



Subject Overview - Science

Year group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Pre-school						
Understanding the World						
<p>Birth to Three Repeat actions that have an effect.</p> <ul style="list-style-type: none"> • Explore materials with different properties. • Explore natural materials, indoors and outside. • Explore and respond to different natural phenomena in their setting and on trips. 						
<p>Three and four Year olds Use all their senses in hands-on exploration of natural materials.</p> <ul style="list-style-type: none"> • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • • Explore how things work. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice 						
Understanding of the world is taught throughout the year and is based on a child lead approach.						
Links and visits	Eric Carle Stories Visit from Dentist/ nurse					
Reception						



Understanding the World

Children in Reception

Explore the natural world around them.

- Describe what they see, hear and feel whilst outside.
- Recognise some environments that are different to the one in which they live.
- Understand the effect of changing seasons on the natural world around them.

ELG - The Natural World

Explore the natural world around them, making observations and drawing pictures of animals and plants.

- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Topic	Learn about woodland creatures and their habitats. Think about Autumn and observe and describe seasonal changes.	Our Bodies. Naming body parts and how to keep our body's healthy. Doctors Role Play Woodland creatures, hibernation, nocturnal animals. Describe different animal's habitats.	Observe seasonal changes.. Look at weather and discuss temperature and changes over time. Winter, Polar regions Snow/ice environments. Animals that live in cold places and their habitats. Learn the animal names and label body parts. Difference and similarities between Shelf and cold places. Materials – Look at different materials and begin to investigate their uses. Floating/ sinking Observe and record how water changes when heated and cooled.	What happens in Spring? Planting different seeds, observe and describe the changes. Grow beans in different conditions. Learn to recognise familiar plants. After close observation draw pictures of the natural world. Introduce the children to recycling and how to take care of our world. Look at what rubbish can do to the animals and our environment. Create opportunities to discuss how we care for the natural world around us. Explore how the wind can move objects and how they can move in water.	Growing in the garden, Minibeasts, lifecycle of a butterfly Build a bug hotel. Observe, describe and draw mini beasts. Animals and their young. Sea creatures. Compare animal's different habitats including the woods, cold places and the sea. Explore shadows	Seasonal changes. Space Introduce the children to NASA and America Environments – Looking at places using google maps. How are they similar/ different, Children to differentiate between land and water.
Links to English and Maths						
Visits		Autumn walk in Shelf woods		Walk around Shelf woods, compare to Autumn	Pets at Home or Pet Shop	



Year 1					
Year 2					
Scientifically	Pupils should read and spell scientific vocabulary at a level consistent with their increasing word and spelling knowledge at KS 1 Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment. Performing simple test. Identifying and classifying Using their observation and ideas to suggest answers to questions. Gathering and recording data to help in answering questions.				
Topic	Seasonal changes (physics) Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.	Animals; including humans. (biology) 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 common animals (fish, amphibians, reptiles, birds and mammals including pets)	Animals; including humans. (biology) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Everyday Materials (chemistry) Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties.	Plants: (biology) Identify and name a variety of common, wild and garden plants; including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants; including trees.
Possible learning challenges	Why does it get dark earlier in winter?	Why are humans not like meerkats?		Which materials should the Three Little Pigs use to build their house	What fruit would you find growing on a tree.
Links and Visits		Yorkshire wildlife park		Three little Pigs – house types	



<p>Working Scientifically</p>	<p>Pupils should read and spell scientific vocabulary at a level consistent with their increasing word and spelling knowledge at KS 1 Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment. Performing simple test. Identifying and classifying Using their observation and ideas to suggest answers to questions. Gathering and recording data to help in answering questions.</p>			
<p>Topic</p>	<p>Animals; including humans (biology) Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene.</p>	<p>Everyday materials. (chemistry) Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>Living things and Habitats (biology) 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 and describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including micro habitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain and identify and name different sources of food.</p>	<p>Plants (biology) Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>
<p>Possible learning challenges</p>	<p>How will 5 a day help me to be healthy?</p>	<p>What is our school made of?</p>	<p>Why would a dinosaur not make a good pet?</p>	<p>How can we grow our own salad?</p>
<p>Links and Visits</p>	<p>Fire Station</p>			



Year 3

<p>Working Scientifically</p>	<p>Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge. Asking relevant questions and using different types of scientific enquiries to answer them. Using straightforward scientific evidence to answer questions or to support their findings. Making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Setting up simple practical enquires, comparative and fair tests. Identifying differences, similarities or changes related to simple scientific ideas and process. Using results draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Gathering, recording, classifying and presenting data in a variety of ways to help answering questions. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p>				
<p>Topic</p>	<p>Animals; including humans. (biology) Identify that animals, including humans, need the right types and amounts of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Describe the importance for humans and some animals have skeletons and muscles for support, protection and movement.</p>	<p>Forces & 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 and 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 magnetism as having two poles. Predict whether two magnets will attract or repel each other depending on which poles are facing,</p>	<p>Plants. (biology) Identify and describe the functions of different parts of flowering plants; roots, stem/trunk, leaves and flowers. – Given as a home task in lockdown, but not completed by all Explore the requirements of plants for life and growth (air, light, water, nutrients from soil and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of a flowering plant, including pollination, seed formation and seed dispersal.</p>	<p>Rocks (chemistry) Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter.</p>	<p>Light. (physics) Recognise that they need light in order to see things and that dark is an 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.</p>
<p>Possible learning challenges</p>	<p>How can Usain Bolt move so quickly?</p>	<p>Are you attractive enough?</p>	<p>How did blossom become an apple?</p>	<p>What do rocks tell us about how the earth was formed?</p>	<p>How far can you throw your shadow?</p>
<p>Visits & links</p>	<p>Health visitor</p>			<p>Escape from Pompeii – Volcanoes Stone Age Boy</p>	



Year 4					
	<p>Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge. Asking relevant questions and using different types of scientific enquiries to answer them. Using straightforward scientific evidence to answer questions or to support their findings. Making systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Setting up simple practical enquires, comparative and fair tests. Identifying differences, similarities or changes related to simple scientific ideas and process. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Gathering, recording, classifying and presenting data in a variety of ways to help answering questions. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p>				
Topic	<p>States of Matter (chemistry) Compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>Observe that some materials change state when they are heated or cooled, and measure or research the temperature of which this happens in degrees Celsius (c)</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>	<p>Animals including humans; (biology) Construct and interpret a variety of food chains identifying, Producers, predators and prey.</p> <p>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</p>	<p>Sound (physics) Identify how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that vibrations from sound travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound increases.</p>	<p>Electricity (physics) Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>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.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Recognise some common conductors and insulators and associate metals as being good conductors.</p>	<p>Living Things and their Habitats. (biology) Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose changes to living things.</p>
Possible learning	How would we survive without water?	What happens to the food we eat?	Why is the sound of music enjoyed by so many?	How could we cope without electricity for a day?	Which wild animals and plants thrive in your locality?

**ST MICHAEL & ALL ANGELS C. E. (FOUNDATION) PRIMARY
AND PRE-SCHOOL**



challenges					
Visits	Shelf River	Speaking and listening –presentations. Weight – recording data			
Year 5					
Working Scientifically	<p>Pupils should read and spell and pronounce scientific vocabulary correctly. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Identifying scientific evidence that has been used to support or refute ideas or arguments. Taking measurements; using a range of scientific equipment, with increasing accuracy and precision, taking repeat reading where necessary. Using test results to make predictions to set up comparative and fair tests. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of degree of trust in results, in oral and written forms such as displays and other presentations.</p>				
Topic	<p>Space (physics) Describe the movement of the Earth, and other planets, relative to the sun in the solar system.</p> <p>Describe the movement of the moon relative to the Earth.</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p>Forces (physics) Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>Identify the effects of air resistance and friction that act between moving surfaces.</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have greater effect.</p>	<p>Properties and changes of materials (chemistry) 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.</p> <p>Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>Explain that some changes result in the formation of new materials and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>	<p>Living things and their habitat (biology) Describe the difference in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p>	<p>Animals including humans (biology) Describe the changes as humans develop from birth to old age</p>
Possible learning challenges	Will we ever send another human to the moon?	Can you feel the force?	Could you be the next CSI investigator?	Do all animals and plants start from a seed?	How different will you be when you're a Grandparent?

**ST MICHAEL & ALL ANGELS C. E. (FOUNDATION) PRIMARY
AND PRE-SCHOOL**



Links and Visits	Cinema – Space				
Year 6					
	<p>Pupils should read and spell and pronounce scientific vocabulary correctly. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Identifying scientific evidence that has been used to support or refute ideas or arguments. Taking measurements; using a range of scientific equipment, with increasing accuracy and precision, taking repeat reading where necessary. Using test results to make predictions to set up comparative and fair tests. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of degree of trust in results, in oral and written forms such as displays and other presentations.</p>				
Topic	<p>Light (Physics) Recognise that light appears to travel in straight lines.</p> <p>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.</p> <p>Explain that we see things because light travels from the light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>Use the idea that travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	<p>Animals and their habitat (biology) Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics</p>	<p>Evolution and inheritance (biology) Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	<p>Animals including humans. (biology) Describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>Identify and name the main parts of the human circulatory system and describe the functions of the heart blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p>	<p>Electricity (physics) Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>
Possible learning challenges	How can you light up your life?	Have we always looked like this?	Could Spiderman really exist?	What would a journey through your body be like?	DT project – fair grounds
Links and Visits			Biography -Charles Darwin	PSCHE – drugs education	

ST MICHAEL & ALL ANGELS C. E. (FOUNDATION) PRIMARY
AND PRE-SCHOOL



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