Science Curriculum Skills Progression Map

Working Scientifically

EYFS

Nursery

- 3-4 talk about what they see, using a wide range of vocabulary
- 3-4 explore how things work
- CofEL: Make independent choices.
- CofEL: Bring their own interests and fascinations into early years settings. This helps them to develop their learning.
- CofEL: Respond to new experiences that you bring to their attention.

Reception

- YR describe what they see, hear and feel whilst outside
- CofEL: Make independent choices.
- CofEL: Bring their own interests and fascinations into early years settings. This helps them to develop their learning.
- CofEL: Respond to new experiences that you bring to their attention.

	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Questioning	**Asking simple questions and recognising that they can be answered in different ways** While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. The children answer questions developed with the teacher often through a scenario. The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.	**Asking relevant questions and using different types of scientific enquiries to answer them** The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions. The children answer questions posed by the teacher. Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their question.	**Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry. Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work. The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample.
Observing	**Observing closely, using simple equipment** Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.	**Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers** The children make systematic and careful observations.	**Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate** The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.

	They begin to take measurements, initially by comparisons, then using non-standard units.	They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.	During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value)
Experimenting	**Performing simple tests** The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time. Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.	**Setting up simple practical enquiries, comparative and fair tests** The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking	
Recording	**Gathering and recording data to help in answering questions** The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings	**Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions** The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams. Children are supported to present the same data in different ways in order to help with answering the question	**Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bars and line graphs** The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys. Children present the same data in different ways in order to help with answering the question
Evaluating	**Using their observations and ideas to suggest answers to questions** Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. The children recognise 'biggest and smallest', 'best and worst' etc. from their data.	**Identifying differences, similarities or changes related to simple scientific ideas and processes** Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships. **Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions** They draw conclusions based on their evidence and current subject knowledge.	**Identifying scientific evidence that has been used to support or refute ideas or arguments** - Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer. - They talk about how their scientific ideas change due to new evidence that they have gathered. They talk about how new discoveries change scientific understanding.

		They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry. Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface. Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry. **Reporting on findings from enquiries, including oral and written explanations, displays or presentation of results and conclusions** They communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary	**Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degrees of trust in results, in oral and written forms such as displays and other presentation** In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge. They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used. They identify any limitations that reduce the trust they have in their data. They communicate their findings to an audience using relevant scientific language and illustrations. **Using test results to make predictions to set up further comparative and fair tests** Children use the scientific knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests.

Nursery

Understanding the World

•3-4 talk about what they see, using a wide range of vocabulary
• 3-4 explore how things work
•CofEL: Make independent choices
•CofEL: Bring their own interests and fascinations into early years settings. This helps them to develop their learning.
•CofEL: Respond to new experiences that you bring to their attention.

School Context

Autumn	Spring	Summer
•Children learnt to look at changes in the local environment. Collecting natural materials related to the time of year (Forest School). • Children learn to talk about local wildlife through the use of the Wildlife camera. • Children learn to take care of animals (feeding bird at the bird hive). • Children learn to bake stainless glass gingerbread cookies	•Children learn to talk about trees in the local environment – when planting a fruit trees. •Children learn the conditions for plant growth by planting in the school allotments. •Children will learn about oral health and observe the changes in their bodies during exercise	•Forest school •Children learnt to look at changes in the local environment. Collecting natural materials related to the time of year (Forest School). • Children learn to talk about local wildlife through the use of the Wildlife camera. Sun safety and sun safety week.

Vocabulary
Senses, experiment, why, record, similarities and difference, sort, problem, observations, question, answer, equipment, group, explain, sort

Reception

Understanding the World

Describe what they see, hear and feel whilst outside

CofEL: Make independent choices.

CofEL: Bring their own interests and fascinations into early years settings. This helps them to develop their learning.

CofEL: Respond to new experiences that you bring to their attention.

School Context

Autumn	Spring	Summer
•Throughout the year, children go outside into the school grounds and learn to observe changes in the seasons.	• Children learn to observe ice melting over time and how different objects (for example hairdryer) can have an impact on the process.	•Throughout the year, children go outside into the school grounds and learn to observe changes in the seasons.

Vocabulary

Senses, experiment, why, record, similarities and difference, sort, problem, observations, question, answer, equipment, group, explain, sort

Year 1

Key Stage One Working scientifically:	Seasonal changes	Use of everyday materials	Animals including humans	Plants
Can use appropriate scientific language (knowledge and skills) Can ask their own questions about what they notice Can observe closely using simple equipment Can use the five different types of scientific enquiry: - observing changes over time - noticing patterns	Children learn to: • Observe and describe weather in different seasons over the year. • Observe and describe days as being longer (in time) in the summer and shorter in the winter. • Collect information to classify weather and day length in different seasons and present the information in tables or charts to compare the seasons. • Collect information on features that change with seasons and present in displays.	Children will learn to: • Label a picture or diagram of an object made from different materials • Describe the properties of different materials • Classify objects made of one material in different ways e.g. a group of objects made of metal • Classify in different ways one type of object made from a range of materials. • Classify materials based on their properties •Test the properties of objects. •Sort objects and materials using a range of properties	Children will learn to: •Can use their observations and ideas to answer questions • Label key features on a picture/diagram • Classify animals using a range of features • Classify animals according to what they eat • Can use simple charts etc. to identify unknown animals • Can use secondary resources to find out what animals eat which can include talking to experts (pet owners etc.) • Can collect and record data to help answer questions.	Children learn to: •Ask questions about plants living conditions and their structure. •Observe leaves, seeds, flowers etc using simple equipment. •Compare two leaves, seeds, flowers etc using simple equipment. •Classify leaves, seeds, flowers etc. using different characteristics. •Observe how plants change over time. •Use simple charts to identify plants and trees.

-grouping and classifying things -carrying out simple comparative tests -finding things out using secondary sources of information Can gather and recording data to help in answering questions Can use their observations and ideas to suggest answers to questions in a variety of way		•Choose an appropriate method for testing an object for a particular property •Test evidence to answer the questions about properties	• Perform simple tests when exploring their senses.	•Can gather and record data to answers questions on how plants/trees change throughout the year. •Can use secondary sources (photographs) to discuss how plants/trees change over time.
	School context			
	•Children will learn about seasonal changes in the school grounds by examining the changes of plants and trees (Forest School).	• Children will learn to understand which materials are recyclable and how they are recycled. • Children will test different materials to make a bed for the school dog.	•Children will learn to compare animals found in their local environment to those in the Savannah.	•Over the year, children will learn to observe trees in the school ground. •Children will learn to plant a variety of plants within the school grounds.
	Vocabulary			
	Question, answer, observe, observing, equipment, identify, sort, group, record, diagram, chart, map, data, compare, contrast, describe,			

Year 2				
Key Stage One Working scientifically: Can use appropriate scientific language (knowledge and skills) Can ask their own questions about what they notice Can observe closely using simple equipment Can use the five different types of scientific enquiry: - observing changes over time - noticing patterns -grouping and classifying things -carrying out simple comparative tests -finding things out using secondary sources of information Can gather and recording data to help in answering questions Can use their observations and ideas to suggest answers to questions in a variety of way	**Use of everyday materials**	**Living things and their habitats**	**Plants**	**Animals including humans**
	Children learn to: •Name an object, say what material it is made from, identify its properties and make a link between the properties and its particular use. • Explain why a material is suitable or unsuitable for a particular purpose. •Carry out simple tests to determine the properties of materials. •Identify, with reasons, possible uses for a given material. •Recognise that a material may come in different forms which have different properties. •Justify their choice of a material for a purpose by referring to the results of simple tests they have carried out on relevant properties.	Children learn to: •Explore the outside environment to find objects that are living, dead and have never lived •Classify objects found in the local environment •Observe animals and plants carefully, drawing and labelling diagrams •Create simple food chains for a familiar local habitat from first hand observation and research •Create simple food chains from information given. •Using a food chain to explain what animals eat	Children will learn to: •Make close observations of seeds and bulbs •Classify seeds and bulbs •Research and plan when and how to plant a range of seeds and bulbs •Make close observations and measurements of their plants growing from seeds and bulbs •Make comparisons between plants as they grow •Can spot similarities and difference between bulbs and seeds	Children will learn to: •Investigate and observe how germs spread. •Observe that animals including humans have offspring which grow into adults. • Ask questions, research and describe basic needs of animals, including humans, for survival. • Identify and classify foods. • Collect data about exercise. • Measure/observe how animals, including humans, grow and can name and describe distinct stages of growth. • Use diagrams to describe the life cycle of an animal. • Make predictions about how growth and health might be affected by conditions.
	School context			
	• The children will be learning how materials are burnt by fire. • The children learn to use their knowledge of materials and their properties to design their own egg box, explaining why they had chosen certain materials for their design.	•Children learn to explore and compare the differences between things that are living, dead, and things that have never been alive in school environment. •Children will use the forest school to locate minibeasts in their habitats/microhabitats.	•Children learn to plant and grow a seed • Children learn to observe food chains in the school pond / grounds.	•Children learn through their own family photographs how they have developed over time. •Children will learn through their school dinners about the importance of a balanced diet.

	Vocabulary
	Question, answer, observe, observing, equipment, identify, sort, group, record, diagram, chart, map, data, compare, contrast, describe

Year 3					
Lower KS2 Working Scientifically Can use appropriate scientific language (knowledge and skills) Can ask relevant questions about the scientific phenomena that they are studying Can set up simple practical enquiries using the five different types of scientific enquiry: - observing changes over time - noticing patterns - grouping and classifying things - comparative and fair tests - finding things out using secondary sources of information Can make systematic and careful observations when carrying out enquiries. Can take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Can gather, record, classify and present data in a variety of ways to help in answering questions Can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Can use results to draw simple conclusions Can make predictions for new values, suggest improvements and raise further questions Can identify differences, similarities or changes related to simple scientific ideas and processes	**Animals including humans**	**Light**	**Rocks**	**Forces and Magnets**	**Plants**
	Children will learn to: •Classify food in a range of ways •Use secondary sources to find out about different diets. •Explore the nutrients contained in fast food •Use secondary sources to research the parts and functions of the skeleton •Investigate pattern seeking questions around excerise. •Compare, contrast and classify skeletons of different animals. •Use their data to answer questions to enquiries	Children will learn to: • Investigate and explain why different objects are more or less visible in different lighting and for different objects surfaces. •Investigate and explain how shadows vary as the distance between a light source and an object is changed. • Describe patterns in visibility between objects in different lighting conditions and predict which will be more or less visible when lighting changes and therefore explain that objects are not seen in complete darkness. •Describe patterns in how shadows vary due to blocking of light and predict what will happen as the light source or object are moved.	Children will learn to: •Observe rocks closely •Classify rocks in a range of ways based on their appearance using appropriate vocabulary •Devise a test to investigate the hardness of a range of rocks and use data to rank the rocks • Devise a test to investigate how much water different rocks absorb • Observe how rocks change over time •Can present in different ways their understanding of how fossils are formed • Observe soils closely • Classify soils in a range of ways based on their appearance • Devise a test to investigate the water retention of soils • Observe how soil can be separated through sedimentation • Research using secondary sources how fossils are formed • Research the work of Mary Anning •Can identify plant/animal matter and rocks in samples of soil	Children will learn to: •Carry out investigations to explore how objects move on different surfaces. •Explore what materials are attracted to a magnet •Classify materials according to whether they are magnetic •Explore the way that magnets behave in relation to each other •Explore how magnets work at a distance •Devise an investigation to test the strength of magnets •Use their results to describe how objects move on different surfaces •Use their results to make predictions for further tests •Use classification evidence to identify that some metals but not all are magnetic •Through exploration, show how like poles repel and unlike poles attract and name unmarked poles •Use test data to rank magnets	Children will learn to: • Use secondary research to identify and describe the functions of a plant. • Observe the effect of putting cut white carnations or celery into coloured water • Investigate what happens to plants when they are put in different conditions • Use secondary research to investigate how plants needs vary. • Observe flowers carefully to identify the pollen • Observe flowers being visited by pollinators •Research different types of seed dispersal •Classify seeds in a range of ways including by how they are dispersed • Explain observations made during investigations
	School context				
		• Children learn about protecting their eyes by designing sunglasses using the best materials.	• Children learn to identify different rocks found in the local environment.	•Through investigations (see skills progression map) children identify and learn about magnets and friction. •Children use classroom resources to test the magnetic properties of materials.	
	Vocabulary				
	Research, relevant questions, scientific enquiry, comparative and fair test, systematic, careful observation, accurate measurements, equipment – thermometer, data logger data- gather, record, classify, present, record- drawings, labelled diagrams, Venn diagram, Carroll diagram, classification keys, bar charts, tables, conclusion, predictions, differences, similarities, interpret				

Can use straightforward scientific evidence to answer questions or to support their findings.	

Year 4					
Lower KS2 Working Scientifically	**Electricity**	**Sound**	**Living things and their habitats**	**States of matter**	**Animals including humans**
Can use appropriate scientific language (knowledge and skills) Can ask relevant questions about the scientific phenomena that they are studying Can set up simple practical enquiries using the five different types of scientific enquiry: - observing changes over time - noticing patterns - grouping and classifying things - comparative and fair tests - finding things out using secondary sources of information Can make systematic and careful observations when carrying out enquiries. Can take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Can gather, record, classify and present data in a variety of ways to help in answering questions Can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Can use results to draw simple conclusions Can make predictions for new values, suggest improvements and raise further questions	Children learn to: • Construct a range of circuits • Explore which materials can be used instead of wires to make a circuit • Classify the materials that were suitable/not suitable for wires • Explore how to connect a range of different switches and investigate how they function in different ways • Apply their knowledge of conductors and insulators to design and make different types of switch • Use classification evidence to identify that metals are good conductors and non-metals are insulators N.B. Children should be given one component at a time to add to circuits. and communicate structures of circuits using drawings which show how the components are connected	Children learn to: •Make sounds with a range of objects •Find patterns between the pitch and volume of a sound and the object that produced it. •Use objects that change in feature to change pitch and volume •Measure sounds over different distances and through different insulation materials •Explain what happens when you strike a drum or pluck a string and use a diagram to show how sounds travel from an object to the ear. •Demonstrate how to increase or decrease pitch and volume using musical instruments or other objects. •Explain how loudness can be reduced by moving further from the sound source or by using a sound insulating medium.	**Children learn to:** •Observe plants and animals in different habitats •Compare and contrast the living things observed •Classify living things found in different habitats based on their features •Create a simple identification key based on observable features •Explore human impact on the local environment •Can use classification keys to identify unknown plants and animals •Can present their learning about changes to the environment in different ways	**Children learn to:** •Observe closely and classify a range of solids •Observe closely and classify a range of liquids •Explore making gases visible •Classify materials according to whether they are solids, liquids and gases •Observe materials melting •Investigate the melting point of different materials e.g. ice, margarine, butter and chocolate •Explore freezing different liquids •Use a thermometer to measure temperatures •Observe water evaporating and condensing and to be able to explain each process. •Set up investigations to explore changing the rate of evaporation •Use secondary sources to find out about the water cycle •Can give reasons to justify why something is a solid liquid or gas •Can give examples of things that melt/freeze and how their melting points vary •From their observations, can give the melting points of some materials •Using their data, can explain what affects how quickly a solid melts •Can present their learning about the water cycle in a range of ways	Children learn to: •Create a model of the digestive system using household objects •Explore eating different types of food, to identify which teeth are being used for cutting, tearing and grinding (chewing) •Can record the teeth in their mouth •Use diagrams or a model to describe the journey of food through the body explaining what happens in each part. •Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls •Use food chains to identify producers, predators and prey within a habitat •Use secondary sources to identify animals in a habitat and find out what they eat •Create food chains based on research
	School context				
	•Children become problem solvers by learning the difference of complete and incomplete circuits.	•Children learn about sound through the use of different instruments.	• Children learn to classify minibeast found within the school grounds (Forest School).	•Children learn to sort different materials into solids, liquids and gases. •Children explore small particle solids and how they can be poured	

Can identify differences, similarities or changes related to simple scientific ideas and processes Can use straightforward scientific evidence to answer questions or to support their findings.	**Vocabulary** Research, relevant questions, scientific enquiry, comparative and fair test, systematic, careful observation, accurate measurements, equipment – thermometer, data logger data- gather, record, classify, present, record- drawings, labelled diagrams, Venn diagram, Carroll diagram, classification keys, bar charts, tables, conclusion, predictions, differences, similarities, interpret

Year 5					
Upper KS2 Working Scientifically Can use appropriate scientific language (knowledge and skills) Can plan different types of scientific enquiries to answer questions using the five different types of scientific enquiry: - observing changes over time - noticing patterns - grouping and classifying things - comparative and fair tests - finding things out using secondary sources of information Can recognise and control variables where necessary Can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Can use test results to make predictions to set up further comparative and fair tests Can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in	**School context**				
	Earth and Space	**Properties and Changes of Materials**	**Forces and Magnets**	**Lving things and their habitats**	**Animals including humans**
	Children learn to: •Use secondary sources to help create a model to show the movement of the Earth around the Sun and the Moon around the Earth. •Use secondary sources to help make a model to show why day and night occur •Make first-hand observations of how shadows caused by the Sun change through the day • Use the model to explain how the Earth moves in relation to the Sun and the moon moves in relation to the Earth • Demonstrate and explain verbally how day and night occur • Explain evidence gathered about the position of shadows in term of the movement of the Earth.	Children learn to: • Investigate the properties of different materials in order to recommend materials for particular functions depending on these properties • Explore adding a range of solids to water and other liquids • Investigate rates of dissolving by carrying out comparative and fair test • Separate mixtures by sieving, filtering and evaporation, choosing the most suitable method and equipment for each mixture • Explore a range of non-reversible changes • Carry out comparative and fair tests involving non-reversible changes • Can create a chart or table grouping/comparing everyday materials by different properties • Use test evidence gathered about different properties to suggest an appropriate material for a particular purpose •Group solids based on their observations when mixing them with water •Give reasons for choice of equipment and methods to separate a given solution or mixture such as salt or sand in water •Explain the results from their investigations involving dissolving and non-reversible change •Ask scientific questions and explore how to answer them. •Present their findings in a variety of ways.	Children learn to: • Investigate the effect of friction in a range of contexts • Investigate the effects of water resistance in a range of contexts • Investigate the effects of air resistance in a range of contexts • Explore how levers, pulleys and gears work • Make a product that involves a lever, pulley or gear • Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation • Explain the results of their investigations in terms of the force, showing a good understanding that as the object tries to move through the water or air or across the surface, the particles in the water, air or on the surface slow it down • Demonstrate clearly the effects of using levers, pulleys and gears	Children learn to: •Use secondary sources and, where possible, first hand observations to find out about the life cycle of a range of animals •Compare the gestation times for mammals and look for patterns •Look for patterns between the size of an animal and its expected life span •Grow and observe plants that reproduce asexually •Take cuttings from a range of plants •Plant bulbs and then harvest to see how they multiply •Use secondary sources to find out about pollination •Present their understanding of the life cycle of a range of animals in different ways •Identify patterns in life cycles •Compare two or more animal life cycles studied •Explain how a range of plants reproduce asexually	
	School context				
	•Children go outside to learn about shadows at the different times of day.			•Children use cutting from mint to observe how they grow. •Children will use the school grounds and plants grown inside	

oral and written forms such as displays and other presentations Can identify scientific evidence that has been used to support or refute ideas or arguments				the classroom to observe asexual reproduction.	
	Vocabulary				
	Plan, variables, measurements, accuracy, precision, repeats, record, data, scientific diagrams, labels, classification keys, tables, scatter graphs, bar graph, line graph, predictions, further comparative and fair tests, report and present, conclusions, casual relationships, explanations, degree of trust, oral and written display, presentation, evidence, support, refute ideas, arguments, identify, classify and describe patterns				

Year 6					
Upper KS2 Working Scientifically Can use appropriate scientific language (knowledge and skills) Can plan different types of scientific enquiries to answer questions using the five different types of scientific enquiry: - observing changes over time - noticing patterns - grouping and classifying things - comparative and fair tests - finding things out using secondary sources of information Can recognise and control variables where necessary Can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Can use test results to make predictions to set up further comparative and fair tests Can 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 Can identify scientific evidence that has been used to support or refute ideas or arguments	**Light**	**Electricity**	**Living things and their habitats**	**Evolution and Inheritance**	**Animals including humans**
	Children learn to: •Describe with diagrams, as appropriate, how light travels in straight lines either from sources or reflected from other objects into our eyes. •Describe with diagrams, as appropriate, how light travels in straight lines past translucent or opaque objects to form a shadow of the same shape. •Predict and explain with diagrams or models, as appropriate, how the path of light rays can be directed by reflection to be seen. •Predict and explain with diagrams or models, as appropriate, how the shape and size of shadows can be varied.	Children learn to: •Make electric circuits and demonstrate how variation in the working of particular components. •Change cells and components in a circuit to achieve a specific effect •Communicate structures of circuits using circuit diagrams with recognised symbols •Devise ways to measure brightness of bulbs, speed of motors, volume of a buzzer during a fair test •Predict results and answer questions by drawing on evidence gathered	Children learn to: •Use classification materials to identify unknown plants and animals •Create classification keys for plants and animals •Give a number of characteristics that explain why an animal belongs to a particular group •Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important •Use first hand observation to identify characteristics shared by the animals in a group •Use secondary sources to research the characteristics of animals that belong to a group •Classify plants and animals presenting this in a range of ways – Venn diagrams, Carroll diagrams and keys	Children learn to: •Explain the process of evolution •Use secondary sources to research evolution and adaption. •Link the patterns seen in the model to the real examples	Children learn to: •Carry out a range of pulse rate investigations: Fair test – effect of different activities on my pulse rate, Pattern seeking – exploring which groups of people may have higher or lower resting pulse rates, Observation over time - how long does it take my pulse rate to return to my resting pulse rate (recovery rate), Pattern seeking – exploring recovery rate for different groups of people •Use subject knowledge about the heart whilst writing conclusions for investigations. •Use secondary sources to research the circulatory system
	School context				
			• The children learn to identify the similarities and difference of plants found in the local area.		• The children learn about their own health by measuring and observing their own pulses. • The children learn to find patterns of pulses found among children in their class.
	Vocabulary				
	Plan, variables, measurements, accuracy, precision, repeats, record, data, scientific diagrams, labels, classification keys, tables, scatter graphs, bar graph, line graph, predictions, further comparative and fair tests, report and present, conclusions, casual relationships, explanations, degree of trust, oral and written display, presentation, evidence, support, refute ideas, arguments, identify, classify and describe patterns, systematic quantitative measurements				