Milton Mount Primary School

Science Curriculum Map, Progression of Knowledge, Skills and Vocabulary Document

EYFS, Key Stage 1 & Key Stage 2

Intent

At Milton Mount we are SCIENTISTS! We seek to inspire our next generation of young scientists with opportunities for awe, wonder and excitement in the world around them by ensuring enquiry-based curriculum coverage in a safe, hands-on, relevant and well-resourced way that provides challenge, support and progress for all.

Our curriculum starts in the Early Years Foundation Stage focusing on Understanding the World area of learning and continues through to Year 6, following the National curriculum content guidance.

Do More

The curriculum is structured and sequenced so that all children actively engage in exploration-based lessons. Our aim is to plan, create and teach exciting lessons that include children engaging with science in a variety of ways, for example, investigating questions, observing, communicating and working within a team to evolve the whole child as a lifelong learner.

Know More

Science is planned for and taught in line with the National Curriculum, whilst utilising 'Kapow' to ensure pupils knowledge is systematically built upon each year. We aim to provide lessons are rooted in scientific vocabulary, consolidate prior knowledge and encourage deeper understanding. Each unit consists of Scientific knowledge & understanding as well as the Working Scientifically components. During a child's learning journey at Milton Mount, children will develop scientific knowledge and understanding in seven key areas – these are:

*Animals, including humans
*Living things and their habitats
*Plants
*Materials
*Energy
*Forces, Earth and Space
*Making Connections

Remember More

Sticky starters are used at the start of each lesson, allowing children to recall previously taught knowledge and information. Three questions are asked: one from the previous week, one from the previous unit (term) and one from the previous year. This enables children to bring previous knowledge into current learning, helping them to make connections within the world around them.

Experience More

Use of our school's outdoor learning facilities and cross-curricular links with forest schools will encourage our young scientists to apply and deepen their curiosity and learning in a range of contexts. Opportunities to reflect on, discuss, present and question the results of their lessons and investigations will allow them to take their place among the articulate, problem-solving, critical thinkers our school and the world of science beyond require. Children at Milton Mount will experience seven key wonders across their Science education, these include exciting things such as going on a science adventure, seeing something that you can't see, and even meeting a scientist!

Consider more

By doing, knowing, remembering and experiencing more, children at Milton Mount will have gathered a scientific perspective of the world around them. They will be able to make links and connections across scientific concepts as well as be able to pose and investigate their own generated questions.

Science Curriculum Map

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
EYFS **Understanding the world:** **The Natural World**	Changing Seasons						
	I am a Scientist		Our beautiful Planet		Animal Adventures		
Year 1	Sensitive Bodies	Everyday Materials	Seasonal Changes	Introduction to Plants	Comparing Animals	Investigating Science through stories	
Year 2	Life Cycles and Health	Use of Everyday Materials	Habitats	Microhabitats	Plant Growth	Plant-Based Materials	
Year 3	Light and Shadows	Movement and Nutrition	Forces and Magnets	Rocks and Soil	Plant Reproduction	Does hand span affect grip strength?	
Year 4	States of Matter	Sounds and Vibrations	Digestion and Food	Classification and Changing habitats	Electricity and Circuits	How does the flow of liquids compare?	
Year 5	Earth and Space	Unbalanced Forces	Mixtures and Separation	Materials – Properties and Changes	Life Cycles and Reproduction	Human Timeline	Does the size of an asteroid affect its impact strength?
Year 6	Light and Reflection	Circuits, batteries and switches	Classifying big and small	Evolution and Inheritance	Circulation and Health	Are some sunglasses safer than others?	

Science Progression of Scientific Knowledge, Understanding and Skills 2025 – 2026

Animals, including humans	EYFS: Animal Adventures	Y1: Sensitive Bodies Comparing Animals	Y2: Life Cycles and Health	Y3: Movement and Nutrition	Y4: Digestion and Food	Y5: Human Timeline	Y6: Circulation and Health
Animal Growth	To know the names of familiar animals (e.g. farm animals, pets and animals seen in storybooks.)	To know a variety of common animals (including fish, amphibians, reptiles, birds and mammals).	To understand how living things change, and that animals have offspring that grow into adults. To know which offspring comes from which parent animal. To know the stages in some animal life cycles.			To describe the human life cycle, including the stages of growth and development (baby, toddler, child, teenager, adult, elderly). To describe changes that occur during puberty (in boys and girls). To know that gestation periods vary across mammals.	
Animal Structure and function	To know the main body parts of common animals (number of legs, wings, fur, tail). To know that animals, including humans use their senses to explore the world.	To know the main body parts of common animals (arms, legs, wings, tails, fins, head, trunk, horns/tusks, shell) To know key parts of the human body (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth). To know the five main senses: sight, smell, hearing, taste and touch. To know that the skin is used for touch, the tongue is used for taste, the nose is used for smell, the eyes are used for sight, and the ears are used for hearing.		To know that animals can be grouped based on the presence of a skeleton. To know that the skeleton in humans and some animals is used for movement, protection and support. To know that the muscular system in humans and some animals works with the skeleton for movement. To know the main bones in the body.	To know the main organs of the human digestive system (mouth, teeth, tongue, oesophagus, stomach, small and large intestines) and describe their simple functions. To know the different types of human teeth (incisor, canine, premolar and molar) and their simple functions.		To know the main parts of the human circulatory system (heart, blood vessels and blood). To know that the heart pumps blood around the body. To know that the blood vessels transport blood around the body. To know that the blood transports vital substances around the body, including oxygen and nutrients. To understand the relationships between different organ systems.
Health and nutrition	To know that animals need food.	To know that a carnivore is an animal that eats other animals and give some examples. To know that a herbivore is an animal that eats only plants and give some examples. To know that an omnivore is an animal that eats both animals and plants, and to give some examples.	To know that animals, including humans, need water, food and air to survive. To understand the importance of exercise, a balanced diet and hygiene for humans.	To know that animals, including humans, need the right types and amount of nutrition. To understand that humans cannot make their own food and therefore eat to get the nutrition needed. To know the main nutrient groups (carbohydrates, protein, fats, fibre, vitamins, minerals and water) and their simple functions. To know that a balanced diet should include all nutrient groups. To describe the diets of different animals.	To know that teeth can be damaged, including the effect of sugary and acidic food. To know that it is important to brush teeth twice a day, make good food choices and visit the dentist regularly. To describe the teeth of carnivores and herbivores and understand why they are different. To know that predators hunt for their food and prey are the animals being hunted. To know that producers make their own food. To know that food chains begin with a producer followed by consumers, and arrows to show the energy passed on.		To understand the impact of diet, exercise, drugs and lifestyle on the way a body functions. To know that the heart rate is the number of beats per minute. To know that exercise increases heart rate.

Plants	EYFS: Our beautiful planet	Y1: Introduction to Plants	Y2: Plant Growth	Y3: Plant Reproduction	Y4	Y5	Y6
Plant structure and function	To know the name for the basic plant parts (leaves, flowers, stem and roots.) To know the names of some familiar flowering plants (e.g. daisy, rose, sunflower, daffodil).	To know a variety of common plants, and how they differ. To know that deciduous trees lose their leaves seasonally, but evergreen trees do not. To know the basic structure (including leaves, flowers (blossom), fruit, roots, bulb, seed, trunk, branches, stem) of a variety of common plants, including flowering plants and trees.		To understand the functions of the basic parts of a plant and the relationship between structure and function. To know that water is transported within a plant from the root, through the stem, to the leaves.			
Plant growth and needs	To know plants are alive. To know that seeds need water to grow	To begin to understand how plants grow and change over time.	To know that seeds and bulbs grow into seedlings by producing roots and shoots. To know that seedlings grow into mature plants by developing parts such as roots, stems, leaves and flowers. To know that seeds need water and warmth to germinate. To know that plants need water, light and a suitable temperature for growth and health.	To know that plants need water, light, air, nutrients and a suitable temperature for growth and health. To understand that the needs for growth and health vary from plant to plant.			
Plant life cycle	To know that seeds grow into plants if taken care of.			To know the life cycle of a plant from seed to mature plant. To know that flowers are the reproductive organ of a plant. To know that the process of pollination is the transfer of pollen to the female (part of the) flower. To know that the process of seed formation is the growth of a seed after pollination. To know some different methods of seed dispersal and the benefits of each.			

Living things and their habitats	EYFS: Animal Adventures	Y1	Y2: Habitats and Microhabitats	Y3	Y4: Classification and changing habitats	Y5: Life cycles and reproduction	Y6: Classifying big and small. Evolution and Inheritance
Characteristics of Living Things	To know that animals and plants move, grow and feed. To know the difference between things that are living and things that are non-living. To know that some animals hibernate or store food in winter.*		To begin to understand some of the life processes, including movement, reproduction, sensitivity, growth, excretion and nutrition. To know the difference between things that are living, dead, and things that have never been alive, using some of the life processes.		To know that living things can be grouped in different ways. To know that a classification key can be used to group and identify plants and animals. To know that vertebrates are animals which have a backbone and invertebrates are animals which do not have a backbone. To know that plants can be grouped into flowering or non-flowering varieties. To know that flowering plants include grasses and non-flowering plants includes ferns and mosses. To know that there are five main vertebrate groups: birds, mammals, reptiles, amphibians and fish. To know that invertebrate groups include snails, slugs, worms, spiders and insects.		To know that 'organism' is a term used to refer to an individual living thing. To know that micro-organisms are incredibly small and cannot usually be seen by the naked eye. To know the characteristics of the different groups of vertebrates and commonly found invertebrates.
Variation and Inheritance	To know the names of familiar animals (e.g. farm animals, pets and animals seen in storybooks.)* To know the names of some familiar flowering plants (e.g. daisy, rose, sunflower, daffodil).*		To know a variety of plants and animals and describe some differences.			To know that a life cycle shows the changes an animal or plant goes through until the reproduction of a new generation when the cycle starts again. To know that all living things must reproduce for the species to survive. To know that sexual reproduction requires two parents, whereas asexual reproduction only requires one parent. To know that there are different processes plants and animals use to reproduce (asexual and sexual reproduction).	To know that living things have changed over time. To know that fossils provide us with information about living things that inhabited the Earth millions of years ago. To know that characteristics are passed from parents to their offspring, but that all offspring vary from their parents. To know that over time, variation in offspring can affect animals' chances of survival in particular environments.
Habitats and Interdependence	To know that plants and animals live in a range of different places. To name some different places where animals live on the school site.		To name a variety of habitats, including woodland, ocean, rainforest and seashore. To know that a habitat is the environment where an animal or plant lives/ grows, because it provides what they need to survive. To know that a micro-habitat is a very small habitat (e.g. stones, logs and leaf litter). To know that living things depend upon each other (e.g. for food, shelter.) To understand that a food chain can be used to show how animals obtain food from eating either plants and/or other animals		To know that habitats can change throughout the year and this can be dangerous for living things. To know that humans can have both a positive and negative impact on the environment.		To know that animals and plants have adapted to suit their environment over many millions of years and that this process can be called evolution.

Materials	EYFS: I am a scientist	Y1: Everyday Materials	Y2: Uses of everyday materials	Y3: Rocks and Soil	Y4: States of Matter	Y5: Mixtures and separation, properties and changes	Y6
Identifying and naming		To know that objects are items or things. To know that a material is what an object is made from. To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.		To know that rocks can be grouped based on their appearance or properties, (e.g. colour, texture, hardness, permeability.) To know that rocks may contain grains, crystals or fossils. To know that grains and crystals appear differently and can be used to classify rocks. To know that soils are made from rocks and dead matter.	To know that all substances around us can exist as solids, liquids and gases.		
Properties and uses	To know objects float or sink.	To know that property refers to how a material can be described. To describe the physical properties of a variety of everyday materials. To understand that materials can be grouped based on their physical properties.	To know why objects are made from particular materials and to give examples of their suitability. To know that one material can be used for a range of purposes (and to give examples.) To know that different materials can be used for the same purpose (and to give examples.) To know why certain materials are unsuitable for particular objects	To understand the relationship between the properties of rocks and their uses.	To know that a property of a solid is that it keeps its shape unless a force is applied to it. To know that a property of a liquid can flow freely and take on the shape of a container. To know that a property of a gas does not have a fixed shape and can escape from an unsealed container.	To describe a broader range of materials and their properties, including hardness, solubility, transparency, conductivity and response to magnets.	
Change	To know some objects move when pushed or pulled. To know some objects freeze or melt.		To know that a push or pull must be applied to change the shape of a solid object. To know that solid objects can be squashed, bent, twisted or stretched. To know that different solid objects may take a different amount of force to change shape.	To know that fossils can form from the remains of living things. To know that rocks can change over time (e.g. erosion, weathering).	To know that heating causes solids to turn into liquids (melting) and liquids to turn into gases (evaporating). To know that cooling causes gases to turn into liquids (condensing) and liquids to turn into solids (freezing). To know that water can exist as a solid, a liquid or a gas. To know that the melting point of water is zero degrees Celsius and the boiling point of water is 100 degrees Celsius. To know that water flows around the world in a continuous process called the water cycle. To know that in the water cycle, evaporation is when bodies of water are heated and turn into water vapour. To know that in the water cycle, condensation is the process of water vapour cooling to form water droplets in clouds, which can result in precipitation. To know that the rate of evaporation increases as temperature rises.	To know that some substances will dissolve in a liquid to form a solution. To know the factors that affect the time taken to dissolve, including temperature and stirring. To understand that dissolving, mixing and changes of state are reversible changes. To know that some liquids and solids can be separated using sieving, filtering and evaporation and to describe these processes. To understand that some changes result in the formation of new materials and that these are usually irreversible. (e.g. burning, rusting, the action of acid on bicarbonate of soda.)	

Energy - LIGHT	EYFS: I am a scientist	Y1	Y2	Y3: Light and shadows	Y4	Y5	Y6: Light and reflection
Sources	To know day is light because the sun is in the sky. To know night is dark because the sun is not in the sky.			To know that light travels from a source (e.g. the Sun, light bulbs and torches). To know that light is needed to see things and that dark is the absence of light. To know that light from the Sun can be dangerous and how to protect their eyes.			To know that light travels in a straight line from a light source. To understand that luminous objects are seen as a result of light directly entering the eye, whereas non-luminous objects reflect light into the eye.
Transfer	To know that shadows are created when something blocks the light.			To know that all materials reflect light. To know that shadows are formed when the light from a light source is blocked by an opaque object.			To know that shiny surfaces reflect light uniformly. To know that when light is reflected off a surface, its direction changes. To know that mirrors and periscopes work using reflection of light on smooth surfaces. To understand why shadows have the same shape as the objects that cast them as a result of light travelling in straight lines. To understand relationships between light sources, objects and shadows.
Factors affecting energy				To know that shadows change as a result of different factors: - Changing the position of the light source. - Changing the distances between the light source, object and surface. To know that shadows change position and length throughout the day as the Sun changes position in the sky			To understand how and why the distance between the object and the screen affects the size of the shadow. To understand how the angle of a reflected ray is affected by the angle of the incoming ray on a smooth surface.

Energy - SOUND	EYFS: I am a Scientist	Y1	Y2	Y3	Y4: Sound and Vibrations	Y5:	Y6
Sources					To understand that sound is a result of vibrations.		
Transfer					To know that vibrations from sounds travel through mediums to the ear. To know that an insulating material reduces the amount of vibrations that pass through it and this can be used to protect the ears from damaging sounds. To know that different materials provide different amounts of insulation against sound		
Factors affecting energy	To know about differences in sounds.				To know a variety of ways to change the pitch or volume of a sound. To know that quicker vibrations cause higher-pitched sounds and slower vibrations cause lower-pitched sounds. To know that stronger vibrations cause louder sounds and weaker vibrations cause quieter sounds. To know that sounds get fainter as the distance from the sound source increases		

Energy - ELECTRICITY	EYFS	Y1	Y2	Y3	Y4: Electricity and Circuits	Y5	Y6: circuits, batteries and switches
Sources					To know that all electrical appliances need a power source, including batteries or mains electricity. To know that an electrical circuit needs a complete path for the electrical charge to flow through. To know the main components in a simple series circuit. To know the precautions for working safely with electricity		To know a wider variety of components in a series circuit (including buzzer and motor). To know the conventions used to draw circuit diagrams, including the recognised symbols for common components and using straight lines.
Transfer					To know that some materials allow electrical charge to pass through them quickly and these are known as electrical conductors (e.g. metals). To know that some materials do not allow electrical charge to pass through them easily and these are known as electrical insulators (e.g wood and plastic). To know that metals are used for cables and wires because they are good conductors of electricity. To know that plastic is used to cover cables and wires because it is a good insulator		
Factors affecting energy					To understand that an open switch breaks a series circuit so the components will be off. To understand that a closed switch completes a series circuit so the components will be on. To understand the relationship between bulb brightness and the number of bulbs in a circuit.		To know that the voltage of a circuit can be changed and how this affects bulb brightness (or buzzer volume).

Forces, Earth and Space	EYFS: Changing Seasons	Y1: Seasonal Changes	Y2	Y3	Y4	Y5: Earth and Space	Y6
Key facts	To know that some trees change in the four seasons. To know some signs of each season (leaves on the ground, cold weather, daffodils growing and sunny weather.) To know that some animals hibernate or store food in winter.*	To know the name and order of the four seasons; spring, summer, autumn and winter. To know that it is unsafe to look directly at the Sun.				To know that the Sun is a star at the centre of our solar system. To know that the Sun, Earth and Moon are approximately spherical bodies. To know the names, order and relative positions of the planets and other main celestial bodies. To know that a moon is a celestial body that orbits a planet and give examples of moons that orbit other planets.	
Forces in motion	To know that the weather changes throughout the year. To know and compare weather types (rain, sun, snow, wind).	To know weather associated with the four seasons and how it changes (in the UK). To understand that day length varies across the four seasons, with fewer daylight hours in the winter and more in the summer.				To know that the Earth and other planets orbit around the Sun. To know that the tilt of the Earth and its orbit around the Sun causes the seasons. To know that the Moon orbits around the Earth. To understand how the Earth's rotation causes day and night and the apparent movement of the Sun across the sky.	
Factors affecting forces							

Forces, Earth and Space	EYFS	Y1	Y2	Y3: Forces and magnets	Y4	Y5: Unbalanced Forces	Y6
Key facts				To know some examples of contact and non-contact forces. To know that some forces are a result of contact between two surfaces, but some forces can act at a distance (e.g. magnetism). To know the North and South poles of a magnet. To know some examples of magnetic materials, including iron and nickel, and how they react to a magnet and each other. To know some different examples of magnets, including bar, horseshoe, button and ring, To know some uses of magnets.		To know that gravity is a non-contact force that pulls objects together. To know that air resistance and water resistance are both types of friction.	
Forces in motion				To know that friction is a contact force that acts between two surfaces to slow an object down. To know that magnetism is a non-contact force that affects objects containing magnetic metal. To understand that the opposite poles of a magnet attract one another and like poles repel one another.		To know that unsupported objects fall towards the Earth because of gravity. To know that friction, air resistance and water resistance act in the opposite direction to a moving object. To know that when forces are imbalanced, the speed, shape or direction of an object changes. To know that when forces are balanced the speed, shape or direction of an object stays the same. To know that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.	
Factors affecting forces				To know that rougher surfaces have more friction between them than smoother surfaces. To understand that the strength of different magnets may vary.		To know that rougher surfaces have more friction between them than smoother surfaces and how that may affect movement. To know that the larger the surface area of an object the greater the air or water resistance it creates.	

Working Scientifically	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Posing questions	Asking questions about the natural world with support.	Exploring the world around them and raising their own simple questions. Recognising there are different types of enquiry (ways to answer a question). Responding to suggestions on how to answer questions.		Beginning to raise further questions during the enquiry process. Considering what makes a testable question. Beginning to recognise that there are different types of enquiry and that they are suitable for different questions. Beginning to make suggestions about how different questions could be answered.		Raising questions throughout the enquiry process. Identifying testable questions. Selecting the most appropriate enquiry method to answer questions and give justification.	
Planning	Beginning to share ideas and suggestions, when working practically.	Beginning to recognise whether a test is fair. Deciding if suggested observations are suitable, with support. Ordering a simple method.		Beginning to select from options which variables will be changed, measured and controlled. Beginning to suggest what observations to make and how long to make them for. Planning a simple method, verbally and in writing. Beginning to write a simple method in numbered steps. Selecting and beginning to decide what simple equipment might be used to aid observations and measurements.		Suggesting which variables will be changed, measured and controlled. Making and explaining decisions about what observations to make and how long to make them for. Writing a method including detail about how to ensure control variables are kept the same. Writing a method that considers reliability by planning repeated readings. Suggesting the most appropriate equipment to make observations and measurements and justifying their choices.	
Predicting	Beginning to make guesses about what might happen.	Suggesting what might happen, often justifying with personal experience.		Making predictions about what they think will happen by: ● Using scientific knowledge and/or personal experience to explain their prediction (because…) ● Beginning to consider cause and effect when making predictions, where appropriate. ● Predicting a trend by considering how the changing variable will affect the measured variable. (The smoother the surface, the longer the distance the car will travel)		Making increasingly scientific predictions by: ● Using previous scientific knowledge and evidence to inform their predictions. ● Using scientific language to describe a potential outcome or explain why they think something will happen. ● Making links between topics to evidence a prediction.	
Observing (qualitative data)	Commenting on what they see and hear in the natural world.	Using their senses to describe, in simple terms, what they notice or what has changed.		Using their senses to describe, in more detail and with simple scientific vocabulary, what they notice or what has changed.		Using their senses to describe, in detail and with a broader range of scientific vocabulary, what they notice or what has changed.	
Measuring (quantitive data)	N/A	Using non-standard units to measure and compare. Beginning to use standard units and read simple scales to measure and compare. Beginning to use simple measuring equipment to make approximate measurements		Using standard units to measure and compare. Using measuring equipment with increasing accuracy. Reading scales with unmarked intervals between numbers.		Using standard units to measure and compare with increasing precision (decimals). Reading a wider variety of scales with unmarked intervals between numbers.	
Researching	Recognising that information can be found online and in books.	Recognising that information can be found online and in books.		Gathering specific information from a variety of sources.		Gathering answers to open-ended questions from a variety of sources.	
Recording (Diagrams)	Drawing and labelling pictures of plants and animals.	Drawing and labelling simple diagrams.		Beginning to draw more scientific diagrams by: ● Using some standard symbols. ● Drawing in 2D to produce simple line diagrams. ● Labelling with more scientific vocabulary.		Drawing scientific diagrams by: ● Using a wider range of standard symbols. ● Drawing with increasing accuracy. ● Labelling with a broader range of scientific vocabulary. ● Annotating diagrams to explain concepts and convey opinions.	
Recording (Tables)	Recognising that tables can be used to record information.	Using a prepared table to record results including: ● Numbers. ● Simple observations. ● Tally frequency.		Using a prepared table to record results including more detailed observations. Using tables with more than two columns. Identifying and adding headings to tables . Beginning to design simple results tables.		Using tables with columns that allow for repeat readings. Suggesting headings to tables, including units. Designing results tables with increasing independence with consideration of variables where applicable. Calculating the mean average.	

Grouping and Classifying	Grouping objects, plants and animals with support.	Grouping based on visible characteristics. Organising questions to create a simple classification key.	Grouping based on visible characteristics and measurable properties. Populating a pre-prepared branching and number key. Choosing appropriate questions for classification keys.	Grouping in a broader range of contexts. Organising the layout of number and branching keys. Formulating appropriate questions for classification keys.
Graphing	N/A	Representing data using pictograms and block graphs.	Representing data using bar charts. Drawing bars with greater accuracy. Reading the value of bars with greater accuracy.	Representing data by using line graphs and scatter graphs. Plotting points with greater accuracy. Reading the value of plotted points with greater accuracy.
Analysing and drawing conclusions	Describing their discoveries when working practically.	Using their results to answer simple questions. Beginning to recognise when results or observations do not match their predictions.	Writing a conclusion to summarise findings using simple scientific vocabulary. Beginning to suggest how one variable may have affected another. Beginning to quote results as evidence of relationships. Identifying data that does not fit a pattern (anomalous data). Recognising when results or observations do not match their predictions. Beginning to use identified patterns to predict new values or trends.	Writing a conclusion to summarise findings using increasingly complex scientific vocabulary. Suggesting with increasing independence how one variable may have affected another. Quoting relevant data as evidence of relationships. Identifying anomalies in repeat data and excluding results where appropriate. Comparing individual, class and/or model data to the prediction and recognising when they do not match. Using identified patterns to predict new values or trends.
Evaluating	N/A	N/A	Beginning to identify steps in the method that need changing and suggest improvements. Beginning to identify which variables were difficult to control and suggesting how to better control them. Commenting on the degree of trust by reflecting on: ● Results that do not fit a pattern (anomalies). ● The quality of results (accurate measurements and maintaining control variables). Beginning to identify new questions that would further the enquiry.	Identifying steps in the method that need changing and suggesting improvements. Identifying which variables were difficult to control and suggesting how to control them better. Commenting on the degree of trust by also reflecting on: ● Accuracy (human error with equipment). ● Reliability (repeating results). ● Sources of information (e.g. websites, books). Posing new questions in response to the data that would extend the enquiry. Deciding what data to collect to further test direct relationships.

Science in Action						
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
To know some different job roles.	To know about famous scientists throughout history. To know about a range of jobs and careers that use scientific knowledge and methods. To know about the work of modern-day scientists. To know about science in the news and recent discoveries. To know there are spiritual, moral, social and cultural links with Science.					
			To know about the methods and equipment used by scientists throughout history and how these have led to modern methods. To know how scientific knowledge has changed over time, leading to the current understanding of Science. To know about current scientific research and what it aims to achieve in the future. To know that collaboration and peer reviewing is essential for effective scientific progress.		
					To know how scientific evidence is used to support or refute ideas or arguments. To know that mistakes can lead to new discoveries.	

The development of SMSC and the promotion of British Values in the Science Curriculum

Spiritual Providing opportunities to search for meaning and purpose in natural and physical phenomena and to wonder what is special about life, an awe at the scale of living things from the smallest micro-organism to the largest tree and the interdependence of all living things and materials on Earth. Reflection and the emotional drive to know more and to wonder about the world and aesthetically appreciate its wonders including, for example the enormity of space and the beauty of national objects or phenomenon, plants, animals, crystals, rainbows and the Earth from space etc. Promoting teaching styles which: value pupils' questions and give them space for their own thoughts, ideas and concerns; enable pupils to make connections between aspects of their learning; encourage pupils to relate their learning to a wider frame of reference – for example, asking why? how? And where as well as what? Showing respect for the different opinions expressed by others, for example regarding creation. Science and spiritual ideas can cause conflict but in a modern society it is important to understand why these conflicts arise so our children can respect the views of others. It is also seen that science can stand alongside spiritual beliefs. This is looked at from a neutral stand point within science lessons.	**Moral** Encouraging pupils to take responsibility for their actions; for example, in respect of property, care of the environment and developing codes of behaviour. Encouraging pupils to become increasingly curious, to develop open mindedness to suggestions of others and to make judgements on evidence not prejudice. Encouraging children to use their understanding of the world in a positive manner. Begin to understand that moral dilemmas are often involved in scientific developments. When considering the environment, the use of further natural resources and its effect on future generations is an important moral consideration. Children are also encouraged to ask themselves, What are the consequences of our actions on the world around us? What are the consequences of my actions on myself and others?
Social Encouraging pupils to work co-operatively and develop team working skills in practical work and to share the results to improve reliability. Developing team working skills and taking responsibility in that team. Pupils taking responsibility for their own and others' safety. Consideration of the benefits and drawbacks of scientific and technological developments and the social responsibilities. Children are encouraged to consider their impact on the world around them and start to look at what we can do to help the next generation have a habitable planet. They need to develop their empathy and tolerance towards different viewpoints.	**Cultural** Encouraging thinking of scientific discoveries as part of our culture as great as music and films with credit given to scientific discoveries made by people of all backgrounds and other cultures, not just British or American. Science is a contemporary activity with developments being made all over the modern world by both men and women in many different cultures (now and in the past). Children are encouraged to investigate and discuss the historical impact of scientists from around the world linked to famous discoveries.

British Values

Children develop the ability to take a full and active part in practical lessons while keeping to the rules to keep ourselves and others safe. They take turns to use equipment and have their say. Children are encouraged to understand the consequences of their actions and to confidently share their opinions and ideas while respecting the opinions of others. They learn to work as a team, supporting and advising each other. They make their own choices when planning an investigation and recognise that others may have different points of view. They recognise that some of the most important scientific discoveries have come from other parts of the world. They respect the views and opinions of others (and freedom of others to hold different beliefs) for example in issues such as creation, genetically modified crops or the impact of pollution. They look at scientific discoveries which have come from other cultures and how religious beliefs often compete with scientific understanding. They learn to be respectful of these beliefs and to appreciate and understand them.

Progression of Scientific Vocabulary

Topic/Year group	EYFS	1	2	3	4	5	6
Plants	seeds plant tree soil stem petal leaf root flower weed growth branch bush seedling	seed plant tree soil predicts stem petal leaf root flower environment weed daisy dandelion wild deciduous evergreen seasons branch bush supermarket fruit vegetable farm tractor growth seedling young plant adult plant observe	seeds bulbs growth plant compares predict investigate control experiment method photosynthesis carbon dioxide oxygen glucose energy pollination life cycle germination reproduction seedling manure crop insulate thrive healthy forest desert adapt condition survive	nutrients fertiliser nursery potassium stunted chlorophyll stomata xylem photosynthesis UV light xylem phloem absorb stomata transpiration anther stigma style filament reproduction pollination pollen nectar seed dispersal pollinator germination vulnerable anchor sapling formation			
Animals inc humans	head body leg arm hands feet animals living survive food alive nature winter spring summer autumn	head body skeleton limb joint brain eyelash eye sight pupil sound ear sign language vibration deafness tongue mouth taste flavour sweet touch fingertips skin organ brain smell odour nose nostril nose hair fish amphibian reptile mammal bird feather warm-blooded characteristic backbone hatchling amphibian reptile gills scale cold-blooded herbivore carnivore omnivore predator canines pet wild shelter veterinary natural similarities differences compare unsuitable climate	survival shelter nutrition oxygen essential vital non-essential survive grow healthy protein carbohydrate dairy vitamins calcium fat balanced diet nutrients fresh food pre-cooked processed food exercise strength flexibility balance coordination hygiene prevent germs bacteria virus life cycle grow survive independent adult foetus womb helpless toddler develop offspring inherit gene resemble differences reproduction hatchling chick bar chart predict caterpillar transformation larva chrysalis metamorphosis frog amphibian frogspawn tadpole froglet		digestive system oesophagus stomach small intestine large intestine saliva peristalsis absorb liver gall bladder incisors canines molars jaw gum enamel plaque tooth decay cavity fluoride ecosystem producer consumer prey predator food web tundra hide interdependence threatened	foetus dependent adolescent puberty reproduce gestation pregnant duration extreme breeding womb umbilical chord embryo trimester midwife growth spurt childhood motor skills milk teeth constant adolescence puberty hormones mood swing develop lifestyle keratin elasticity cataracts neurodegenerative	circulatory system atrium ventricle vessel valves vessel artery vein capillary microscope blood plasma platelet white blood cell red blood cell absorb diffusion osmosis concentration nutrients diet exercise heart rate BPM pulse drug painkiller stimulant depressant hallucinogens
Uses of/Everyday materials Properties and changes of materials	material fabric melt ice water frozen thaw float sink stretchy hard soft	material fabric wood plastic metal object glass property brick elastic property opaque transparent dull stiff natural man- made factory rubber polyester predict float sink submerge buoyant absorbent sponge waterproof umbrella soak solid strong brick clay wind waterproof absorbent non-absorbent roof slate transparent opaque suitable window pane window frame fabric furniture cotton mattress soft wool weather jumper suitable waterproof evaluate material properties tile garden	material property suitable object brick bridge triangle obstacle structure construction stretchy elastic floppy hinder limit bend twist squash stretch force mackintosh protective fluorescent safety waterproof John McAdam merchant bound highway road			conductive magnetic durable transparent versatile thermal conduction molecules degrees Celsius (°C) insulator hardness force iron steel stone dissolve solute insoluble soluble solvent solute solvent solution substance saturation pure substance mixture filtering sieving evaporation pure substance solute solvent solution evaporate reversible mixture physical change melting evaporate irreversible chemical change compare effervescence product fair test variable control variable corrosion rusting combustion fuel oxygen extinguish smother reaction predict acid bicarbonate of soda carbon dioxide	

Seasonal changes **(Looking after the environment – Y6)**	season spring summer autumn winter rain snow sunshine warm cold weather temperature change	season spring summer autumn hibernate weather protect harvest winter weather frost sleet temperature compare changes grow chick warm sun protection temperature heatwave rainfall measuring record results graph					weather climate prevent global warming climate change recycle landfill rubbish biodegrade council net zero renewable non-renewable greenhouse gases emissions industrial revolution fossil fuel coal combustion fuel COP sustainability conference pledge subsidy species sensitive natural disaster habitat vulnerable
Living things and their habitat	animals living survive food alive nature winter spring summer autumn seasons change water		senses nutrition reproduce excrete respire habitat microhabitat fungi survive shelter antennae suitable condition colony insect producer consumer herbivore carnivore omnivore food chain life cycle nutrients rot caterpillar automated frozen food forklift truck refrigerated lorry canned habitat microhabitat organism environment mate rainforest moisture extinct climate endangered biodiversity deforestation poaching pollution rainforest plankton ocean ecosystem coral reef trench Antarctic Arctic caribou narwhal tundra earthworm desert lizard cactus pond		habitat microhabitat conditions adapted camouflage coastal grassland environment climate exposure classify characteristics vertebrate invertebrate species sub-groups identify criteria classification keys organism adapted region features colouring blubber ecosystem oxygenised flowering plant non-flowering plant pond dipping ecosystem Northern Hemisphere Southern Hemisphere migrate monsoon rainforest deforestation drought biodiversity recycling fossil fuels pollution greenhouse gases emissions climate change chemicals sewage contaminate pesticides water treatment plant conserve drought freshwater pure water butt endangered marine sanctuaries protect conservation areas recycling	reproduction asexual fertilisation tuber genes pouch mammary glands placental mammal monotreme mammal marsupial metamorphosis caterpillar amphibian larva pupa egg fledgling egg tooth hatch embryo documentary naturalist primatologist endangered natural sciences living organism reproduction life cycle vertebrate warm-blooded	classify microorganism fern living organism conifer kingdom mrs gren cell multicellular unicellular Carl Linnaeus classification Latin species domain microorganism bacteria fungi virus protozoa plant microscopic fungi mycelium ecosystem classify microorganism living organism habitat reproduction
Rocks				igneous rocks intrusive igneous rock extrusive igneous rock crystals magma sedimentary rock metamorphic rock limestone marble sandstone weathering chemical weathering physical weathering biological weathering acid rain appearance texture submerged erosion receding fossil extinct sediment embedded amber decompose fragments clay soil chalky soil sandy soil			
Light				light source natural artificial reflect vitamin D ultraviolet rays sunburn exposure protection fluorescent high visibility reflective surface materials shadow opaque sundial rays blocks position cast			light eye light source symbol scientific diagram reflected prediction fair test variable table periscope angle mirror line of sight utilise shadow block opaque transparent translucent plan sun shade real life problem rotate direction

				opposite direction length size shape closer further puppet			optical phenomena disperse spectrum refraction
Forces and magnets				force contact force non-contact forces air resistance friction motion surface resistance texture tilt magnet attract repel bar magnet horseshoe magnet magnetism magnetic magnetic field iron steel non-contact forces magnetism attract non-magnetic materials recycle compass magnetic needle magnetic north direction orienteering		Sir Isaac Newton gravity astronomy weight mass water resistance streamlined upthrust buoyant sink friction resistance lubricant Newton meter Newton lever load pivot fulcrum pulley mechanism gear mesh rack and pinion bevel gear	
States of matter					matter solid liquid gas volume particle bond arranged cooled heated particle melting melting point temperature thermometer freezing reverse boiling sublimation deposition evaporation condensation absorb water vapour process water cycle precipitation surface runoff transpiration groundwater		
Sound					vibration medium waves eardrum signals source energy particles echo vacuum materials reflect absorb insulate defenders volume decibels decibel metre amplitude power pitch high pitch low pitch instruments orchestra energy particles travel sound source fade		
Electricity					electricity batteries mains electricity appliance socket circuit series circuit component cell voltage current power battery wire bulb conductor insulator metal copper rubber switch current control complete circuit incomplete circuit non-renewable energy renewable energy wind turbines solar panels hydropower		symbol circuit circuit diagram battery wires electricity current voltage voltmeter brightness blown resistor variable resistor LED dimmer switch output variable fair test control test systematically synchronised traffic light signal sensor timer-based closed electric circuit indicating conductor insulator resistor
Earth and space	planets & names of them solar system moon earth rocket spaceship					terrestrial planet gas giant planets Solar System spherical orbit astronomy heliocentric geocentric dwarf planet orbit axis poles season hemisphere orbit sundial time zone gnomon dial shadow rocky planet gas planet moon orbit solar system	
Evolution and inheritance							offspring characteristic inherit variation environmental adaptation habitat climate nutrition feature nutrients epiphytes toxic predators

							pollinate fossil Mary Anning Palaeontologist ichthyosaurus Jurassic coast Charles Darwin evolved extinct natural selection theory ancestor tools primate Homo sapien Neanderthal
Scientific Enquiry				solar renewable energy scientific investigation prediction plausible record results data table graph acid alkali PH method practical conclusion evidence explanation compare enquiry baking measurements fair test control experiment variable conclusive scientific knowledge equipment diagram collated nutrition carbohydrate protein vitamin mineral vertebrate invertebrate endoskeleton exoskeleton hydrostatic skeleton humerus ulna radius tibia fibular endoskeleton vertebrate skull rib cage spine muscle contract hamstrings biceps diaphragm			