St Michael's CE (Aided) Primary School

Science – Progression for Learning Overview 2024-2025

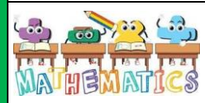
	Autumn	Spring	Summer
Reception	**Working Scientifically** • Ask and answer questions • Make observations and drawing pictures of animals and plants • Grouping and sorting – similarities and differences		
	Understanding the World – The Natural World • plant some seeds in the outdoor area making observations of what they see and think will happen • know that we are in Autumn and after Christmas it will be Spring • participate in Forest School • colour pictures of flowers and know some names of the different parts of the flower	**Understanding the World – The Natural World** • complete an observational drawing of a chick and explain some of the features in the drawing – e.g. the chicks beak helps it to eat it's food • complete a life cycle: tomato plant, chick, caterpillar • talk about how they used the Natural environment and explain the process they used during Forest school – e.g. I printed a flower to make a picture • Consider how heat and cold can change states of matter *e.g. the fire cooked the dough which turned it into bread, the freezer froze the water to make ice*	**Understanding the World – The Natural World** • complete an observational drawing of a fish and explain some of the features in the drawing – e.g. this is the gills and they help the fish to breathe • talk about the underwater environment and why it is different to the land
	SCIENTIFIC ENQUIRY Are trees always covered in leaves? Which seed will begin to grow first? Is there a place in the school grounds where the leaves stay on the trees all year round?	**SCIENTIFIC ENQUIRY** Can you find hot and cold things? Little Ted is cold – can you help him to stay warm?	**SCIENTIFIC ENQUIRY** How is the underwater environment different to the land? What do sea creatures eat?
	Handy Gardener (See British Science Week EYFS 2022)	Junk Box modelling – create a life cycle	Floating animal rescue ! Can you get the elephant out of the bucket without using your hands? Make a boat/submarine
	• measure the height of plants using non-standard units	• repeating patterns (printing)	

	 Ben Faulkes - Mr Bloom (Cbeebies)	 Steve Backshall	 Aneeshwar Kunchala (CBeebies – environmental enthusiast)

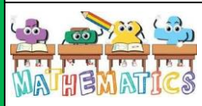
	Autumn		Spring		Summer	
Year 1	**Working Scientifically** • ask simple questions and recognise that they can be answered in different ways (using books, photographs and the internet to find answers) • observe closely, using simple equipment • perform simple tests using equipment • identify and classify - looking for patterns • use observations and ideas to suggest answers to questions (explain results and what we have found out) • gather and record data to help answer questions • say why a test is unfair					
	Animals, including humans • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense • 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).	**Seasonal changes** • Observe changes across the four seasons • Observe and describe weather associated with the seasons and how day length varies.	**Everyday Materials:** • Distinguish between an object and the materials 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 materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties **Pipettes**	**Seasonal changes** • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.	**Plants** • Identify and name a variety of common world and garden plants, including deciduous trees. • Identify and describe the basic structure of a variety of plants, including trees.	**Seasonal changes** • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.
	SCIENTIFIC ENQUIRY What is a carnivore, herbivore and omnivore? Do bigger animals eat smaller animals to survive?	**SCIENTIFIC ENQUIRY** Are leaves always green? How many hours of sunlight are there in one day? What clothes do you need?	**SCIENTIFIC ENQUIRY** Materials hunt: Can you find things made of wood? Can you find things made of metal? Little Ted keeps getting wet – can you help him to stay dry?	**SCIENTIFIC ENQUIRY** Are leaves always green? How many hours of sunlight are there in one day? What clothes do you need?	**SCIENTIFIC ENQUIRY** Are all leaves the same? How fast will sunflower seeds start to grow? Is there a place on the field where more daisies grow?	**SCIENTIFIC ENQUIRY** Are leaves always green? How many hours of sunlight are there in one day? What clothes do you need?
	Animal survey of school grounds	Make a washing line of autumn and winter clothes	Design and make Teddy an outfit for the rain explaining why you chose the materials	Make a washing line of spring clothes	Sunflower growing competition	Make a washing line of summer clothes

	 • Use a simple table to record results Venn diagrams	 • Use a simple table to record results	 • Use a tally chart	 • Use a simple table to record results	 • Count the number of daises • Time how long • Measure the height of plants	 • Use a simple table to record results
	 Chris Packham (1961-)	 Carol Kirkwood (1962 -) Tomasz Schafernaker (1979 -) Chester Greenwood (1858 – 1937)	 Charles Mackintosh (1766 – 1843)	 Carol Kirkwood (1962 -) Tomasz Schafernaker (1979 -)	 Beatrix Potter (1866 – 1943)	 Carol Kirkwood (1962 -) Tomasz Schafernaker (1979 -)

	Autumn	Spring	Summer	
Year 2	**Working Scientifically** • ask simple questions and recognise that they can be answered in different ways • observe closely, using simple equipment • perform simple tests using equipment • identify and classify - looking for patterns • use observations and ideas to suggest answers to questions • gather and record data to help answer questions • say why a test is unfair • explain results and what we have found out • using books, photographs and the internet to find answers			
	Uses of Everyday Materials: • Distinguish between an object and the materials 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 materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties. • Identify and compare the suitability of different 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. • Using a force to make something move. •	**Plants** • 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 healthy and stay healthy.	**Animals, including humans** • 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) • for particular purpose • Describe the importance of humans eating the right amounts of different types of food and hygiene. • Describe the importance of hygiene	**Living things and their habitats** • Explore and compare the difference 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. • 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 • Identify and name different sources of food.
	SCIENTIFIC ENQUIRY How stretchy is a Curly Wurly? What material should the three little pigs use to build their house? What material would make a good thermal blanket?	**SCIENTIFIC ENQUIRY** Will plants survive without water? How long does a daffodil/tulip bulb take to grow? How long will the flower last?	**SCIENTIFIC ENQUIRY** How does a caterpillar change into a butterfly? Do all animals look like their offspring? How do germs spread? Is it ever OK to be dirty?	**SCIENTIFIC ENQUIRY** Where do most woodlice live? Why are some animals from different countries?
	Make a thermal blanket	Grow bulbs, record growth	Watch the caterpillar metamorphosize	Make peg/cup animals to show food chains

	Build their own house		Use glitter/Glo-gel to show germs spreading	
	 • Measuring how far they can stretch a Curly Wurly	 • Measure the growth of the bulb	 • Measure a caterpillar and record its growth • Count how many days it takes the caterpillar to metamorphosise • Count how many children the ‘germs’ spread to •	 • Tally chart
	 John Dunlop (1840 – 1921) Wilbur Wright (1867 – 1912)	 Captain Cook (1728 – 1779)	 John Boyd Orr (1880 – 1971) Florence Nighingale (1820 – 1910)	 Paula Kahumbu (1966 -)

	Autumn		Spring		Summer	
Year 3	**Working Scientifically** • ask relevant questions and use different types of scientific enquiry to answer them • set up simple practical enquiries, comparative and fair test • make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment including thermometers and data loggers • gather, record, classify and present data in a variety of ways to help answer questions • record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identify differences, similarities or changes related to simple scientific ideas and process • use straightforward scientific evidence to answer questions or support their findings					
	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 in rocks • recognise that soils are made from rocks and organic matter	**Animals, including humans** • 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	**Animals, including humans** • identify that humans and some other animals have skeletons and muscles for support, protection and movement	**Forces and magnets** • compare how things move on different surfaces • notice that some forces need contact between two objects, but magnetic forces can act at a distance • observe how magnets attract or repel each other and attract some materials and not others • compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • describe magnets as having two poles • Predict whether two magnets will attract or repel each other, depending on which poles are facing.	**Plants** • 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 plants play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	**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 a solid object • find patterns in the way that the size of shadows change
	SCIENTIFIC ENQUIRY What is the hardest rock? Are all rocks waterproof? Are all rocks hard? Are rocks made from sand?	**SCIENTIFIC ENQUIRY** What do we need to be healthy? How can astronauts have healthy diets?	**SCIENTIFIC ENQUIRY** How important are bones and muscles? Do all animals have a skeleton? How do animals move? What is a skeleton for?	**SCIENTIFIC ENQUIRY** Are all materials magnetic? What uses do magnets have? Do magnets have different strengths?	**SCIENTIFIC ENQUIRY** How is a cactus plant different to other plants? How do different seeds grow? How is water transported in a plant?	**SCIENTIFIC ENQUIRY** What is the best material for making sunglasses? How can you make a big/small shadow? Does a shadow change throughout the day?

	Make sedimentary rocks model using sweets	Make protein energy balls (to feed birds)	Make a skeleton from cotton buds	Make a magnet games explaining how it works	Make a collage using recycled materials to create different plant and explain the function of each part	Make a sundial
	 • use a table to record results	 • measuring amounts for recipes	 • Venn diagrams	 • Use a table to record results • Use graphs to present results	 • Venn diagrams	 • Measuring the length of shadows
	 Mary Anning (1799 – 1847) Katia Krafft (1942 – 1991)	 Adelle Davis (1904 - 1974)	 Wilhelm Rontgen (1845 - 1923)	 Archimedes (287BC – 212 BC))	 Eva Crane (1912 - 2007)	 Percy Shaw (1890-1976)

	Autumn	Spring	Summer		
Year 4	**Working Scientifically** • ask relevant questions and use different types of scientific enquiry to answer them • set up simple practical enquiries, comparative and fair test • make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment including thermometers and data loggers • gather, record, classify and present data in a variety of ways to help answer questions • record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identify differences, similarities or changes related to simple scientific ideas and process • use straightforward scientific evidence to answer questions or support their findings				
	States of Matter • 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. **Thermometers**	**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	**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 • recognise that sounds get fainter as the distance from the sound source increases	**Living Things** • 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.	**Teeth and Eating** • 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.
	SCIENTIFIC ENQUIRY What effect does salt/sugar/warm water have on the melting process? Where do clouds come from?	**SCIENTIFIC ENQUIRY** Do all metals conduct electricity? How do you light up a bulb? Can I light up a home?	**SCIENTIFIC ENQUIRY** Do larger instruments produce a louder sound or a lower pitch sound? Can you measure how loud a sound is?	**SCIENTIFIC ENQUIRY** What fruits would grow if you planted them? Why? Should we be worried about the amount of plastic we throw away?	**SCIENTIFIC ENQUIRY** How is poo made? What kinds of things are good/bad for teeth?
	Make you own water cycle in a bag	Design and build a home that lights up	Record sounds and analyse	Design and make a Web of Wildlife	Make ‘poo’ using household ingredients

				Save our home! How are animals threatened?	
	 Measuring using thermometers	 • Tables of results	 • Graphs and charts to show loudness and pitch	 • Venn/Carroll diagrams to show similarities and differences	 • Weighing and measuring amounts of food/liquid to make ‘poo’
	 Anders Celsius (1701 – 1744) Daniel Farenhiet (1636 – (1736)	 Thomas Edision (1847 – 1931)	 Aristotle (384BC – 322BC)	 David Attenborough (1926 -) Eunice Newton Foote (1819 – 1888)	 William Addis (1734 – 1808)

	Autumn	Spring	Summer		
Year 5	**Working Scientifically** • plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeated readings when appropriate • record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • use test results to make predictions to set up further comparative and fair tests • report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • identify scientific evidence that has been used to support or refute ideas of arguments				
	Earth and Space • 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 relative 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	**All living things & their habitats** • 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	**Animals, including humans** • describe the changes as humans develop to old age	**Forces** • 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	**Properties and changes of materials** • 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 this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda
	SCIENTIFIC ENQUIRY How do we get night and day? How do we know about the movement of the Earth, Moon and planets?	**SCIENTIFIC ENQUIRY** Do all animals have the same life cycle? How does frogspawn change into frogs?	**SCIENTIFIC ENQUIRY** What happens to humans as they grow? Is the gestation period of all animals the same?	**SCIENTIFIC ENQUIRY** Do parachutes with larger canopies take longer to fall? How do large objects float on water? How can you lift heavy objects more easily?	**SCIENTIFIC ENQUIRY** Does hot chocolate have to be hot? Why do we use different materials for different things?

	Design and make an ‘eggnaut’	Turtle Life Cycle Game (See STEM resources)		Build parachutes to test air resistance	Make popcorn, bake cakes, fry an egg, make pancakes, etc
	• Understand the concepts of distances between planets	• Measuring time taken for metamorphosis	• Table or graph to show gestation periods for different animals	• Using a timer • Record results in a table	• Using tables to record results of filtering
	Nicolaus Copernicus (1473 – 1543) Mae Jemison (1956 -)	Elizabeth Garrett Anderson (1836 – 1917)	Robert Winston (1940 -) Vriginia Apgar (1909 – 1974)	Galileo Galilei (1564 – 1642) Albert Einstein (1879 – 1955) Issac Newton (1643 – 1727)	Spence Silver (1941 -) Ruth Benerito (1916 – 2013)

	Autumn	Spring	Summer	
Year 6	**Working Scientifically** • plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeated readings when appropriate • record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • use test results to make predictions to set up further comparative and fair tests • report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • identify scientific evidence that has been used to support or refute ideas of arguments			
	All living things & their habitats • 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 • give reasons for classifying plants and animals based on specific characteristics	**Evolution & Inheritance** • recognise that living things have change 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 king, 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	**Animals, including humans** • 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	**Light** • 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	**Electricity** (including mini DT task using a circuit) • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit • compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the one/off position of switches • use recognised symbols when representing a simple circuit in a diagram
	SCIENTIFIC ENQUIRY Can you classify similar things e.g buttercups? Why is Carl Linnaeus important?	**SCIENTIFIC ENQUIRY** What will we look like in 10,000 years?	**SCIENTIFIC ENQUIRY** How can you look after your heart? How can you improve your heart rate? Why is blood red?	**SCIENTIFIC ENQUIRY** How does a periscope work? Can you change the shape of a shadow?	**SCIENTIFIC ENQUIRY** Are magnetic things good conductors of electricity? Can you make a light brighter?
	STEM What bugs are living near you? Bug count	STEM Design a species adapted to a particular habitat or of the future	STEM	STEM Make a periscope Make shadow puppets Make a rainbow (using light and water)	STEM Make a moving toy vehicle using battery power: forward, reverse, lights on, lights off
	MATHEMATICS • Count minibeasts	MATHEMATICS • Use diagrams to classify and group	MATHEMATICS • Time heart rates and compare before and after exercise	MATHEMATICS	MATHEMATICS •

	 Liz Bonnin (1976 -) Jane Goodall (1934 -)	 Charles Darwin (1809 – 1882) Alice Robers (1973 -) Alfred Russel Wallace (1823 – 1913) Carl Linnaeus (1707 – 1778)	 William Harvey (1578 – 1657) Ibn al-Nafis (1213 – 1288) Joseph Lister (1827 – 1912)	 Hedy Lamarr (1914 – 2000) Justus von Liebig (1803 – 1873)	 Nikola Tesla (1856 – 1943) Edith Clarke (1847 – 1922)