

Gillespie Primary School



**National Curriculum
Science Scheme of work**

Working Scientifically at Key Stage 1

Provide opportunities for using the following practical scientific methods, processes and skills across Years 1 and 2

Approaches to enquiry

Children should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including:

- observing changes over a period of time
- noticing patterns
- grouping and classifying things
- carrying out simple comparative tests
- finding things out using secondary sources of information

Asking questions	Planning	Collecting data	Presenting data
<p>Ask simple questions</p> <ul style="list-style-type: none"> • Begin to shape questions using different question stems • Ask questions about how and why objects, materials and living things: <ul style="list-style-type: none"> ▶ change ▶ are similar or different to each other ▶ connect with each other ▶ are made or work • Suggest questions to investigate <p>*N.B: Statutory requirements shown in bold, other information taken from Snap Science (Collins) for working scientifically</p>	<p>Recognise that questions can be answered in different ways</p> <p>With support:</p> <ul style="list-style-type: none"> ▶ suggest how to find things out ▶ identify patterns to observe and measure ▶ identify variables to change and measure ▶ identify sorting criteria ▶ suggest how to take measurements ▶ suggest next steps or a sequence of steps in a plan 	<p>Observe closely, using simple equipment</p> <ul style="list-style-type: none"> ▶ choose and use appropriate simple equipment to make observations ▶ use non-standard units to collect observations <p>performing simple tests</p> <ul style="list-style-type: none"> ▶ choose and use appropriate simple equipment with increasing accuracy to collect comparative data ▶ use non-standard units to collect data <p>identifying and classifying</p> <ul style="list-style-type: none"> ▶ sort objects by observable and behavioural features ▶ make comparisons between simple features <p>gathering data to help in answering questions</p> <ul style="list-style-type: none"> ▶ gather data to answer questions from a variety of sources including talking to people, simple books and electronic media, first hand observation and practical activity 	<p>Record data to help in answering questions</p> <ul style="list-style-type: none"> ▶ talk about what has been found out and how ▶ record observations in word and pictures ▶ record observations and test results in simple prepared pictograms, tables, tally charts, bar charts and maps including ICT formats ▶ record sorting in sorting circles or tables <p>Use their observations and ideas to suggest answers to questions using simple scientific language</p>

Scientific Knowledge, Skills and Conceptual Understanding for Seasonal Changes

Year 1

Seasonal Changes/Our Changing World (OCW)

Children look at how plants, animals and the weather change during the year. Children are encouraged to carry out regular and frequent observations of the world around them to build a rich knowledge of their local environment.

• **Can they observe changes over time across the four seasons?** *E.g. revisit the same plants or shrubs to look at how the leaves change through the year, visit specific trees observing them closely and noticing that some trees drop their leaves at certain points during the year, while others seem to keep their leaves all of the time, observe a variety of flowering plants and notice that many flower during the summer months whilst others can flower at other times of the year, use the school garden to grow vegetables and observe changes to plants over time*

• **Can they name the four seasons in order? Can they notice patterns?** *E.g. visit school grounds and locality and make observations of any animal life including birds, care for and observe garden snails over an extended period of time*

• **Can they observe changes over time and describe weather associated with the seasons?** *E.g. explore the impact on them of the changing seasons – what do different kinds of weather look and feel like?, visit school grounds/local area at different times in the year looking for evidence of seasonal changes to the natural world – ‘scavenger hunts’, collect daily records of the weather for a period of 2 weeks and look for patterns and link these to seasonal change*

• **Can they observe and describe how day length varies?**

Teacher reference: Snap Science (Collins)

OCW: Plants OCW: Animal Antics OCW: Sensing Seasons

Scientific Knowledge, Skills and Conceptual Understanding for Animals including humans, Everyday Materials and Plants

Year 1

Animals, including humans	Everyday Materials Classifying and grouping	Plants
<ul style="list-style-type: none"> • Can they point out some of the differences between different animals? • Can they sort photographs of living things and non-living things? • Can they identify and name a variety of common animals? (birds, fish, amphibians, reptiles, mammals, invertebrates) • Can they describe how an animal is suited to its environment? • Can they identify and name a variety of common animals that are carnivores, herbivores and omnivores? • Can they name the parts of the human body that they can see? • Can they draw & label basic parts of the human body? • Can they identify the main parts of the human body and link them to their senses? • Can they name the parts of an animal's body? • Can they name a range of domestic animals? • Can they classify animals by what they eat? (carnivore, herbivore, omnivore) • Can they compare the bodies of different animals? <p>Teacher reference: Snap Science (Collins) Module 2 : Looking at animals Module 3 : Using Our Senses</p>	<ul style="list-style-type: none"> • Can they distinguish between an object and the material from which it is made? • Can they describe materials using their senses? • Can they describe materials using their senses, using specific scientific words? • Can they explain what material objects are made from? • Can they explain why a material might be useful for a specific job? <ul style="list-style-type: none"> ▶ In stories, e.g. Whatever Next! Make links between everyday objects used to get to the moon exploring the materials from which they are made ▶ Make links to best materials used for boats/e.g. Golden Hinde/waterproof/not waterproof/absorbent/not absorbent • Can they name some different everyday materials? e.g. wood, plastic, metal, water and rock • Can they sort materials into groups by a given criteria? • Can they explain how solid shapes can be changed by squashing, bending, twisting and stretching? <p>Teacher reference: Snap Science (Collins) Module 4 : Everyday Materials</p>	<ul style="list-style-type: none"> • Can they name the petals, stem, leaf, bulb, flower, seed, stem and root of a plant? • Can they identify and name a range of common plants and trees? • Can they recognise deciduous and evergreen trees? • Can they name the trunk, branches and root of a tree? • Can they describe the parts of a plant (roots, stem, leaves, and flowers)? <p>Teacher reference: Snap Science (Collins) Module 1 : Plant Detectives</p>

Scientific Knowledge, Skills and Conceptual Understanding for Our Changing World

Year 2

Our Changing World (OCW)

Children look at how plants, animals and habitats change during the year. Children are encouraged to carry out regular and frequent observations of the world around them to build a rich knowledge of their local environment.

• Can they observe changes over time and notice patterns? *E.g. Carry out surveys to see what animals are visible at different times of the year in the habitats studied, explore how does a habitat change through the year, observe how animals change over time (including a human baby/toddler) plan what bulbs and seeds to grow to make a healthy soup later in the year, observe and measure changes in how plants grow over time, use the local environment throughout the year to observe how different plants grow*

Teacher reference: Snap Science (Collins)

OCW: Our Changing World

Scientific Knowledge, Skills and Conceptual Understanding for Everyday Materials, Animals including humans, Plants and Living Things and their Habitats

Year 2

Uses of Everyday Materials	Animals including humans	Plants	Living Things and their Habitats
<p>Classifying and grouping materials</p> <ul style="list-style-type: none"> • Can they describe the simple physical properties of a variety of everyday materials? <ul style="list-style-type: none"> • Can they compare and group together a variety of materials based on their simple physical properties? • Can they describe the properties of different materials using words like, transparent or opaque, flexible, etc.? • Can they sort materials into groups and say why they have sorted them in that way? <ul style="list-style-type: none"> • Can they say which materials are natural and which are man-made? <p>Changing materials</p> <ul style="list-style-type: none"> • Can they explore how the shapes of solid objects can be changed? (squashing, bending, twisting, stretching) • Can they explain how materials are changed by heating and cooling? • Can they explain how materials are changed by bending, twisting and stretching? • Can they tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted? • Can they find out about people who developed useful new materials? (John Dunlop, Charles Macintosh, John McAdam) • Can they identify and compare the suitability of a variety of everyday 	<ul style="list-style-type: none"> • Can they describe what animals need to survive? • Can they explain that animals grow and reproduce? • Can they explain why animals have offspring which grow into adults? • Can they describe the life cycle of some living things? (e.g. egg, chick, chicken) • Can they explain the basic needs of animals, including humans for survival? (water, food, air) • Can they describe why exercise, balanced diet and hygiene are important for humans? <p>Teacher reference: Snap Science (Collins) Module 5: Take care Module 6: Growing Up</p>	<ul style="list-style-type: none"> • Can they describe what plants need to survive? • Can they observe and describe how seeds and bulbs grow into mature plants? • Can they find out & describe how plants need water, light and a suitable temperature to grow and stay healthy? <p>Teacher reference: Snap Science (Collins) Module 2: The Apprentice Gardener</p>	<ul style="list-style-type: none"> • Can they match certain living things to the habitats they are found in? • Can they explain the differences between living and non-living things? • Can they describe some of the life processes common to plants and animals, including humans? • Can they decide whether something is living, dead or non-living? • Can they describe how a habitat provides for the basic needs of things living there? <ul style="list-style-type: none"> • Can they describe a range of different habitats? • Can they describe how plants and animals are suited to their habitat? <p>Teacher reference: Snap Science (Collins) Module 1: What Is in Your Habitat?</p>

<p>materials, including wood, metal, plastic, glass, brick, rock, paper, cardboard for particular uses?</p> <ul style="list-style-type: none">▶ Make links to materials used in Tudor houses during Great fire of London<ul style="list-style-type: none">• Can they explain how things move on different surfaces? <p>Teacher reference: Snap Science (Collins) Module 3: Materials: Good Choices Module 4: Materials: Shaping Up</p>			
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Working Scientifically at Lower Key Stage 2

Provide opportunities for using the following practical scientific methods, processes and skills across Years 3 and Year 4

Approaches to enquiry

Children should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them including:

- observing changes over time
- noticing patterns
- grouping and classifying things
- carrying out simple fair tests
- finding things out using secondary sources of information

Asking questions	Planning	Collecting data	Presenting data
<p>Ask relevant questions</p> <ul style="list-style-type: none"> • Recognise questions that can be investigated scientifically and those that cannot • Ask a clear scientific question • Recognise when questions can be answered by first hand or second sources of evidence <p><small>*N.B: Statutory requirements shown in bold, other information taken from Snap Science (Collins) for working scientifically</small></p>	<p>Use different types of scientific enquiries to answer them</p> <ul style="list-style-type: none"> • Identify different ways to answer a question • Choose the most appropriate method <p>Set up simple practical enquiries, comparative and fair tests</p> <ul style="list-style-type: none"> • Decide what observations to make, how often and what equipment to use • Decide what measurements to take, how long to make them for and whether to repeat them • Decide what sorting or classification criteria to use • Recognise when a simple fair test is necessary • With help, decide what variables to change and measure 	<p>Make systematic and careful observations where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <ul style="list-style-type: none"> • Use a range of equipment including data loggers to collect data using standard measures • With support take accurate measurements on measuring equipment, recognising when to repeat them • Carry out simple tests to sort and classify materials according to properties or behaviour <p>Gather data in a variety of ways to help in answering questions</p> <ul style="list-style-type: none"> • Gather data to answer questions from a variety of sources including using textbooks, simple keys, electronic media, first hand observation, practical activity and data collected by others 	<p>Record data in a variety of ways to help in answering questions</p> <ul style="list-style-type: none"> • Make notes • Record data in tables and bar charts • Use graphs produced by data loggers <p>Classify in a variety of ways to help in answering questions</p> <ul style="list-style-type: none"> • Use Carroll diagrams, and Venn diagrams to classify • Use and make simple keys to identify and classify <p>Present data in a variety of ways to help in answering questions</p> <ul style="list-style-type: none"> • Drawings, labelled diagrams • Bar charts, bar line graphs, simple scatter graphs and tables using ICT where appropriate

Concluding

Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

- Draw simple conclusions about changes observed and link these to scientific ideas
- Refer to a table or graph when reporting findings
- Begin to use and interpret graphs produced by data loggers
- Draw a simple conclusion about similarities and differences identified and link these to scientific ideas
- Draw conclusions about simple patterns between two sets of data
- Draw simple causal conclusions from fair tests
- Draw conclusions from data from different secondary sources

Identify differences, similarities or changes related to simple scientific ideas and processes

- Make links between:
 - ▶ observed changes
 - ▶ similarities and differences
 - ▶ simple patterns between two sets of data
 - ▶ simple causal relationships
 - ▶ data from secondary sources
 - ▶ and simple scientific ideas and processes

Use straightforward scientific evidence to answer questions or to support their findings

- Refer to evidence from practical tests and observations or from secondary data sources when answering questions or explaining findings
- Use simple scientific language in a range of oral and written presentations suitable for different audiences to present findings

Evaluating

Use results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions

- Make predictions for new values within or beyond the collected data collected
- Identify new questions arising from the data
- Find ways of improving enquiries

Scientific Knowledge, Skills and Conceptual Understanding for Our Changing World

Year 3

Our Changing World (OCW)

Children look at how plants change during the year. Children are encouraged to carry out regular and frequent observations of the world around them to build a rich knowledge of their local environment.

• **Can they observe changes over time and notice patterns?** *E.g. compare the effect of different factors on plant growth such as, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how seeds are dispersed, observe how water is transported in plants, for example by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers*

Teacher reference: Snap Science (Collins)

OCW: Our Changing World

Year 3				
Rocks	Forces and Magnets	Plants	Animals including humans	Light
<ul style="list-style-type: none"> • Can they compare and group together different rocks on the basis of their appearance and simple physical properties? • Can they describe and explain how different rocks can be useful to us? • Can they describe and explain the differences between sedimentary and igneous rocks, considering the way they are formed? • Can they describe in simple terms how fossils are formed when things that have lived are trapped within rock? • Can they recognise that soils are made from rocks and organic matter? <p>Teacher reference: Snap Science (Collins) Module 2: Rock Detectives</p>	<ul style="list-style-type: none"> • Can they compare how things move on different surfaces? • Can they observe that magnetic forces can be transmitted without direct contact? • Can they observe how some magnets attract or repel each other? • Can they classify which materials are attracted to magnets and which are not? • Can they notice that some forces need contact between two objects, but magnetic forces can act at a distance? • Can they compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet? • Can they identify some magnetic materials? • Can they describe magnets have having two poles (N & S)? • Can they predict whether two magnets will attract or repel each other depending on which poles are facing? • Can they investigate the strengths of different magnets and find fair ways to compare them? 	<ul style="list-style-type: none"> • Can they identify and describe the functions of different parts of flowering plants? (roots, stem/trunk, leaves and flowers)? • Can they explore the requirement of plants for life and growth (air, light, water, nutrients from soil, and room to grow)? • Can they explain how they vary from plant to plant? • Can they investigate the way in which water is transported within plants? • Can they explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal? <p>Teacher reference: Snap Science (Collins) Module 1: How Does Your Garden Grow</p>	<ul style="list-style-type: none"> • Can they explain the importance of a nutritionally balanced diet? • Can they describe how nutrients, water and oxygen are transported within animals and humans? • Can they identify that animals, including humans, cannot make their own food: they get nutrition from what they eat? • Can they describe and explain the skeletal system of a human? • Can they describe and explain the muscular system of a human? • Can they explain how the muscular and skeletal systems work together to create movement? <p>Teacher reference: Snap Science (Collins) Module 5: Amazing Bodies</p>	<ul style="list-style-type: none"> • Can they recognise that they need light in order to see things? • Can they recognise that dark is the absence of light? • Can they notice that light is reflected from surfaces? • Can they recognise that light from the sun can be dangerous and that there are ways to protect their eyes? • Can they recognise that shadows are formed when a solid object blocks the light from a light source? • Can they find patterns in the way that the size of shadows change • Can they explain why their shadow changes when the light source is moved closer or further from the object? • Can they explain the difference between transparent, translucent and opaque? <p>Teacher reference: Snap Science (Collins) Module 3: Can you see me?</p>

	Teacher reference: Snap Science (Collins) Module 4: The Power of Forces			
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Scientific Knowledge, Skills and Conceptual Understanding for Our Changing World

Year 4

Our Changing World (OCW)

Children look at how plants change during the year. Children are encouraged to carry out regular and frequent observations of the world around them to build a rich knowledge of their local environment.

• **Can they observe, classify and identify a variety of living things in their local and wider environment** *E.g. Use observation of key features of leaves and to classify the leaves of a variety of trees, devise simple classification keys to sort leaves, observe features of and classify deciduous trees and flowering plants across the year*

Teacher reference: Snap Science (Collins)

OCW: Our Changing World

Scientific Knowledge, Skills and Conceptual Understanding for States of Matter, Sound, Living Things and Their Habitats, Animals including humans and Electricity

Year 4

States of Matter	Sound	Living Things and Their Habitats	Animals including humans	Electricity
<ul style="list-style-type: none"> • Can they compare and group materials together, according to whether they are solids, liquids or gases? • Can they explain what happens to materials when they are heated or cooled? • Can they measure or research the temperature at which different materials change state in degrees Celsius? • Can they use measurements to explain changes to the state of water? • Can they identify the part that evaporation and condensation has in the water cycle? • Can they explain what happens over time to materials such as puddles on the playground or washing hanging on a line? • Can they associate the rate of evaporation with temperature? <p>Teacher reference: Snap Science (Collins) Module 1: In a State</p>	<ul style="list-style-type: none"> • Can they describe a range of sounds and explain how they are made? • Can they associate some sounds with something vibrating? • Can they compare sources of sound and explain how the sounds differ? • Can they explain how to change a sound (louder/softer)? • Can they recognise how vibrations from sound travel through a medium to a ear? • Can they find patterns between the pitch of a sound and features of the object that produce it? • Can they find patterns between the volume of the sound and the strength of the vibrations that produced it? • Can they recognise that sounds get fainter as the distance from the sound source increases? • Can they explain how you could change the pitch of a sound? 	<ul style="list-style-type: none"> • Can they recognise that living things can be grouped in a variety of ways? • Can they explore and use a classification key to group, identify and name a variety of living things? (plants, vertebrates, invertebrates) • Can they compare the classification of common plants and animals to living things found in other places? (under the sea, prehistoric) • Do they recognise that environments can change and this can sometimes pose a danger to living things? <p>Teacher reference: Snap Science (Collins) Module 5: Human Impact Module 6: Who Am I?</p>	<ul style="list-style-type: none"> • Can they identify and name the basic parts of the digestive system in humans? • Can they describe the simple functions of the basic parts of the digestive system in humans? • Can they identify the simple function of different types of teeth in humans? • Can they compare the teeth of herbivores and carnivores? • Can they explain what a simple food chain shows? • Can they construct and interpret a variety of food chains, identifying producers, predators and prey? • Can they explain how certain living things depend on one another to survive? <p>Teacher reference: Snap Science (Collins) Module 4: Where Does All That Food Go?</p>	<ul style="list-style-type: none"> • Can they identify common appliances that run on electricity? • Can they construct a simple series electric circuit? • Can they identify and name the basic part in a series circuit, including cells, wires, bulbs, switches and buzzers? • Can they 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? • Can they recognise that a switch opens and closes a circuit? • Can they associate a switch opening with whether or not a lamp lights in a simple series circuit? • Can they recognise some common conductors and insulators? • Can they associate metals with being good conductors? • Can they explain why cautions are necessary for working safely with electricity?

	<ul style="list-style-type: none">• Can they investigate how different materials can affect the pitch and volume of sounds? <p>Teacher reference: Snap Science (Collins) Module 2: Good Vibrations</p>			<p>Teacher reference: Snap Science (Collins) Module 3: Switched On</p>
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Working Scientifically at Upper Key Stage 2

Provide opportunities for using the following practical scientific methods, processes and skills across Year 5 and Year 6

Approaches to enquiry

Children should select the most appropriate ways to answer science questions using different types of scientific enquiry, including:

- observing changes over different periods of time
- noticing patterns
- grouping and classifying things
- carrying out fair tests
- finding things out using a wide range of secondary sources of information

Asking questions	Planning	Collecting data	Presenting data
<p>Use results to raise further questions</p> <ul style="list-style-type: none"> • Independently ask questions and offer ideas for scientific enquiry <p>Use test results to make predictions to set up further comparative and fair tests</p> <p><small>*N.B: Statutory requirements shown in bold, other information taken from Snap Science (Collins) for working scientifically</small></p>	<p>Use different types of scientific enquiries to answer questions</p> <ul style="list-style-type: none"> • Explain why an enquiry method is the most appropriate to answer a question • Plan systematic collection of data and which equipment to use • Plan collection of sufficient data • Recognise when research using secondary sources will answer questions • Decide which sources of information to use to answer questions <p>Recognise and control variables where necessary</p> <ul style="list-style-type: none"> • Recognise when variables need to be controlled and why • Recognise when variables cannot be controlled and a pattern seeking enquiry is appropriate • Identify which variables have the greatest effect on the result 	<p>Take measurements, using a range of scientific equipment with increasing accuracy and precision</p> <ul style="list-style-type: none"> • Use a range of equipment accurately without support to collect observations and measurements • Repeat sets of observations or measurements, where appropriate, selecting suitable ranges and intervals • Use a series of tests to sort and classify materials • Use relevant information and data from a range of secondary sources to answer questions 	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs and models</p> <ul style="list-style-type: none"> • Decide how to record data accurately and appropriately • Use appropriate scientific language in oral and written presentations • Make keys and branching databases with 4 or more items • Use more than one source of scientific evidence to identify and classify things • Present data in line graphs, scatter graphs and frequency charts

Concluding

Report and present findings from enquiries, including conclusions, causal relationships and explanations of results in written forms such as displays and other presentations

- Use scientific evidence to answer questions or support findings
- Draw valid conclusions about changes, similarities and differences, and causal relationships from data collected
- Draw valid conclusions that utilise more than one piece of supporting evidence
- Use scientific knowledge to explain findings
- Use simple models to help describe scientific ideas
- Explain differences in repeated observations or measurements, identifying reasons for any anomalies noticed

Communicate findings in written form, displays, multi-media and other forms of presentation using scientific language

Evaluating

Identify scientific evidence that has been used to support or refute ideas or arguments

- Begin to separate opinion from fact
- Use scientific evidence to justify ideas
- Talk about how scientific ideas have developed over time

Identify when further tests and observations might be needed

Evaluate the effectiveness of their working methods, making practical suggestions for improving them

Scientific Knowledge, Skills and Conceptual Understanding for Our Changing World

Year 5

Our Changing World (OCW)

Children observe a variety of plants and visit them regularly throughout the year. Children are encouraged to carry out regular and frequent observations of the world around them to build a rich knowledge of their local environment.

• **Can they observe changes over different periods of time?** *E.g. Explore practically some of the methods for growing new plants, observe a variety of plants and visit them regularly throughout the year looking for evidence of plant reproduction, for example flowers, seed heads, berries and fruits on plants.*

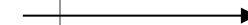
Teacher reference: Snap Science (Collins)

OCW: Our Changing World

Scientific Knowledge, Skills and Conceptual Understanding for Earth and Space, Forces, Properties and Changes of Materials, Living Things and their Habitats and Animals including humans

Year 5

Earth and Space	Forces	Properties and Changes of Materials	Living things and their Habitats	Animals including humans
<ul style="list-style-type: none"> • Can they identify and explain the movement of the Earth and other planets relative to the sun in the solar system? • Can they explain how seasons and the associated weather is created? • Can they describe and explain the movement of the Moon relative to the Earth? • Can they describe the sun, earth and moon as approximately spherical bodies? • Can they use the idea of the earth's rotation to explain day and night and the apparent movement of the sun across the sky? <p>Teacher reference: Snap Science (Collins) Module 8: The Earth and Beyond</p>	<ul style="list-style-type: none"> • Can they explain that unsupported objects fall towards the earth because of the force of gravity acting between the earth and the falling object? • Can they identify the effects of air resistance, water resistance and friction that act between moving surfaces? • Can they recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect? <p>Teacher reference: Snap Science (Collins) Module 7: Feel the Force</p>	<ul style="list-style-type: none"> • Can they compare and group together everyday materials on the basis of their properties, including hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets? • Can they explain how some materials dissolve in liquid to form a solution? • Can they describe how to recover a substance from a solution? • Can they use their knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving, evaporating? • Can they give reasons, based on evidence for comparative and fair tests for the particular uses of everyday materials, including metals wood and plastic? • Can they describe changes using scientific words? (evaporation, condensation) • Can they demonstrate that dissolving, mixing and changes of state are reversible changes? • Can they explain that some changes result in the 	<ul style="list-style-type: none"> • Can they describe the differences in the life cycles of a mammal, amphibians, insects and a bird? • Can they describe the life cycles of common plants? • Can they describe the life process of reproduction in some plants and animals • Can they explore the work of well know naturalists and animal behaviourists? (David Attenborough and Jane Goodall) <p>Teacher reference: Snap Science (Collins) Module 1: Circle of Life</p> <p>Module 2: Reproduction in Plants and Animals</p>	<ul style="list-style-type: none"> • Can they describe the changes as humans develop to old age? <p>Focus on humans & link to puberty</p> <p>Teacher reference: Snap Science (Collins) Module 2: Reproduction in Plants and Animals</p>



		<p>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> <ul style="list-style-type: none">• Can they use the terms 'reversible' and 'irreversible'? <p>Teacher reference: Snap Science (Collins) Module 3: Get Sorted Module 4: Everyday Materials Module 5: Marvellous Mixtures Module 6: Materials: All Change</p>		
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Scientific Knowledge, Skills and Conceptual Understanding for Our Changing World

Year 6

Our Changing World (OCW)

Children are encouraged to carry out regular and frequent observations of the world around them to build a rich knowledge of their local environment.

• **Can they observe animals in their locality and in the wider environment at different times of the year?** *E.g. Visit a variety of different locations around school and in the wider environment, Monitor invertebrates in locality and wider environment and identify and record the numbers of different types and their habitats, identifying examples of animals that they observe and describing what the animals are doing at different times of the year, Conduct simple investigations into the behaviour of invertebrates and examine ways in which these animals show adaptation to the environments in which they live*

Teacher reference: Snap Science (Collins)

OCW: Our Changing World

Scientific Knowledge, Skills and Conceptual Understanding for Evolution and Inheritance, Electricity, Animals including humans, Living things and their Habitats and Light

Year 6

Evolution and Inheritance	Electricity	Animals including humans	Living things and their Habitats	Light
<ul style="list-style-type: none"> • Can they recognise that living things have changed over time and that fossils provide information about living things that inhabited the earth millions of years ago? • Can they recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents? • Can they give reasons why offspring are not identical to each other or to their parents? • Can they explain the process of evolution and describe the evidence for this? • Can they identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution? <ul style="list-style-type: none"> • Can they talk about the work of Charles Darwin, Mary Anning and Alfred Wallace? • Can they analyse the advantages and disadvantages of specific adaptations, such as being on two rather than four feet? 	<ul style="list-style-type: none"> • Can they identify and name the basic parts of a simple electric series circuit? (cells, wires, bulbs, switches, buzzers) • Can they compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers, the on/off position of switches? • Can they use recognised symbols when representing a simple circuit in a diagram? <p>Teacher reference: Snap Science (Collins) Module 5: Danger: Low Voltage!</p>	<ul style="list-style-type: none"> • Can they identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood? • Can they recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function? • Can they describe the ways in which nutrients and water are transported within animals, including humans? • Can they explore the work of medical pioneers, for example, William Harvey and Galen and recognise how much we have learnt about our bodies? <p>Teacher reference: Snap Science (Collins) Module 2: The Body Pump Module 3: Body Health</p>	<ul style="list-style-type: none"> • Can they 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? • Can they give reasons for classifying plants and animals based on specific characteristics? • Can they readily group animals into reptiles, fish, amphibians, birds and mammals? <p>Teacher reference: Snap Science (Collins) Module 1: The Nature Library</p>	<ul style="list-style-type: none"> • Can they recognise that light appears to travel in straight lines? • Can they 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? • Can they 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? • Can they use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them? <p>Teacher reference: Snap Science (Collins) Module 6: Light Up Your World</p>

**Teacher reference: Snap
Science (Collins)
Module 4: Everything
Changes**