and power. There are many forms such as thermal (heat), radiant (light) or kinetic (movement)	Process	A series of actions or steps	Similarity and Difference	Similarity is sameness or a likeness between things and differences are a point or way in which people or things are dissimilar	Working scientifically	The processes of science: asking questions, planning enquiries, measuring and gathering data, reasoning and arguing with scientific evidence and analysing and interpreting data.
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Year 1					
Seasonal Changes			Everyday Materials		
Skills	Knowledge	End Points	Skills	Knowledge	End Points
To ask simple questions about the weather. To observe the weather and changes and to record what they see. To gather and record simple data about weather. To conduct a simple test to check if an item is waterproof. To gather and record simple data about temperatures and the length of the days. To be able to use one or two basic observations and ideas to suggest an answer to a question.	What is the weather like in autumn / winter / spring / summer? What does waterproof mean? What changes do you notice in the weather? How long are the days in autumn / winter / spring / summer?	NC: <ul style="list-style-type: none"> observe changes across the 4 seasons observe and describe weather associated with the seasons and how day length varies 	To ask simple questions about materials. Use simple equipment to observe materials closely using simple equipment. To carry out simple tests to compare materials To sort materials according to their simple properties. To name and compare a variety of everyday materials Explain why they have grouped materials in a particular way. To be able to use one or two basic observations and ideas to	What material is this object made of? What different materials can we name? What are the properties of ___? How can we group materials together? Which material makes the best ___?	NC: <ul style="list-style-type: none"> distinguish between an object and the material from which it is made identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock describe the simple physical properties of a variety of everyday materials compare and group together a variety of everyday materials on the

			suggest an answer to a question.		basis of their simple physical properties
Animals including Humans			Plants		
Skills	Knowledge	End Points	Skills	Knowledge	End Points
<p>To ask simple questions about the human body and senses.</p> <p>To ask questions about what animals eat.</p> <p>To closely observe parts of the body using simple equipment (eyes, hands).</p> <p>To conduct simple experiments relating to using their senses.</p> <p>To discuss the importance of diet in relation to health.</p> <p>To use secondary resources to find out what animals eat.</p> <p>To observe similarities and differences between groups of animals.</p> <p>To group and classify animals.</p> <p>To look for patterns between people (e.g.: do people with bigger hands have bigger feet?)</p> <p>To be able to use basic observations and ideas to suggest an answer to a question.</p>	<p>How can we identify common animals by their appearance?</p> <p>How can we identify common animals by their diet?</p> <p>How can we compare the structure of different animals?</p> <p>Which body parts create our 5 senses?</p> <p>How can I stay healthy?</p> <p>Do people with bigger hands have bigger feet? OR</p> <p>Do taller people jump higher?</p>	<p>NC:</p> <ul style="list-style-type: none"> identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals identify and name a variety of common animals that are carnivores, herbivores and omnivores describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense 	<p>To ask simple questions about plants.</p> <p>To closely observe plants in the school environment using simple equipment.</p> <p>To observe the differences between types of trees.</p> <p>To observe the growth of a plant and record changes seen.</p> <p>To gather and record simple data about the growth of a plant.</p> <p>To record the names of parts of flowering plants and trees.</p> <p>To classify leaves, seeds, flowers etc. using a range of characteristics.</p> <p>To be able to use basic observations and ideas to suggest an answer to a question.</p>	<p>How can we identify wild and garden plants?</p> <p>What is the difference between deciduous and evergreen trees?</p> <p>What are the parts of flowering plants? What are the parts of trees?</p> <p>What do plants need to grow well?</p> <p>How does a plant change and grow over time?</p> <p>What plants can we find by our school?</p> <p>How can we classify leaves / flowers?</p>	<p>NC:</p> <ul style="list-style-type: none"> identify and name a variety of common wild and garden plants, including deciduous and evergreen trees identify and describe the basic structure of a variety of common flowering plants, including trees

Year 2

Living Things and their Habitats			Animals Including Humans		
Skills	Knowledge	End Points	Skills	Knowledge	End Points
<p>To ask simple questions about why these animals and plants live in these habitats.</p> <p>To classify things according to whether they are living or dead or never been alive.</p> <p>To classify animals and plants from similar habitats.</p> <p>Use secondary sources to find out about different habitats and how they are suitable.</p> <p>To observe microhabitats closely using simple equipment.</p> <p>To record their observations of microhabitats.</p> <p>To use secondary sources to identify different sources of food and how animals obtain their</p>	<p>What is the difference between things that are living, dead and things that have never been alive?</p> <p>Which living things can we find in different habitats?</p> <p>How are living things suited to their habitats?</p> <p>Which living things can we find in local microhabitats?</p> <p>How are living things suited to their microhabitats?</p> <p>How do different animals obtain</p>	<p>NC:</p> <ul style="list-style-type: none"> explore and compare the differences between things that are living, dead, and things that have never been alive 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 identify and name a variety of plants and animals in their habitats, including 	<p>To ask simple questions about human growth and survival.</p> <p>To use secondary sources to identify and describe what animals need to survive.</p> <p>To identify the offspring of a variety of animals.</p> <p>To observe how some offspring are similar to their parents and some are different.</p> <p>To use secondary sources to find out about the life cycles of some animals.</p> <p>To use diagrams to record information about animals.</p> <p>To classify foods according to whether they are healthy or unhealthy.</p>	<p>Which offspring matches which adult?</p> <p>How do humans grow and change?</p> <p>What are the basic needs of animals, including humans, for survival?</p> <p>How do humans keep healthy?</p> <p>What happens to our body when we do exercise?</p> <p>What does a healthy diet look like?</p>	<p>NC:</p> <ul style="list-style-type: none"> notice that animals, including humans, have offspring which grow into adults find out about and describe the basic needs of animals, including humans, for survival (water, food and air) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene

<p>food.</p> <p>To draw and label diagrams of animals or plants observed.</p> <p>To be able to use basic observations and ideas to suggest an answer to a question.</p>	<p>their food? (food chains)</p>	<p>microhabitats</p> <ul style="list-style-type: none"> describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food 	<p>To observe closely and record the changes in humans as they grow.</p> <p>To observe and record the effects of exercise on the body (using simple data).</p> <p>To conduct a simple test to measure the effects of exercise or good hygiene practices.</p> <p>To be able to use basic observations and ideas to suggest an answer to a question.</p>	<p>What is the life cycle of a frog / butterfly?</p>	
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Plants			Materials		
Skills	Knowledge	End Points	Skills	Knowledge	End Points
<p>To ask simple questions about plants.</p> <p>To closely observe seeds and bulbs using simple equipment.</p> <p>To classify seeds and bulbs.</p> <p>To observe closely how different plants grow in the local environment using simple equipment.</p> <p>To observe and record the growth of a plant.</p> <p>To conduct a simple test to show that a plant needs light and water to stay healthy.</p> <p>To gather and record data about the growth of a plant.</p> <p>To be able to use basic observations and ideas to suggest an answer to a question.</p>	<p>How do seeds grow into mature plants?</p> <p>How do bulbs grow into mature plants?</p> <p>When should we plant certain seeds and bulbs?</p> <p>What do plants need to grow and stay healthy?</p> <p>How does a plant change as it grows?</p>	<p>NC:</p> <ul style="list-style-type: none"> observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy 	<p>To ask simple questions about the use of materials.</p> <p>To observe objects and materials closely, using simple equipment.</p> <p>To perform a simple test on materials to check if they are suitable for a purpose.</p> <p>To classify materials according to their properties.</p> <p>To question and suggest reasons why materials are suitable/unsuitable for a particular purpose.</p> <p>To observe closely how materials can be changed by squashing, bending, twisting and stretching.</p> <p>To use test results to identify why everyday objects are made from certain materials.</p>	<p>Which materials are best suited for ____? Several lessons. (E.g.: an airplane, clothes for teddy, curtains, a book, shoes...)</p> <p>How can we classify materials by their properties?</p> <p>Why are materials used for certain purposes? ego: Bricks for houses, rubber for shoes...</p> <p>How can we change the shape of a solid object?</p>	<p>NC:</p> <ul style="list-style-type: none"> identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

Working Scientifically End Points – Y1 and 2

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Year 3								
Rocks			Light			Plants		
Skills	Knowledge	End Points	Skills	Knowledge	End Points	Skills	Knowledge	End Points
<p>Compare, classify and group kinds of rocks according to appearance and physical properties. Identify differences and similarities between rocks. Observe rocks closely, using a range of equipment. Ask own questions about rocks and use secondary sources to help to find answers. Use a simple key to report findings. Ask questions using simple scientific language.</p>	<p>How can we group rocks based on their appearance? (3 types of rocks)</p> <p>How can we group rocks based on their properties?</p> <p>What are the different types of fossils?</p> <p>How are fossils formed?</p> <p>What is soil made of?</p> <p>Who was Mary Anning and what is she remembered for?</p>	<p>NC:</p> <ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter 	<p>Use a simple key to report findings. Ask questions using simple scientific language. Explore how light is reflected and how shadows are formed. Make observations and record findings in a variety of ways.</p>	<p>Why can we see things? What is darkness?</p> <p>Do our eyes get used to the dark?</p> <p>Do all objects look the same in the light? Do they reflect light in the same way?</p> <p>What do transparent, translucent and opaque objects look like in the light?</p> <p>How are shadows created? Which objects create the darkest shadow?</p> <p>How can we keep our eyes safe from the sun?</p> <p>What patterns can you find in the way shadows change size?</p>	<p>NC:</p> <ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surface recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change 	<p>Observe a variety of different plants and the parts of these plants. Record findings using labelled diagrams. Identify differences and similarities. Record the life cycle of a flowering plant. Experiment to find out what plants need to grow, make careful observations and predict results. Draw simple conclusions and share these in a report using scientific language. Experiment to find out how water is transported through a plant.</p>	<p>What are the functions of the different parts of plants?</p> <p>What does a plant need to grow and live? (air, light, water, nutrients from soil, and room to grow)</p> <p>2 lessons – 1 setting up comparative test, 1 recording and interpreting results.</p> <p>How is water transported in plants?</p> <p>What is the role of the flower in the life cycle of a flowering plant? (Start life cycle - focus on germination, growth, pollination)</p> <p>What is the life cycle of a flowering plant? (Finish life cycle - focus on fertilization and seed dispersal)</p> <p>Do all plants have the same needs?</p>	<p>NC:</p> <ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal
Forces and Magnets				Animals, including Humans				
Skills	Knowledge	End Points	Skills	Knowledge	End Points	Skills	Knowledge	End Points

<p>Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. 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. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. Experiment with the use of magnets and record their findings.</p>	<p>How fast do objects move on different surfaces? Which forces need contact or can act at a distance? What happens when two magnets are put together? How will the magnet poles behave? Which materials are magnetic?</p>	<p>NC:</p> <ul style="list-style-type: none"> compare how things move on different surfaces notice that some forces need contact between 2 objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others 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 describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing 	<p>Compare and contrast the diets of different animals and decide ways of grouping them according to what they eat. Research different food groups and how they keep us healthy and design meals based on them. Identify and group animals with and without skeletons. Observe and compare the movement of animals and humans. Conduct an experiment and record findings in a report. Use secondary sources of information.</p>	<p>How do animals, including humans get nutrition? What nutrients do different foods provide? How can we group foods based on their nutrients? What does a healthy, balanced meal include? (Right types and amounts of nutrition) Why do we have skeletons? Why do we have muscles? Do people with longer legs run fast?</p>	<p>NC:</p> <ul style="list-style-type: none"> identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat identify that humans and some other animals have skeletons and muscles for support, protection and movement
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Year 4

Living Things and their Habitats			Animals including Humans			States of Matter		
Skills	Knowledge	End Points	Skills	Knowledge	End Points	Skills	Knowledge	End Points
<p>Recognise that living things can be grouped in a variety of ways. Classify and group them by chosen criteria. Explore plants and animals living in the local area and present information using a key. Use secondary sources to aid identification. Research and identify environmental dangers and their effects upon animal and plant life. Set up a simple test</p>	<p>How can we group living things in different ways? How do you use a classification key to identify local plants? How do you use a classification key to identify local animals? What environmental changes can pose dangers to living things? What ways can we protect living things and the</p>	<p>NC:</p> <ul style="list-style-type: none"> recognise that living things can be grouped in a variety of ways explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things 	<p>Record the functions of the digestive system using labelled diagrams. Draw and label the different types of human teeth. Use secondary sources to identify predators and their prey. Construct a variety of food chains.</p>	<p>What are the functions of the basic parts of the digestive system? What are the types of teeth and what are their functions? What causes tooth decay? (2 lessons. Test and gather results) What are producers, predators and preys in a food chain? How can we create food chains containing</p>	<p>NC:</p> <ul style="list-style-type: none"> describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and 	<p>Compare and group materials together according to whether they are solids, liquids or gases. Explore how materials change state when they are heated or cooled. Measure or research the temperature at which this change happens. Set up a simple practical enquiry to test what happens to water at various temperatures. Present findings using scientific</p>	<p>What are the different states of materials? (gas, liquid and solids) How we can group materials based on their state of matter? How do some materials change state when they are heated or cooled? At what temperature do these changes happen (in degree Celsius)?</p>	<p>NC:</p> <ul style="list-style-type: none"> compare and group materials together, according to whether they are solids, liquids or gases 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)

to gain evidence and to support findings. Suggest possible solutions.	environment?			producers, predators and prey?	prey	vocabulary, in a variety of ways.	What is evaporation and condensation and how do these influence the water cycle?	<ul style="list-style-type: none"> identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature
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Electricity			Sound		
Skills	Knowledge	End Points	Skills	Knowledge	End Points
<p>Construct a simple series circuit. Identify whether 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.</p> <p>Make predictions and suggest improvements to their circuit, using scientific language.</p> <p>Test circuits with a variety of possible conductors and present findings and conclusions using labelled diagrams.</p> <p>Record findings using graphs.</p>	<p>Which common appliances run on electricity?</p> <p>What are the different parts to a circuit? (cell, wires, bulbs, switches and buzzers)</p> <p>Will this light a lamp in a simple series circuit? (based on whether or not the lamp is part of a complete loop with a battery)</p> <p>How does a switch work?</p> <p>Which materials are conductors or isolators?</p>	<p>NC:</p> <ul style="list-style-type: none"> identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers 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 recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors 	<p>Explore how sounds are made. Identify patterns between volume, strength and distance through comparative and fair tests.</p> <p>Make predictions and present conclusions using scientific language.</p> <p>Record findings using graphs.</p>	<p>How are sounds made?</p> <p>How do vibrations travel?</p> <p>What patterns can you find between the volume of a sound and the strength of the vibration?</p> <p>What patterns can you find between the pitch of a sound and the object that produced it?</p> <p>What happens to sound as the distance from the sound source increases?</p>	<p>NC:</p> <ul style="list-style-type: none"> identify how sounds are made, associating some of them with something vibrating recognise that vibrations from sounds travel through a medium to the ear find patterns between the pitch of a sound and features of the object that produced it find patterns between the volume of a sound and the strength of the vibrations that produced it recognise that sounds get fainter as the distance from the sound source increases

Working Scientifically End Points – Y3 and 4

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- 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
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Year 5

Forces			Properties and Changes of Materials			Earth and Space		
Skills	Knowledge	End Points	Skills	Knowledge	End Points	Skills	Knowledge	End Points
<p>Plan an enquiry making their own decisions about what observations, measurements and tests to take. Recognise and control variables and decide how to record data. Use test results to make predictions and to set up further tests. Consider the questions that are going to be asked and identify when further tests are required to provide evidence. Recognise and analyse patterns in their results.</p>	<p>Why do unsupported objects fall towards the Earth?</p> <p>What are the effects of air resistance, water resistance and friction on moving surfaces?</p> <p>Why do some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect?</p>	<p>NC:</p> <ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect 	<p>Group and classify materials according to properties. Separate solids, liquids and gases through filtering, sieving and evaporating. Explore how some changes result in the formation of new materials. Plan enquiries to test their predictions about changes in state and decide what observations, measurements etc. to take. Report and present findings including causal relationships, explanations and conclusions. Test results to ask further questions and to confirm results.</p>	<p>How can we group materials based on their properties? (including; transparency, hardness and magnetism)</p> <p>Which materials are thermal conductors or isolators?</p> <p>Which materials are the best electrical conductors?</p> <p>Which materials dissolve to form a solution?</p> <p>How can we separate mixtures, including a solution?</p> <p>What are reversible and irreversible changes?</p> <p>Why do we have particular uses of everyday materials including wood, plastic and metals?</p>	<p>NC:</p> <ul style="list-style-type: none"> 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 know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic demonstrate that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda 	<p>Use secondary sources to research about planets. Identify opinions and facts that have been used to support or refute ideas or arguments about the solar system. Talk about how this science has developed over time. Present information using graphs and diagrams. Present fact files about planets. Explore the movement of the sun and the phases of the moon. Plan an enquiry, recognising and controlling variables. Explore ideas and raise questions. Take measurements with accuracy and precision. Use scientific language to communicate and justify their conclusions.</p>	<p>Which planets are in our solar system?</p> <p>What are the movement of the earth and other planets, relative to the Sun in the solar system?</p> <p>What evidence do we have that the Earth is an approximate sphere?</p> <p>How can we classify objects in the solar system using a key?</p> <p>How did scientists discover the heliocentric model of the solar system?</p> <p>What is the movement of the Moon relative to the Earth?</p> <p>What patterns can we find in data about the planets? (e.g.: temperature and distance to sun, size and length of days or years, size and distance to the sun...)</p> <p>Why do we have day time and night time?</p> <p>Why does the sun seem to move across the sky?</p>	<p>NC:</p> <ul style="list-style-type: none"> describe the movement of the Earth and other planets relative to the sun in the solar system describe the movement of the moon relative to the Earth describe the sun, Earth and moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

							How do international timezones work?	
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Living Things and their Habitats			Animals including Humans		
Skills	Knowledge	End Points	Skills	Knowledge	End Points
<p>Compare the Life cycle of plants and animals</p> <p>Group animals according to chosen criteria.</p> <p>Explore ideas and raise questions.</p> <p>Draw scientific diagrams with labels and keys.</p> <p>Use scientific language to describe and report.</p> <p>Observe changes over time.</p> <p>Use scientific language to describe changes and ask appropriate questions.</p>	<p>What are the differences between the life cycles of a mammal and a bird?</p> <p>What are the differences between the life cycles of an insect and an amphibian?</p> <p>How do plants reproduce? (compare sexual and asexual reproduction of plants)</p> <p>How do animals reproduce and how do their life cycles differ around the world?</p> <p>Who is Jane Goodall and what is she known for?</p>	<p>NC:</p> <ul style="list-style-type: none"> describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals 	<p>Group animals according to chosen criteria.</p> <p>Explore ideas and raise questions.</p> <p>Draw scientific diagrams with labels and keys.</p> <p>Use scientific language to describe and report.</p> <p>Observe changes over time.</p> <p>Use scientific language to describe changes and ask appropriate questions.</p>	<p>What patterns can we find in data about animal gestation periods? (e.g.: size and gestation, life span and gestation)</p> <p>Which changes occur from birth to childhood?</p> <p>What changes occur during puberty?</p> <p>What changes occur during adulthood and old age?</p>	<p>NC:</p> <ul style="list-style-type: none"> describe the changes as humans develop to old age

Year 6

Light			Living things and their Habitats			Evolution and Inheritance		
Skills	Knowledge	End Points	Skills	Knowledge	End Points	Skills	Knowledge	End Points
<p>Select and plan enquiries to investigate light sources.</p> <p>Take measurements with accuracy and precision.</p> <p>Report and present findings, justifying conclusions.</p>	<p>How do we see things? (light travels from light sources to our eyes or from light sources to objects then to our eyes)</p> <p>How does light travel?</p> <p>Why do shadows have the same shape as the object that cast them?</p>	<p>NC:</p> <ul style="list-style-type: none"> recognise that light appears to travel in straight lines 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 explain that we see things because light travels from light sources to our eyes or 	<p>Talk about how science has developed over time.</p> <p>Observe, discuss, explore ideas and ask questions.</p> <p>Use secondary sources to justify ideas and to research information. Identify scientific evidence to support or refute ideas or arguments.</p> <p>Present information using scientific language.</p> <p>Classify animals and plants into appropriate groups.</p>	<p>What groups can animals be classified into?</p> <p>What groups can plants be classified into?</p> <p>How does the Linnean classification system work?</p> <p>What groups can microorganisms be classified into? (bread investigation)</p> <p>What are the reasons for classifying plants and animals in this</p>	<p>NC:</p> <ul style="list-style-type: none"> 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 give reasons for classifying plants and animals based on specific 	<p>Talk about how science has developed over time.</p> <p>Observe, discuss, explore ideas and ask questions.</p> <p>Use secondary sources to justify ideas and to research information. Identify scientific evidence to support or refute ideas or arguments.</p> <p>Present information using scientific language.</p> <p>Classify animals and plants into appropriate groups.</p>	<p>What can we learn from fossils? (information about living things that inhabited the Earth millions of years ago)</p> <p>Why do some offspring vary and are not identical to their parents?</p> <p>How do living things change over time?</p> <p>How do animals and plants adapt to suit their environment?</p> <p>How does</p>	<p>NC:</p> <ul style="list-style-type: none"> recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not

		<p>from light sources to objects and then to our eyes</p> <ul style="list-style-type: none"> use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them 	<p>Use previous knowledge and understanding of animals and plants to explore ideas and to raise questions.</p>	<p>way? (specific characteristics)</p>	<p>characteristics</p>	<p>Use previous knowledge and understanding of animals and plants to explore ideas and to raise questions.</p>	<p>adaptation lead to evolution?</p> <p>How have human beings evolved?</p>	<p>identical to their parents</p> <ul style="list-style-type: none"> identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
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Electricity	Animals including Humans
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Skills	Knowledge	End Points	Skills	Knowledge	End Points
<p>Plan different kinds of fair experiments.</p> <p>Recognise why controlling variables is important and explain how and why.</p> <p>Take repeated measurements when appropriate.</p> <p>Draw conclusions from results and describe causal relationships. Compare and give reasons for variations in how components function in circuits.</p> <p>Use evidence to justify ideas.</p> <p>Use scientific language and diagrams to report and present findings.</p>	<p>How does the number and voltage of cells affect the volume of a buzzer?</p> <p>How does the number and voltage of cells affect the brightness of a lamp?</p> <p>Why are there differences in how components function in a circuit? (including brightness of bulb, loudness of buzzer, on/off position of switches) 2 lessons</p> <p>What are the recognised symbols for a simple circuit diagram?</p>	<p>NC:</p> <ul style="list-style-type: none"> associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit 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 use recognised symbols when representing a simple circuit in a diagram 	<p>Use scientific language and labelled diagrams to describe the main parts of the human circulatory system.</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Test results to make predictions to set up further comparative and fair tests</p> <p>Use scientific language to report and present findings.</p> <p>Talk about how science has changed over time and use scientific evidence to support or refute ideas or arguments. E.g. the effect smoking has on health.</p> <p>Record and present information using a variety of methods.</p>	<p>What are the main parts of the human circulatory system?</p> <p>What are the functions of the heart, blood vessels and blood?</p> <p>What ways are nutrients and water transported within animals, including humans?</p> <p>What is the impact of diet on the way the body functions?</p> <p>What is the impact of exercise on the way the body functions?</p> <p>What is the impact of drugs on the way the body functions?</p>	<p>NC:</p> <ul style="list-style-type: none"> identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans

Working Scientifically End Points – Y5 and 6

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests

- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments