Fremington Primary School

Science Curriculum Overview

Science

INTENT

At Fremington Primary School we recognise the importance of science in every aspect of daily life. Children will become naturally curious about the world around them and will gain respect for living organisms and for the physical environment.

Full coverage of the National Curriculum will be taught to ensure that all pupils develop their scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry, and physics; focusing on **questioning**, researching, and observing. Scientific **enquiry** skills are embedded in each topic and key vocabulary is reinforced. Children are encouraged to question the world around them, **communicate** their ideas, and become independent learners. Teachers will ensure children cover these areas and are committed to providing engaging lessons that spark excitement and curiosity about the natural world.

It is our intent to encourage children to be **inquisitive** about the world, nurturing their innate curiosity and enabling them to develop a range of scientific skills that are useful across the whole curriculum so the children are **next stage ready.**

IMPLEMENTATION

At the start of each unit teachers will begin with a 'wow' task that provides a hook for learning, developing a sense of excitement and curiosity for children. Teachers will take the time to find out what our children already know about the topic and what they would like to find out. Our teachers use this information to adapt and extend the curriculum to match children's needs and interests.

The learning of science will be interactive and engaging through the use of scientific resources and activities, using technology to support the learning. Children will be encouraged to use key scientific language and ask questions throughout each lesson. Children will be asked to review their learning at the end of the topic and reflect on their learning experiences.

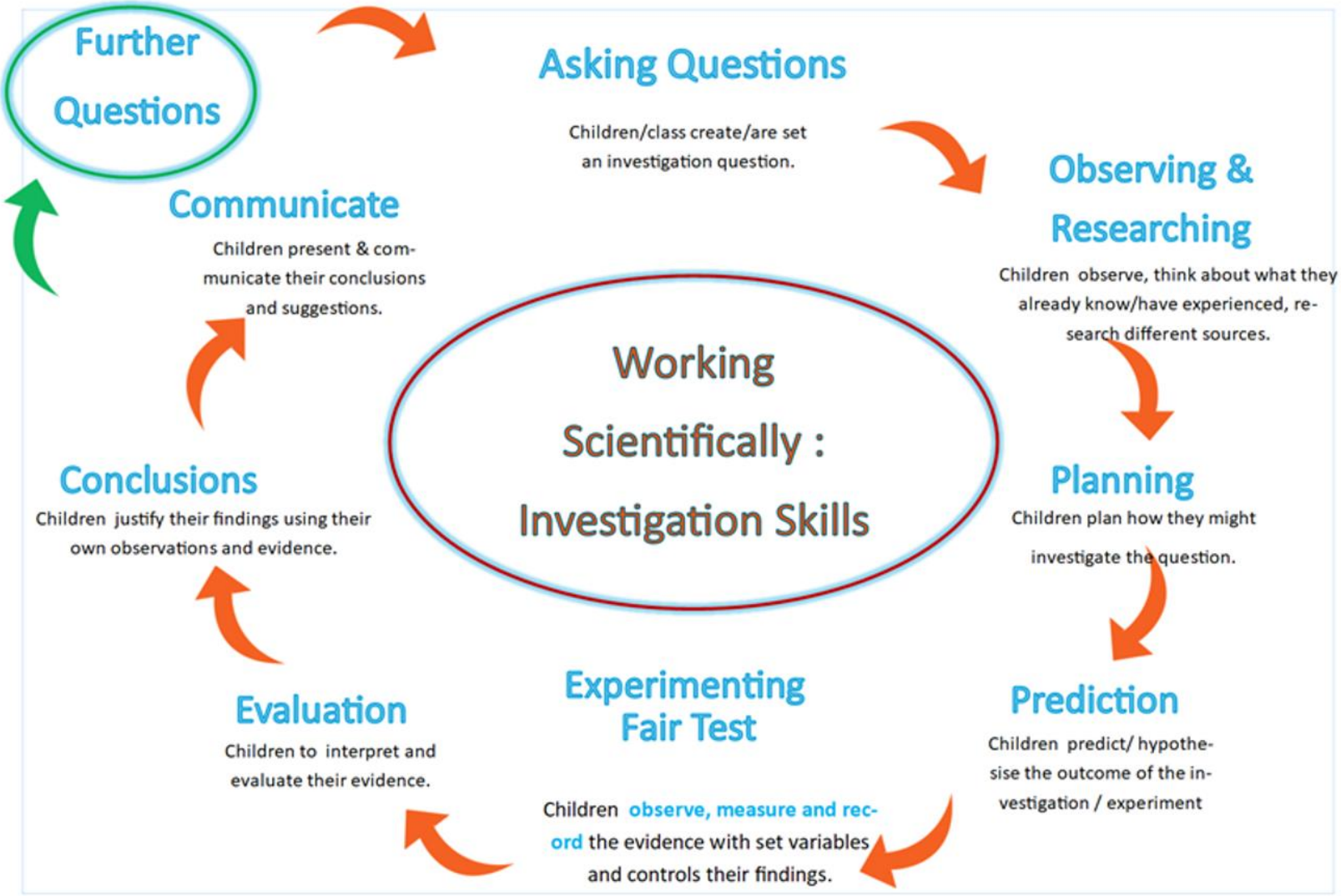
IMPACT

The curriculum is designed to generate a love of science and develop a deep curiosity of the world whilst adapting the sessions to meet pupils' needs. Through modelling and questioning the children will develop the scientific knowledge, skills and understanding which they will apply to their daily lives, local environment, and the world around them. They will build on their previous knowledge and will have the opportunity to reflect. We want children to become confident using resources and collaboratively and practically investigate and experiment. Teachers will monitor progress and analyse data in order for children to develop and build on their experiences and knowledge throughout the years.

SCIENCE CURRICULUM MAP OVERVIEW

Working Scientifically

Progression Across Year Groups


Further Questions
Asking Questions
Children/class create/are set an investigation question.
Observing & Researching
Children observe, think about what they already know/have experienced, research different sources.
Planning
Children plan how they might investigate the question.
Prediction
Children predict/ hypothesise the outcome of the investigation / experiment
Experimenting Fair Test
Children observe, measure and record the evidence with set variables and controls their findings.
Evaluation
Children to interpret and evaluate their evidence.
Conclusions
Children justify their findings using their own observations and evidence.
Communicate
Children present & communicate their conclusions and suggestions.
Working Scientifically : Investigation Skills

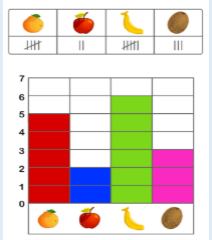
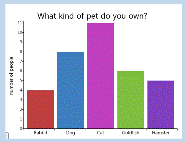
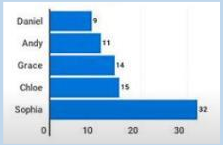
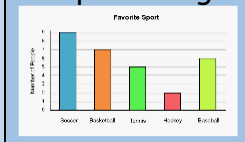
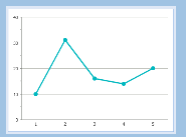
EYFS	Year 1
Asking Questions	
Shows curiosity about objects, events, plants, people and animals. Questions why things happen. Asks questions to clarify understanding and aspects of their familiar world e.g. place they live or natural world. Ask questions to find out how things work or to clarify what is happening.	Explore the world around them and raise own questions. (e.g growing, animals in their habitat, everyday materials, why seasons change.) Can answer questions supported by the teacher, often through scenarios and recognise questions can be answered in different ways. Can begin to ask simple questions and use simple secondary sources to find answers. Able to ask yes and no questions to sort and classify.
Planning	
Find ways to solve problems/find new ways to do things. Test out ideas. Take risks through trial and error. Engage in open ended activities. Choose the resources they need for their chosen activity from their environment.	Begin to recognise different ways they may answer scientific questions. Experience different types of enquiry including practical activities. Use practical resources provided by the teacher and can suggest some resources of their own e.g. pipette, viewers, magnifying glasses. Can carry out simple tasks to classify, compare and pattern seek.
Prediction	
Shows curiosity about objects, events and people. Question why things happen. Can make simple predictions based on comparisons e.g. float or sink?	Can make basic predictions over things they can see or their own ideas. Can use some scientific vocabulary.
Observation	
Explore the natural world making observations (e.g seasons) Explore different equipment, finding out what its uses are. Know similarities and differences between the natural world around them. Observe and describe what they see using everyday language. Use basic equipment such as magnifying glasses and viewers.	Uses appropriate senses aided by equipment such as magnifying glasses, viewers and digital microscopes to make observations. With help and prompting, observe changes over time and can describe the changes. Can identify and group, compare and contrast using observations, video and photographs.
Measurement	
Take measurements initially by comparisons then begin to use non-standard units. Make links and notice patterns in their experiences.	Use discrete e.g., counting and continuous data e.g. liquid to manageable common standard units. Can use simple measurements and equipment such as hand lenses and egg timers to gather data. Can use non-standard measures to compare.
Recording	

Recording Draw pictures of objects in their own environment. Can take photos of things of interest to them. *Tables* Can count results. Start to mark make to record results. Can order items. *Sorting* Can sort in more than 2 groups using familiar categories. *Charts and graphs* Can create a class chart using pictures and objects. 	*Recording* Begin to show accuracy in drawings, observations and simple labels. Use key scientific vocabulary provided by the teacher. *Tables* Can complete a simple table of results. (Prepared) Can add marks to a chart to collect data. *Sorting* Can using sorting rings to classify in more than 2 groups answering yes or no questions. Can sort using a simple 2 criteria Venn diagram. *Charts and graphs* Can complete a prepared block graph/pictogram. 
Explanation	
Develop own narrative and explanations by connecting ideas or events. Talk about what they have found and say what worked well. Describe how things work in simple terms and make basic alterations and suggest things that did not work (e.g. this button does not work so press this one) Question why things happen. Come up with alternative ways of doing things through exploration. They can say or indicate by smiley faces/scale if they have achieved the learning objective.	With scaffolding and prompting can suggest simple improvements to their enquiries. Talk about some changes that could be made. Use simple success ladders to evaluate their tests or understanding against the learning objective.
Interpretation and conclusion	
Offer explanations for why things happen- making use of some recently introduced scientific vocabulary. Develop own narrative and explain by connecting ideas or events. Develop vocabulary which meets the breadth of their experiences	Can use evidence from simple tests when answering questions. With help begin to notice patterns and relationships. Talk about what they have found out and how they found it out.

Use basic writing frames, sequencing or pictures to explain what has happened.	Can make comparisons and recognise biggest/smallest, most effective/least effective from data. Can use simple models to explain processes e.g. seasonal changes, lifecycles.

Year 2	Year 3	Year 4
Asking Questions		
Raise questions that help them become familiar with scientific processes (e.g life processes that are common to all living things, their local environment, materials) 2 Can ask simple questions relevant to the topic. Can use a range of question stems. (e.g. Is a flame alive? Is a deciduous tree dead in winter? What makes the best habitat for a minibeast? Where in the school can we find something that is made of wood? Which animal belongs to which offspring? Do seeds grow quicker inside or out?) Know their questions can be answered in different ways. Use more than one secondary source to gather and present information clearly.	Raise own questions about the world around them and why this happens the way they do (e.g. the role of the roots and stem in nutrition and support, or how rocks are formed, different forces) Recognise how and when to use secondary sources to answer questions that cannot be answered in practical science. Can write a range of questions relevant to the topic. Can answer questions posed by the teacher, independently or with support. Identify new questions from data. Can raise questions and carry out tests with support to find things out. Can carry out research using a small range of secondary sources.	Can decide how to gather evidence to answer questions. Raise questions to help identify and group (such as how a habitat changes, animals and livings things including plants, different states of matter and how sounds are made) Can write a range of questions using the world around them and their own scientific knowledge. They recognise when secondary sources can be used to answer questions and can select appropriate information from sources. Can ask a range of questions to sort and classify.
Planning		
Carry out simple comparative tests using own ideas (may use discovery dog model). Experience different types of enquiry including practical activities. Within the planning frame can suggest resources they may need for the test. Can carry out simple tests linked to types of enquiry: observation, testing, pattern seeking, identifying and classifying and research	Perform a range of scientific investigations including different types of scientific enquiry. Set up practical enquiries: comparative and fair tests using the post-it note approach. Children investigate and answer own questions linked to shared planning. Understand there are different variables to be controlled. Can identify some variables e.g what was changed or stayed the same.	Can identify they type of enquiry needed to answer a question, Follow a plan to carry out observations and tests. Can select from a range of resources to gather evidence and answer questions, to classify, compare and perform fair tests. Use post-it note planning with more independence in identifying variables and what needs measuring.

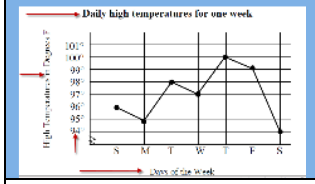
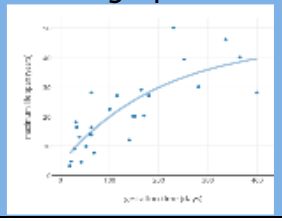
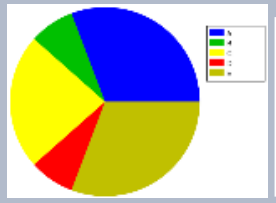
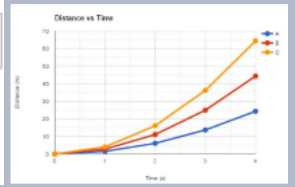
	Follow basic instructions scaffolded by the teacher to conduct investigation. Use a range of equipment including thermometers and data loggers with support.	Children choose their method to carry out the investigation.
Prediction		
Draws on knowledge from observations to make a prediction. Can begin to test predictions and later answer questions (predictions can be a guess). Ask questions about what might happen in the future.	Uses evidence and subject knowledge to refute statements. Make predictions from questions posed. Add detail to their predictions giving reasons linked to own scientific knowledge. Makes further predictions from what is observed or tested.	Use subject knowledge or research to make predictions. Predictions are detailed and explains their thinking, they link to previous tests and use scientific language. Raise further predictions from results based on patterns. Make predictions for new values.
Observation		
Observe closely, using simple equipment with greater precision. Can identify a variety of plants, animals and materials using observations. May use ID charts with support. Observe how different plants grow and record findings including similar plants at different stages of growth and notice similarities and differences. Use their observations and ideas to suggest answers to questions. Observe through video, first-hand observations and measurement how different animals including humans grow and offer explanations. Compare objects based on observable features.	Make systematic and careful observations. Draw diagrams and pictures with detail. Select own equipment for observing e.g. magnifying glasses, viewers, microscopes, digital cameras. Look for naturally occurring patterns and relationships. Collect data from their own observations and measurements. Closely observe stages of plant lifecycle over a period of time, noting patterns. Observe how water is transported in plants. Observe patterns in the way magnets behave in relation to each other. Can make observations and decide how to record them to answer a question.	Make systematic and careful observations to identify plants and animals in their habitats and how the habitat changes throughout the year. Use observations to ask questions and group objects using classification keys. Observe closely and describe processes such as changes of state. Observe and record evaporation over a period of time. Identify differences, similarities or changes related to simple scientific ideas or processes.
Measurement		
Use standard units to estimate and measure length, height, temperature, and capacity. Can	Take accurate measurements using standard units, can measure and compare. (e.g., amount of liquid and height of a plant to nearest ½ cm)	Uses a range of scales. Takes and records accurate measurements using standard units.

use rulers, scales, thermometers and measuring vessels with some degree of accuracy. Make decisions about what measurements to use and how long to make them for.	Use a range of equipment for measuring time, length, capacity and temperature. Begin to use a range of scales. Can read digital measurements from data loggers appropriately.	Can record measurements to 2dp. Use thermometers to explore the effects of temperature on substances. Use data loggers to record sound in decibels and notice patterns. Use volt metres to measure voltage in a circuit to observe patterns and answer questions. Begin to gather repeat readings to increase accuracy.
Recording		
Recording Children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. Record findings using scientific language. Gather and record data to help in answering questions. *Tables* Count results using a tally chart. Use prepared tables to record results. *Sorting* Can identify and classify. Use simple keys based and yes or no questions. Can sort into 2 groups explaining their reasons clearly. *Charts and graphs* Can record using prepared vertical bar charts. Can use results from tally charts. 	*Recording* Record findings using scientifical language, drawings and labelled diagrams and detailed written explanations based on observations. *Tables* Can complete a table (with given template) where they add headings and results. *Sorting* Can use simple classification keys and Venn diagram with 2 sorting criteria and 1 intersecting. Begin to use Carroll diagrams. Can give reasons for their sorting criteria. *Charts and graphs* Can produce vertical and horizonal bar charts adding own labels and bars.   	*Recording* Record findings using systematic and careful observational drawings and labelled diagrams. Children supported to present the same data in different ways- choice over recording. *Tables* Can create own tables with own headings. Can convert between units of measure. *Sorting* Can record using classification keys. Can use Venn and Carroll diagrams for classification, choosing own criteria. *Charts and graphs* Can use discrete and continuous data, presenting data in a line/scatter graph. Can construct a pictogram/bar chart independently.  

Evaluation		
With support can suggest improvements to their enquiries. Suggest some things that could be changed and evaluate why things went wrong. Use success ladders with multiple criteria to evaluate the test or their understanding against the learning objective.	Suggest improvements and raises further questions Use evidence and subject knowledge to refute statements. Make suggest improvements from enquiries. Make basic statements about what worked well and what they would change. Use success ladders confidently to evaluate their tests or understanding against multiple criteria and suggest simple next steps.	Evaluate and communicate their methods and findings. Suggest ways to improve what they have already done. Begin to evaluate different aspects of their enquiries such as equipment. Begin to understand how the enquiry improves outcomes from their questions. Use different charts to evaluate such as ranking scales, star diagrams and success ladders. Suggest points for development based on the weakest aspects.
Interpretation and conclusion		
Communicate findings to an audience using relevant scientific language and illustrations. Can identify casual relationships and patterns in results. Can identify which results do not fit the overall pattern and explain findings. Refers to the table of results when describing what has happened. Draws a basic conclusion (with support from the teacher) using own scientific knowledge, observations and comparisons. Uses results of investigations to answer enquiry questions.	Begin to look for naturally occurring patterns and relationships from data. Draws conclusions based on observations. Can compare something using results and the conclusion is consistent with the data. Able to adjust opinion and predictions based on results. Can give reasons for results including any anomalies. Uses findings and results to answer questions raised. Use simple scientific language to discuss ideas and communicate their findings in ways appropriate for different audiences orally and written. Apply their knowledge of the topic when evaluating. Explain any amendments and how this impacted the investigation/test.	Draws simple conclusions from results to answer questions and support their ideas. Look for casual relationships in data and identify evidence that refutes/supports ideas. Report on findings to an audience orally and in writing using appropriate scientific vocabulary for a range of audiences. Children use evidence to suggest values for different items tested using the same method. Draw conclusions based on straightforward evidence and current subject knowledge to support their findings, Suggest improvements and raise further questions.

Year 5	Year 6

Asking Questions	
Can study and raise questions to answer (including about their local environment throughout the year, properties of materials, forces, space, animals or living things). Can ask relevant questions and suggest reasons for similarities and differences. Use their scientific experiences to explore ideas and raise different questions. Can create further questions from enquiries to investigate. Independently uses secondary sources to find relevant facts about a topic. Raise further questions from enquiries/research.	Can raise questions about local animals and how they are adapted to their environment. Can raise questions about a range of phenomena e.g., rainbows, colours on soap bubbles, objects looking bent in water. Asks a range of appropriate questions to group and classify into many different categories. Can use secondary sources to research (e.g., unfamiliar animals and plants from a broad range of habitats). Use ideas from secondary sources to support their ideas. Can raise questions to further prove or disprove a scientific enquiry.
Planning	
Recognise when and how to set up comparative and fair tests to explain which variables need to be controlled and changed. Can identify independent and dependent variables to identify casual relationships. Understand what type of scientific enquiry is needed to answer and prove/disprove scientific questions or phenomenon.	Children choose the type of enquiry needed to carry out their investigation. Children can pose and answer their own questions, controlling variables where necessary independently. Decide whether they need to increase the sample size for validity. Children understand how to gather to prove a prediction. Can identify a range of factors which may affect their investigation.
Prediction	
Use subject knowledge, observations, or previous learning to make predictions. Can add further detail and explanations for their predictions. They review their predictions to state whether their predictions were correct. Can base predictions on previous scientific enquiry. Can identify a range of variables which could affect their investigation.	Develops predictions not based on results of a scientific enquiry but using own ideas and subject knowledge. Use evidence to support predictions. Gathers evidence through practical science to support predictions. Use test result to make predictions to set up further comparative and fair tests.
Observation	
Observe and compare the life cycles of plants and animals in their local environment with other plants and animals around the world. Observe changes over a period of time. (e.g. animals) Make own decisions about what to observe. Can use observation skills and ID kits to identify different animals and minibeasts. Can use careful observations to identify different rocks and group them depending on their observable characteristics.	Children answer their own and others' questions on observations they have made. Their answers are based on evidence. Observe and raise questions about animals and how they are adapted to their environment. Observe properties of materials to group and classify based on their characteristics and properties. Can make accurate detailed drawings of plants and animals based on their own observations.

Measurement	
Take repeat measurements where appropriate. Can choose the middle value or finds mean average. Select measuring equipment to give most precise results e.g., ruler, tape measure, trundle wheels, force metres with suitable scales. Can explain advantages and disadvantages of different measuring equipment. Children make quantitative measurements about conductivity and insulation.	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. When collecting measurements, the decide whether they need to increase sample size for validity and reliability. Can record measurements to 3dp. Can use protractors and rulers and force metres to measure accurately choosing correct units.
Recording	
Recording Children decide how to record data from a choice of familiar approaches. Present results in a variety of ways to help in answering questions. Can record ideas using accurately labelled diagrams using scientific language. *Tables* Can produce own results table indicating cause and effect. Records results systematically. *Sorting* Use and develop classification keys and other information records to identify, classify and describe. Can classify in a number of ways. *Charts and graphs* Use line or scatter graphs to calculate range in a set of data. (Different scales used) Can produce bar graphs with various increments.  	*Recording* Children present the same data in different ways to help answering the question. Record data and results with increasing complexity e.g accuracy of measurements, multiple data sets and different scales. Use scientific diagrams, models and labels. *Tables* They can calculate the mean and range of a set of data. Use multiple data sets. *Sorting* Can use and produce classification keys independently by posing questions. *Charts and graphs* Can independently collect data and produce scatter and line graphs using various scales and multiple data. Can create bar charts and pie charts to present data.  
Evaluation	
Evaluate and decide when further observations, comparative and fair tests might be needed.	Can describe and evaluate their own and other people's scientific ideas using evidence from a range of sources.

Evaluate different aspects of their enquiries such as equipment and accuracy of measurements. State how the enquiry improves outcomes from their questions. Can relate their results to the question and state if their test has enabled them to answer it. Use a range of charts to evaluate such as ranking scales, star diagrams including those with negative numbers. Suggest next steps based on the weakest aspects and state how this will help them or the test progress or give different results.	Evaluate their choice of method, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources. Use scientific language and evaluate how their enquiry has answered the question.
Interpretation and conclusion	
Identify patterns and casual relationships that may be found in the natural environment. Children interpret data to generate simple comparative statements based on evidence. Use results to draw conclusions and can identify external factors that cannot be controlled e.g. temperature inside and outside. Use scientific language and illustrations to discuss, communicate and justify scientific ideas. Use results to make predictions and identify whether further observations, comparative tests, fair tests, pattern seeking, or research might be needed. Can use comparative statements to explain results and how things work. Evaluate how effectively variables were controlled and what they may do to improve the enquiry.	Look for patterns and relationships using a suitable sample. Use oral and written forms such as displays to report conclusions, casual relationships and give an explanation of the degree of trust in their results. Children can pose further questions which can be answered by extending the enquiry. Makes suggestions for ideas that can be explored using pattern seeking. Can spot anomalies and identify results that do not fit the overall pattern. Use data to refute or support ideas or arguments. Focuses on scientific reasons for overall pattern rather than a comparison. Uses labelled diagrams to support their explanation. Use ideas from secondary sources to support their ideas, choosing appropriate websites. Create detailed models to explain processes such as circulatory system and lifecycles.

Long Term Planning

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	All about me	Materials Celebrations	Minibeasts and growing Keeping healthy	British Science week – oceans Colour Seasons	Traditional tales People who help us	Animals Under the sea
Year 1	Everyday materials unit 1	*Seasons 1,2 (autumn)*	Animals including humans (human body) 1,2,3,7,8 *Seasons 3 (winter)*	Animals including humans (animals) 4,5,6,9,10,11,12 British science week *Seasons 4 (spring)*	Everyday materials extension unit	Plants *Seasons 5 (summer) & 6*
Year 2	Living things and their habitat	Uses of everyday materials	Animals including humans (12 weeks)	Animals including humans British science week	Plants (½)	Plants (2/2)
Year 3	Animals including humans	Rocks	Forces and magnets	British Science Week	Plants	Light
Year 4	Electricity	States of matter	Sound	British Science Week	Animals including humans	Living things and their habitats
Year 5	Properties and changes of materials	Earth and space	Forces	British Science Week	Living things and their habitats	Animals including humans
Year 6	Living things and their habitats	Electricity	Animals including humans	British Science Week	Evolution and inheritance	Light

SCIENCE CURRICULUM MAP OVERVIEW

Science Knowledge Curriculum

Progression Across Areas

Science Curriculum Map Overview

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including Humans, Evolution	• Know and talk about the different factors that support their overall health and wellbeing: - Physical activity - Healthy eating - Toothbrushing - Sensible amounts of screen time - Having a good sleep routine - Being a safe pedestrian	• 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.	• 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.	• 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.	• 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 prey.	• Describe the changes as humans develop to old age.	• 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. <u>Evolution</u> • 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 identical to their parents. • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living Things and Their Habitats	• Explore the natural world around them. • Recognise some environments that are different to the one in which they live in.		• 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 microhabitats. • 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.		• 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.	• 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.	• 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 characteristics.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants		• 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.	• 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.	• 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.			

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Materials / States of Matter	• Use all their senses in hands-on exploration of natural materials. • Explore materials with different properties. • Explore natural materials, indoors and outside. • Talk about the differences between materials and changes they notice.	• 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 basis of their simple physical properties.	• 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		• 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) • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	• 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.	

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Rocks				• 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.			

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal Changes, Earth and Space	• Describe what they see, hear and feel whilst outside. • Understand the effect of changing seasons on the natural world around them.	• Observe changes across the 4 seasons • Observe and describe weather associated with the seasons and how day length varies.				• 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.	

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity					• 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.		• 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.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces	• Explore and talk about different forces they can feel.			• 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.		• 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.	

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sound					• 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.		

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light				• Recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces. • 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			• 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 from light sources to objects and then to our eyes. • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.