Milby Primary School

Science – whole school overview 2024 – 25						
	Autumn 1 - 8 weeks	Autumn 2 - 7 weeks	Spring 1 - 6 weeks	Spring 2 - 7 weeks	Summer 1 - 4 weeks	Summer 2 - 7 weeks
EYFS	**Understanding the world (including science and technology)**					
	Look closely at similarities and differences, patterns and change within the seasons. Show care and concern for living things in their environment. Talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.		Develop an understanding of growth, decay and begin to discuss changes over time, identifying the seasons. Children know about similarities and differences in relation to places, objects, materials and living things. To observe and discuss what they can see. **Milby science week.**		Children know about similarities and differences in relation to places, objects, materials and living things. Discuss the features of their own immediate environment and how environments might vary from one another. Make observations of animals and plants and explain why some things occur and talk about changes (ELG).	
	Working Scientifically EYFS • choose the resources they need for their chosen activities and say when they do or dont need help • know about similarities and differences in relation to places, objects, materials and living things • make observations of animals and plants • explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • select and use technology for particular purposes • represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories • talk about the features of their own immediate environment and how environments might vary from one another • explain why some things occur and talk about changes					

Year 1	Forces and space Seasonal changes	Everyday materials	Animals: Sensitive bodies	Animals: Comparing animals	Plants: Introduction to plants	Making connections: Investigating science through stories
	Reflecting on their own experiences, children learn about the four seasons and the weather associated with each. Pupils explore how seasonal changes affect trees, daylight hours and clothing choices. They plan and carry out their own weather reports, considering the knowledge required for this job.	Identifying and naming objects and the materials from which they are made. Pupils compare and group materials based on how they look and feel and carry out tests to sort materials based on unobservable properties.	Identifying and naming body parts and conducting practical activities with the senses to spot patterns and answer questions.	Comparing and grouping animals based on similarities and differences in their characteristics, physical features and diets.	Venturing outside, children identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. They use magnifying glasses to observe and name plant parts and sort leaves into groups based on appearance. Pupils investigate if beans need water for growth and identify edible plant parts.	Using picture books as inspiration, children broaden their understanding of plants and animals. They gather and record data to find out if taller trees have larger trunks and recap the features of different animal groups. They build waterproof animal homes with natural materials and sort birds according to their diet.

Working Scientifically Statutory Requirements year 1

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Year 2	Living things: Habitats	Living things: Microhabitats	Materials: Everyday uses of materials	Animals: Life cycles and health	Plants: Plant growth	Making connections: Plant- based materials
	Considering the life processes that all living things have in common, pupils classify objects into alive, was once alive or has never been alive. They name plants and animals in a range of habitats and recognise how living things depend on each other. Pupils create food chains to show the sequence that living things eat each other.	Building on their knowledge of habitats, pupils discover that microhabitats provide what minibeasts need to survive. They learn that scientists use a range of skills to answer questions and plan and carry out an experiment to find out the conditions woodlice prefer.	Recognising that materials are suitable for specific purposes and understanding their properties, exploring how actions such as stretching and bending affect the shape of solid objects and comparing the suitability of materials by carrying out tests and recording data.	Identifying and describing the different stages of animal life cycles, including that of humans, recording and interpreting data to show growth in humans and explaining how to keep healthy.	Carrying out comparative tests, pupils discover the conditions required for seed germination. They use rulers to measure stem height and record data in a results table. Through practical investigation, pupils learn that plants need water, light and a suitable temperature to grow and stay healthy.	Children identify ways to reduce, reuse and recycle and draw on their knowledge of properties to invent unusual and creative uses for old objects. They discover some natural materials are derived from plants and look at the processes involved in making paper. Using their observational skills, they conduct simple tests to choose the most suitable material for making homemade plant pots, venturing outdoors to find natural materials to decorate them.
	Working Scientifically Statutory Requirements Year 2 During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions					

	• gathering and recording data to help in answering questions					
Year 3	**Animals: Movement and nutrition/**	**Forces and space: Forces and magnets**	**Materials: Rocks and soil/**	**Energy: Light and shadows**	**Plants: Plant reproduction/**	**Making connections: Does hand span affect grip strength?**
	Studying the human skeleton, children identify key bones and explore how muscle changes result in movement. They learn about how the body uses energy, what constitutes a balanced diet in humans and how research contributes to nutritionist expertise.	By investigating motion on different surfaces, children learn about friction and compare its uses and disadvantages. They broaden their experience in working scientifically as they investigate contact and non-contact forces. Pupils explore the properties of different magnets and apply this to understand their uses.	Observing the appearance and physical properties of rocks, children compare and group different rock samples. They learn about how fossils and soils are formed and record soil drainage rates in a bar chart.	Identifying examples of light sources, children learn that light is needed to see and how its absence causes darkness. Children investigate reflection and shadow formation and explore how shadows can be used to entertain in the arts, creating shadow puppets to recount how different people work or experiment with light.	Explaining how plants reproduce in the context of the life cycle of a flowering plant, gathering data on plant growth and investigating the structure and function of the parts of a flowering plant.	Exploring the relationship between hand span and grip strength through scientific enquiry. They apply their understanding of friction to make predictions and plan and carry out an enquiry.
	Working Scientifically Statutory Requirements Year 3 During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • ask relevant questions and use different types of scientific enquiries to answer them/ • set up simple practical enquiries, comparative and fair tests • make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use 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 • report on 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 processes • use straightforward scientific evidence to answer questions or to support their findings					

Year 4	Animals: Digestion and food	Energy: Electricity and circuits	Materials: States of matter	Energy: Sound and vibrations	Animals: Classification and changing habitats	Making connections: How does the flow of liquids compare?
	Using models, children describe the function of key organs in the digestive system. Pupils identify the types of human teeth and investigate factors that impact our dental health. They compare human teeth to other animals' and take on the role of a naturalist investigating animal faeces for clues about diet, digestion and dentition.	Exploring appliances in their setting that use electricity, children learn how to work with electricity safely and build circuits. Pupils investigate electrical conductors and insulators and explore the relationship between the number of cells and bulb brightness. Real scenarios and historical discoveries inform children about scientific progression and home safety.	By investigating the properties of solids, liquids and gases, children learn about the different states of matter. They explore changes of state using relatable examples and use this to explain changes to water through the water cycle. Pupils investigate the relationship between temperature and rate of evaporation while broadening their experience of working scientifically.	Exploring different ways of producing sounds, children learn about the relationship between vibrations and what they hear. Pupils explore how pitch and volume can be altered and how sound can be insulated using different materials.	Children explore different ways living things can be grouped and make classification keys. They study ways that habitats may change over time and understand that humans can have both positive and negative effects on their surroundings.	The children explore the relationship between viscosity and the flow of liquids through experiments, data analysis and drawing conclusions. They apply their understanding of states of matter to make predictions and plan and carry out an enquiry.

Working Scientifically Statutory Requirements Year 4

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- ask relevant questions and use different types of scientific enquiries to answer them/
- set up simple practical enquiries, comparative and fair tests
- make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use 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
- report on 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 processes
- use straightforward scientific evidence to answer questions or to support their findings

Year 5	Materials: Mixtures and separation	Materials: Properties and changes	Forces and space: Earth and Space	Living things: Life cycles and reproduction	Forces and space: Unbalanced forces	Animals: Human timeline	Making connections: Does the size of an asteroid affect the diameter of its impact crater?
	. Pupils explore different types of mixtures and the different methods that can be used to separate them. They dissolve a range of substances, identify different solutions and investigate how temperature affects the time taken to dissolve. They design and create a water filter, sieve soil and evaporate solutions.	Broadening their experience of the properties of materials, children investigate hardness, transparency and conductivity and consider how these properties influence the uses of materials. They explore reversible changes, including dissolving and changes of state. Children compare these to irreversible changes, including rusting, burning and mixing vinegar and bicarbonate of soda.	Children explore the movement of the celestial bodies in our Solar System, including the Earth and other planets and the Moon. They discover how the rotation of the Earth causes night and day and how sundials work. Pupils find out about the uses of satellites and the problem with space junk.	Comparing the life cycles of plants, mammals, birds, amphibians and insects. Investigating asexual reproduction in plants and comparing sexual and asexual reproduction.	Building on their knowledge of contact and non-contact forces, children explore gravity, friction, air resistance and water resistance in more depth and consider the effect of these forces being unbalanced. They plan investigations to further their understanding of the effects of these forces. Pupils test their ideas using models and compete to build the most effective pulley system.	Studying human development and changes, children identify key stages and consider what data may help determine if a child is growing normally. They describe how puberty affects girls and boys and produce graphs to compare how gestation periods vary across different mammals, including humans	Children explore the relationship between the size of model asteroids and the diameter of the impact crater they create through experiments, data analysis, and drawing conclusions. They apply their understanding of gravity, air resistance and the Earth and space to make predictions and plan and carry out an enquiry.

	Working Scientifically Statutory Requirements Year 5 During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • 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 • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and 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, similarities and explanations or results, in oral and written forms such as displays and other presentations • identify scientific evidence that has been used to support or refute ideas or arguments					
Year 6	**Living things: Classifying big and small**	**Energy : Light and reflection**	**Living things: Evolution and inheritance**	**Energy: Circuits batteries and switches**	**Animals: Circulation and health**	**Making connections: Are some sunglasses safer than others?**
	Children broaden their knowledge of how vertebrates, invertebrates, plants and micro-organisms are grouped using shared characteristics. They discover how Carl Linnaeus developed the Linnaean and binomial systems for classifying and naming living things. Pupils use and produce branching and number classification keys to sort and identify organisms.	Proving that light travels in a straight line, children use this information to explain observations of reflection and shadows. Pupils investigate the effect of moving an object away from the surface it casts a shadow on and the relationship between the incoming and reflected rays on a mirrored surface. Exploring real uses of mirrors allow children to apply what they have learned about light throughout the unit.	Studying patterns in humans and other species, children learn about characteristics that are inherited and those that are environmental. Through the eyes of Darwin and Wallace, pupils understand how observations lead to theories. By modelling finches' variation and natural selection, they begin to explain how species evolve and the role of fossil evidence that supports this theory.	Revisiting electrical circuits, children learn to draw conventional circuit diagrams and use models to explain current, resistance and voltage. They compare different batteries and relate this to the effects on bulb brightness. Pupils apply their knowledge of switches and electrical circuits to design and produce their own practical devices.	Studying the human circulatory system, children learn about the role of the heart, blood and blood vessels and use models to demonstrate their function. They explore how lifestyle choices affect our health and use secondary sources to advise patients. Pupils devise their own investigation to look at the relationship between exercise and heart rate, applying their knowledge of variables and then analysing secondary data to understand fitness better.	Exploring sun safety, children investigate the efficacy of different sunglasses. They devise enquiries to test light and UV transmission of the lenses to form a conclusion about which sunglasses are best. The children summarise their findings through presentations and advertisements.

	Working Scientifically Statutory Requirements Year 6 *During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:* • *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* • *recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and 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, similarities and explanations or results, in oral and written forms such as displays and other presentations* • *identify scientific evidence that has been used to support or refute ideas or arguments*