

## Science

### Intent

At St Mary's we aim:

- To enable our pupils to develop an understanding and respect for the natural world.
- To develop an everyday application of scientific knowledge in the world around us.
- To promote the learning of scientific skills, understanding and vocabulary.
- To develop in our children the ability to communicate scientifically. For them to ask questions, predict, hypothesize, explain and test in a scientific way.
- To promote confidence in the safe use of appropriate scientific equipment.
- To help pupils develop, model and evaluate explanations through scientific methods of collecting evidence using critical and create thought.
- To allow pupils to carry out a full scientific investigation when the topic allows.
- To promote a positive image of science, scientists and theories and discuss where relevant up to date scientific issues and debates.
- To broaden children's inquiring abilities and nurture the awe and wonder that children have about how the world works.
- To provide equality of access for all our children to the current National Curriculum for Science.

Working scientifically is inextricably linked to all learning in Science. This objective embeds the knowledge of biology, chemistry and physics, focussing on the key features of scientific enquiry:

- Observing over time
- Pattern Seeking
- Identifying, classifying and grouping
- Comparative and fair testing (controlled investigations)
- Researching using secondary resources
- Seeking answers to questions through collecting, analysing and presenting data

At St Mary’s, our curriculum is underpinned by the principles of **Catholic Social Teaching (CST)**, ensuring that pupils develop a deep understanding of their role in promoting justice, dignity, and care for others in their community and the wider world. Across all subjects, meaningful links are made to CST values, helping pupils reflect on how their learning contributes to the **Common Good, Solidarity, and Stewardship of Creation**.

### Science Topic and Skills Overview

EYFS:	Subject Content and Sequence	Working Scientifically:
	<p>In line with the new curriculum for EYFS in September 2021: Children learn to think and investigate scientifically across most areas of the EYFS curriculum, particularly in their learning around:</p> <p><b>Understanding The World</b></p> <p>Pupils will begin to discover and learn about the world around them exploring the following topics:</p> <ul style="list-style-type: none"> <li>• Growing – Pupils will be exposed to the understanding of plants and how they grow – using the allotment area children will know how plants grow and the care they need to survive.</li> <li>• Myself and my family – pupils will discuss and study what makes them special and family connections.</li> <li>• Materials – to study the difference between natural and human made objects.</li> <li>• Healthy Lifestyles – to know the importance of healthy lifestyles.</li> <li>• Ourselves – studying the senses and body parts.</li> <li>• Earth and Space – to begin their journey of studying the wonders of the earth and space</li> <li>• Forces – Floating/sinking and magnets.</li> </ul> <p style="text-align: center;"><u>Early Learning Goals:</u></p> <p>Communication and Language</p>	<p><b>Development Matters statements:</b></p> <p><b>Communication and Language</b></p> <ul style="list-style-type: none"> <li>• Ask questions to find out more and to check what has been said to them.</li> <li>• Describe events in some detail</li> <li>• Use new vocabulary in different contexts</li> </ul> <p><b>Personal, Social and Emotional Development</b></p> <ul style="list-style-type: none"> <li>• Know and talk about the different factors that support their overall health and wellbeing.</li> <li>• Regular physical activity; healthy eating; tooth brushing; sensible ‘screen time’; having a good sleep routine; being a safe pedestrian.</li> <li>• Show resilience and perseverance in the face of challenge</li> <li>• Select and use activities and resources that help them to achieve a goal they have chosen</li> </ul> <p><b>Physical Development:</b></p> <ul style="list-style-type: none"> <li>• Use one-handed tools and equipment</li> <li>• Choosing the right resources to carry out their plan</li> </ul> <p><b>Literacy</b></p> <ul style="list-style-type: none"> <li>• Learn new vocabulary</li> <li>• Offer explanations about why things might happen.</li> </ul>

- Listen attentively and respond to what they hear with relevant questions, comments and actions
- Make comments about what they have heard and ask questions to clarify their understanding
- Offer explanations of why things might happen, making use of recently introduced vocabulary
- Express their ideas and feelings about their experiences in full sentences using all tenses

**Personal, Social and Emotional Development**

- Set and work towards simple goals

**Literacy**

- Use and understand recently introduced vocabulary during discussions about non-fiction and stories

**Physical Development**

- Begin to show accuracy and care when drawing

**Understanding the World**

- Describe their immediate environment using knowledge from observation and discussion
- Explore the natural world around them making observations and drawing pictures
- Talk about the lives of the people around them and their roles in society
- Know some similarities and differences between life in this country and life in other countries drawing on knowledge from stories, non-fiction texts and maps
- 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.

**CST Link – Stewardship**

**Mathematics:**

- Compare length, weight and capacity.
- Link the number symbol (numeral) with its cardinal number value.

**Understanding the World**

- Use all their senses in hands on exploration of natural materials
- 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 or 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
- Explore the natural world around them
- Describe what they see, hear and feel whilst outside
- Recognise some environments are different to the one in which they live

Understand the effect of changing seasons on the natural world around them

	<b>This prepares them for Year 1, where pupils will build on what they have learnt and begin to make more observations about why things happen.</b>	
<b>Year One:</b>	<b>Subject Content and Sequence</b>	<b>Working Scientifically:</b>
<b>Autumn:</b>	<p><b>Animals including humans (Human Body) &amp; Seasonal change</b>  Pupils begin Year One by learning about animals, including humans. As part of this, they develop their understanding of the five senses. In the second half of the Autumn term, children are introduced to the topic of seasonal change and this topic is ongoing throughout the year, the children observe the length of a day and seasonal changes. This area of Science is also linked with Geography.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"> <li>-</li> <li>- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</li> <li>- Observe changes across the four seasons.</li> <li>- Observe and describe weather associated with the seasons and how day length varies</li> </ul> <p><b>Everyday Materials</b></p> <p>Pupils learn about the differences between every day materials. They learn how to identify different materials, group, and classify them according to their properties.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"> <li>- distinguish between an object and the material from which it is made</li> <li>- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> </ul>	<p><i>Across Year One and Two, children will be taught the following skills to work scientifically.</i></p> <ul style="list-style-type: none"> <li>• asking simple questions and recognising that they can be answered in different ways</li> <li>• observing closely, using simple equipment</li> <li>• performing simple tests</li> <li>• identifying and classifying</li> <li>• using their observations and ideas to suggest answers to questions</li> <li>• gathering and recording data to help in answering questions</li> </ul>

	<ul style="list-style-type: none"><li>- describe the simple physical properties of a variety of everyday materials</li><li>- compare and group together a variety of everyday materials on the basis of their simple physical properties</li></ul> <p><b>CST Link – Common Good</b></p> <p><b>This prepares them for Year 2, where pupils learn more about materials and how materials can be changed.</b></p>	
<p><b>Spring:</b></p>	<p><b>Plants</b> <b>(duration of the whole term)</b></p> <p>Pupils will label and identify different parts of a plant, the functions of a plant and how plants grow.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"><li>- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li><li>- identify and describe the basic structure of a variety of common flowering plants, including trees</li></ul> <p><b>This prepares them for Year 2, where pupils will learn how to compare different materials according to their properties and the subsequent plant unit.</b></p> <p><b>CST Link – Stewardship</b></p>	

<p><b>Summer:</b></p>	<p><b>Animals, including humans (Duration of the whole term)</b></p> <p>Pupils use the local environment throughout the term to explore and answer questions about animals in their habitat. They begin to understand how to take care of animals taken from their local environment and the need to return them safely after study. Pupils will become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"> <li>- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>- identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)</li> <li>-</li> </ul> <p><b>CST Link – Stewardship</b></p> <p><b>This prepares them for Year 2, where pupils will learn more about animal’s habitats.</b></p> <p><b>This prepares them for Year 2, where pupils will develop their understanding of living things further when learning about the food chain.</b></p>	
<p><b>Year Two</b></p>	<p><b>Subject Content and Sequence</b></p>	<p><b>Working Scientifically:</b></p>

<p><b>Autumn:</b></p>	<p><b>Everyday materials</b> Pupils continue to develop their understanding of materials and their properties. They can identify, group and compare materials according to their properties.</p> <p><b>Key Contents:</b></p> <ul style="list-style-type: none"> <li>- Identify and compare the suitability of a variety of every day materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</li> <li>- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul> <p><b>CST Link – Common Good</b></p> <p><b>This prepares them for Year 3, where pupils will learn more specifically about rocks and soil.</b></p>	<p><i>Across Year One and Two, children will be taught the following skills to work scientifically.</i></p> <ul style="list-style-type: none"> <li>• asking simple questions and recognising that they can be answered in different ways</li> <li>• observing closely, using simple equipment</li> <li>• performing simple tests</li> <li>• identifying and classifying</li> <li>• using their observations and ideas to suggest answers to questions</li> </ul> <p>gathering and recording data to help in answering questions</p>
<p><b>Spring:</b></p>	<p><b>Living things and their habitats &amp; Animals, including humans</b> Pupils explore and compare the differences between things that are living, dead and things that have never been alive. They begin to delve deeper into habitats and learn that living things live in habitats that they are suited to. Building on prior learning, pupils find out about what animals including humans need for survival and the importance of exercise, diet and hygiene.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"> <li>- Explore and compare the difference between things that are living, dead and things that have never been alive.</li> <li>- Identify that most living things live in habitats to which they are suited and describe how different habitats provide the basic needs of different kinds of animals and plants, and how they depend on each other.</li> </ul>	

	<ul style="list-style-type: none"> <li>- Identify and name a variety of plants and animals in their habitats, including micro-habitats</li> <li>- 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.</li> <li>- Notice that animals, including humans, have offspring which grow into adults.</li> <li>- Find out about and describe the basic needs of animals (inc. humans) for survival – water, food, air.</li> <li>- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul> <p><b>CST Link – Solidarity</b></p> <p><b>This prepares them for Year 3, where pupils will begin to learn how to identify animals and begin to look at the skeleton and muscles.</b></p>	
<b>Summer:</b>	<p><b>Plants</b></p> <p>Following on from year one, pupils will learn to observe and describe how seeds and bulbs grow into plants. Pupils will also begin to describe how plants need water, light and a suitable temperature to stay healthy.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"> <li>- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> <li>- Observe and describe how seeds and bulbs grow into mature plants.</li> </ul> <p><b>CST Link – The Common Good</b></p> <p><b>This prepares them for Year 3, where pupils will begin to learn in more specifics the parts of plants and the functions of these parts.</b></p>	
<b>Year Three</b>	<b>Subject Content and Sequence</b>	<b>Working Scientifically:</b>

<p><b>Autumn:</b></p>	<p><b>Light</b></p> <p>Pupils learn that we need light in order to see and that darkness is the absence of light. They will begin to investigate how shadows are formed and notice that light is reflected off surfaces.</p> <p><b>Key Contents:</b></p> <ul style="list-style-type: none"> <li>- Recognise that they need light in order to see things and that dark is the absence of light</li> <li>- Notice that light is reflected from surfaces</li> <li>- Recognise that light from the sun can be dangerous and there are ways to protect their eyes</li> <li>- Recognise that shadows are formed when the light from a light source is blocked by a solid object.</li> <li>- Find patterns in the way that the size of shadows change.</li> <li>-</li> </ul> <p><b>CST Link – Participation</b></p> <p><b>Rocks</b></p> <p>Pupils will begin to compare and group together different types of rocks based on their appearances and properties and will describe how fossils are formed.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"> <li>- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</li> <li>- Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</li> <li>- Recognise that soils are made from rocks and organic matter.</li> </ul>	<p><i>During years three and four, pupils should be taught to use the following practical science methods, processes and skills through the teaching of the programme of study content.</i></p> <ul style="list-style-type: none"> <li>• Asking relevant questions and using different types of scientific enquiries to answer them.</li> <li>• Setting up simple practical enquiries, comparative and fair tests</li> <li>• Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>• Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</li> <li>• Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</li> <li>• Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</li> <li>• Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</li> <li>• Identifying differences, similarities or changes related to simple scientific ideas and processes.</li> <li>• Using straightforward scientific evidence to answer questions or to support their findings.</li> </ul>
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**CST Link – Stewardship**

**This prepares them for Year 4, where pupils will continue to develop their knowledge of grouping materials and make observations about how they may change when they are heated or cooled (States of Matter).**

**Spring:**

**Volcanoes (Geography link)**

In Year Three pupils will learn about the structure of a volcano, how they are formed and the process of a volcanic eruption. This topic leads on from Rocks in the Autumn Term.

**Key Content:**

- To know the names of the layers of the earth
- To know how a volcano erupts and the consequences of the eruption on the surrounding area.
- To study why volcanoes happen and geographically where they erupt (Ring of Fire)
- To begin to understand how rocks and soil are formed to create the different layers of earth.

**Plants**

They will learn about the different parts of plants and the function of these different parts. Pupils will continue their learning of life cycles by learning the life cycle of a flowering plant and they will also begin to investigate how water moves through a plant.

	<p><b>Key Contents:</b></p> <ul style="list-style-type: none"><li>- Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li><li>- 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</li><li>- Investigate the way in which water is transported within plants</li><li>- Explore the part that flowers play in the lifecycle of flowering plants, including pollination, seed formation and seed dispersal</li></ul> <p><b>CST Link – Stewardship</b></p> <p><b>This prepares them for Year 4, where pupils will learn to use a classification key to identify the living things in the local and wider environment.</b></p>	
<p><b>Summer:</b></p>	<p><b>Animals including humans</b></p> <p>Pupils will delve deeper into what kind of nutrition animals including humans need and will identify that some animals have skeletons and muscles for support, protection and movement.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"><li>- Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.</li><li>- Identify that humans and some other animals have skeletons and muscles for support, protection and movement</li></ul> <p><b>CST Link – Human Dignity</b></p> <p><b>This prepares them for Year 4, where pupils will start to look at food chains in their local and wider environment.</b></p>	

	<p><b>Forces and Magnets</b></p> <p>Pupils will learn to compare how things move on different surfaces. They will describe magnets as having two poles and predict whether the magnets will attract or repel each other based on which poles are facing.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"> <li>- Compare how things move on different surfaces</li> <li>- Notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>- Observe how magnets attract or repel each other and attract some materials and not others</li> <li>- 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</li> <li>- Describe magnets as having two poles</li> <li>- Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul> <p><b>CST Link – Participation</b></p>	
<b>Year Four</b>	<b>Subject Content and Sequence</b>	<b>Working Scientifically:</b>
<b>Autumn:</b>	<p><b>States of matter</b></p> <p>Pupils will compare and group materials together, according to whether they are solids, liquids or gases and observe that some materials change state when they are heated or cooled. Pupils will identify the part played by evaporation and condensation in the water cycle.</p> <p><b>Key Content:</b></p>	<p><i>During years three and four, pupils should be taught to use the following practical science methods, processes and skills through the teaching of the programme of study content.</i></p> <ul style="list-style-type: none"> <li>• Asking relevant questions and using different types of scientific enquiries to answer them.</li> </ul>

- Compare and group materials together, according to whether they are solids, liquids or gases.
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius.
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

### **CST Link – Participation**

#### **Electricity**

Pupils will identify common appliances that run on electricity and will construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.

#### **Key Content:**

- Identify common appliances that run on electricity
- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.
- Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- Recognise some common conductors and insulators, and associate metals with being good conductors

### **CST Link – Common Good**

- Setting up simple practical enquiries, comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Identifying differences, similarities or changes related to simple scientific ideas and processes.
- Using straightforward scientific evidence to answer questions or to support their findings.

	<p><b>This prepares them for Year 5, where pupils will begin to learn about the conductivity of materials.</b></p>	
<p><b>Spring:</b></p>	<p><b>Sound</b></p> <p>Pupils will be taught to identify how sounds are made, associating some of them with something vibrating and then recognise that vibrations from sounds travel through a medium to the ear. They will find patterns between the pitch of a sound and features of the object that produced it.</p> <ul style="list-style-type: none"><li>- Identify how sounds are made, associating some of them with something vibrating</li><li>- Recognise that vibrations from sounds travel through a medium to the ear</li><li>- Find patterns between the pitch of a sound and features of the object that produced it</li><li>- Find patterns between the volume of a sound and the strength of the vibrations that produced it</li><li>- Recognise that sounds get fainter as the distance from the sound source increases.</li></ul> <p><b>CST Link – Participation</b></p> <p><b>Animals including humans</b></p> <p>Pupils will continue their learning about the human body by learning about the parts and function of the digestive system. They will continue to build on their understanding of food chains by identifying producers, predators and prey.</p> <p><b>Key Content:</b></p>	

	<ul style="list-style-type: none"> <li>- Describe the simple functions of the basic parts of the digestive system in humans</li> <li>- Identify the different types of teeth in humans and their simple functions</li> <li>- Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul> <p><b>CST Link – Participation</b>  <b>This prepares them for Year 5, where pupils will deepen their knowledge of the human body by describing what happens to the human body in old age.</b></p>	
<p><b>Summer:</b></p>	<p><b>Living things and their habitats</b>  Pupils will explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment and will recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"> <li>- Recognise that living things can be grouped in a variety of ways</li> <li>- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>- Recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul> <p><b>CST Link – Distributive Justice</b></p> <p><b>This prepares them for Year 5, where pupils will begin to learn about the reproduction of some plants and animals.</b></p>	
<p><b>Year Five</b></p>	<p><b>Subject Content and Sequence</b></p>	<p><b>Working Scientifically:</b></p>

<p><b>Autumn:</b></p>	<p><b>Properties and changes of materials</b></p> <p>Pupils will 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. They will learn that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p><b>Key Contents:</b></p> <ul style="list-style-type: none"> <li>- 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</li> <li>- Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution</li> <li>- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>- Demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>-</li> <li>- 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.</li> </ul> <p><b>Forces</b></p>	<p>During year five and six, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>• Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> <li>• Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>• Using tests results to make predictions to set up further comparative and fair tests.</li> <li>• Reporting and presenting findings from enquiries, including conclusions, casual relationships and explanations of and a degree of trust in results. In oral and written forms such as displays and other presentations.</li> <li>• Identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>
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	<p>To consolidate their understanding of forces they will learn about gravity, identify the effects of air resistance, water resistance and friction and learn about levers pulleys and gears.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"> <li>- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>- Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>- Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul> <p><b>CST Link – Participation</b></p>	
<p><b>Spring:</b></p>	<p><b>Earth and Space &amp; Forces (Whole of the Spring Term)</b></p> <p>Pupils will use year five to explore space and describe the movements of earth and other planets in relation to the sun. They will then begin to describe the movement of the moon relative to the earth and explain day and night and the movement of the sun across the sky.</p> <p><b>Key Contents</b></p> <ul style="list-style-type: none"> <li>- Describe the movement of the Earth and other planets, relative to the Sun in the solar system</li> <li>- Describe the movement of the Moon relative to the Earth</li> <li>- Describe the Sun, Earth and Moon as approximately spherical bodies.</li> <li>- Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky</li> </ul>	

**CST Link – Solidarity**

**This prepares them for Secondary education, where pupils will learn the topic Chemistry and deepen their understanding of earth and the atmosphere.**

**Summer:**

**Living things and their habitats**

By year five students will be able to classify animals and will be able to identify the life cycles of a mammal, amphibian, insect and bird.

Pupils will describe the life process of reproduction in some plants and animals.

**Key Content:**

- Describe the changes as humans develop to old age
- Describe the differences in the lifecycles of a mammal, an amphibian, an insect and a bird.

**This prepares them for Year 6, where pupils will begin to learn about evolution.**

**Animals including humans**

In year five pupils will describe the changes as humans develop to old age.

**Key Content:**

	<p>- Describe the life process of reproduction in some plants and animals</p> <p><b>CST Link – Common Good</b></p> <p><b>This prepares them for Year 6, where pupils will begin to give reasons for the way they classify plants and animals.</b></p>	
<b>Year Six</b>	<b>Subject Content and Sequence</b>	<b>Working Scientifically:</b>
<b>Autumn:</b>	<p><b>Electricity</b> To complete their learning on electricity, pupils will be able to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit and they will use recognised symbols when representing a simple circuit in a diagram.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"> <li>- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>- 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</li> <li>- Use recognised symbols when representing a simple circuit in a diagram</li> </ul> <p><b>Light</b> Pupils will understand that light appears to travel in straight lines and use this idea to explain that objects are seen because they give out or reflect light into the eye.</p> <p><b>Key Content:</b></p> <ul style="list-style-type: none"> <li>- Recognise that light appears to travel in straight lines</li> </ul>	<p>During year five and six, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>• Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> <li>• Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>• Using tests results to make predictions to set up further comparative and fair tests.</li> <li>• Reporting and presenting findings from enquiries, including conclusions, casual relationships and explanations of and a degree of trust in results. In oral and written forms such as displays and other presentations.</li> </ul>

	<ul style="list-style-type: none"> <li>- 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</li> <li>- Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</li> <li>- Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> </ul> <p><b>CST Link – Participation</b>  <b>This prepares them for KS3, where pupils will learn the topic of Physics and deepen their understanding of energy changes and the atmosphere.</b></p>	<ul style="list-style-type: none"> <li>• Identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>
<p><b>Spring:</b></p>	<p><b>Animals including humans</b>  Pupils will round off their learning about the human body by identifying and naming the main parts of the human circulatory system, and describing the functions of the heart, blood vessels and blood. They will recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p><b>Key Contents:</b></p> <ul style="list-style-type: none"> <li>- Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood</li> <li>- Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>- Describe the ways in which nutrients and water are transported within animals including humans.</li> </ul> <p><b>CST Link – Stewardship</b></p>	

**This prepares them for KS3, where pupils will learn the topic Biology and deepen their understanding of nutrition and digestion as well as cells and organisation.**

**Evolution and inheritance**

Pupils will also begin to learn about evolution by recognising that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

**Key Content:**

- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- Give reasons for classifying plants and animals based on specific characteristics
- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
- Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

**CST Link – Solidarity**

**Summer:**

**Living things and their habitats**

Pupils will finish off their primary science career by describing how living things are classified into broad groups according to common observable characteristics and give reasons for classifying plants and animals based on specific characteristics.

**Key Content:**

- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- give reasons for classifying plants and animals based on specific characteristics

**CST Link – Stewardship**

**This prepares them for KS3, where pupils will learn the topic Biology and deepen their understanding of reproduction and health.**