



The Federation of St Joseph's and St Thomas More Roman Catholic Voluntary Aided Primary Schools Science Curriculum Statement



Intent

At The Federation of St Joseph's and St Thomas More RCVA Primary Schools, it is our intent that for every child we awaken within them a sense of excitement and curiosity about natural phenomena and human achievements, which shape their lives. We wish to also promote a respect for the living and non-living.

We want to give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of Science, today and for the future.

Scientific enquiry skills are embedded in each topic the children study and these topics are revisited and developed throughout their time at school.

Topics are taught in Key Stage One and studied again in further detail throughout Key Stage Two. This allows children to build upon their prior knowledge and increases their enthusiasm for the topics whilst embedding this knowledge into the long-term memory.

All children are encouraged to develop and use a range of skills including observations, planning and investigations, as well as being encouraged to question the world around them and become independent learners in exploring possible answers for their scientific based questions.

Specialist vocabulary for topics is taught and built up, and effective questioning to communicate ideas is encouraged. Concepts taught are reinforced by focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions.

Implementation

The key knowledge identified by each class is informed by the national curriculum and builds towards identified phase 'end points' in accordance with NC expectations. Given the size of our school, the organisation of the curriculum takes into account each child's journey through the school.

The curriculum is designed to ensure that children are able to acquire key scientific knowledge through practical experiences; using equipment, conducting experiments, building arguments and explaining concepts confidently. We seek to ensure that these experiences are phase appropriate.

Tasks are selected and designed to provide appropriate challenge to all learners, in line with the school's commitment to inclusion and mastery.

The school's approach to science takes account of the school's own context, ensuring access to people with specialist expertise and places of scientific interest as part of the school's commitment to learning outside the classroom.

Cross curricular opportunities are also identified, mapped and planned to ensure contextual relevance. Children are encouraged to ask questions and be curious about their surroundings and a love of science is nurtured through a whole school ethos and a varied science curriculum.

Regular events, such as Science Week and Super Learning Days, allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills. These events often involve families and the wider community.

At the end and throughout each topic, key knowledge is reviewed by the children and rigorously checked by the teacher and consolidated as necessary.

The content of the curriculum, opportunities to enhance our curriculum and identified cross curricular links.

How the curriculum is mapped for each phase within school?

National Curriculum	Year Group/ Phase	Revised Curriculum	Provocations Responses	Cross Curricular Links
<p>Working scientifically 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:</p> <ul style="list-style-type: none"> • 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 <p>Plants Pupils should be taught to:</p> <ul style="list-style-type: none"> • identify and name a variety of common wild and garden 	<p>KS1</p> <p>Year 1 Year 2</p>	<p>Animals including humans In this unit pupils will identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. They will also identify and name a variety of common animals that are carnivores, herbivores and omnivores and describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Pupils will identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. In preparation for LKS2 work on life cycles of mammals, children will learn about how animals, including humans, have offspring which grow into adults. They will find out about and describe the basic needs of animals, including humans, for survival (water, food and air) and describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p>Living things and their habitats In this unit pupils will explore and compare the differences between things that are living, dead, and things that have never been alive. They will identify that most living things live in habitats to which they are suited and describe how</p>	<p>Animals including humans</p> <p><u>Trips</u> Hall Hill Farm (Lanchester) Down at the Farm (Houghton le Spring) Washington Wetland Trust Blue Reef Aquarium (Tynemouth) Rainton Meadows Durham Botanic Gardens Use of grounds</p> <p><u>Visitors</u> https://mobilepettingzoo.co.uk/ Crazy Creatures North East Premier Sports team member to talk about importance of exercise Dentist School Nurse</p> <p><u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary</p>	<p>Identified by Class Teachers to enhance the topic and will vary from year to Year.</p> <p>May include:</p> <p>Power points Quiz Display Links with other subjects Making books</p>

<p>plants, including deciduous and evergreen trees</p> <ul style="list-style-type: none"> • identify and describe the basic structure of a variety of common flowering plants, including trees • 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>Animals, including humans Pupils should be taught to:</p> <ul style="list-style-type: none"> • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • identify and name a variety of common animals that are carnivores, herbivores and omnivores • describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense • 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>different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Pupils will identify and name a variety of plants and animals in their habitats, including microhabitats and 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>Everyday materials and their uses In this unit pupils will 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 and compare and group together a variety of everyday materials on the basis of their simple physical properties. They will be able to identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses and find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p>Plants In this unit pupils will 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. They</p>	<p>www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p><u>Visitors</u> https://mobilepettingzoo.co.uk/ Crazy Creatures North East</p> <p><u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>Everyday materials and their uses <u>Trips</u> Science workshops at the Great North Museum (Newcastle) Science workshops at the Centre for Life (Newcastle) House of Objects (Newcastle)</p> <p><u>Visitors</u> Local construction companies</p> <p><u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>Plants <u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science</p>	
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<p>Everyday materials Pupils should be taught to:</p> <ul style="list-style-type: none"> • 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 • 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>Seasonal changes Pupils should be taught to:</p> <ul style="list-style-type: none"> • observe changes across the 4 seasons • observe and describe weather associated with the seasons and how day length varies <p>Living things and their habitats Pupils should be taught to:</p> <ul style="list-style-type: none"> • explore and compare the differences between things that are living, dead, and things that have never been alive 			<p>will observe and describe how seeds and bulbs grow into mature plants and find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p> <p>Seasonal Changes Pupils will observe changes across seasons and observe and describe weather associated with the seasons and how day length varies.</p>	<p>www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>Seasonal Changes Use of school garden and Forest School setting Walk in the local area</p>	
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<ul style="list-style-type: none"> • 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 microhabitats • 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>Working scientifically 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:</p> <ul style="list-style-type: none"> • asking relevant questions and using different types of scientific enquiries to answer them • 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 	LKS2	Year 3 Year 4	<p>Animals including humans Building on from KS1 learning, in this unit pupils will 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. They will identify that humans and some other animals have skeletons and muscles for support, protection and movement. Pupils will describe the simple functions of the basic parts of the digestive system in humans. They will identify the different types of teeth in humans and their simple functions. Pupils will learn how to construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>Rocks Building on previous understanding of properties of materials pupils will compare and group together different</p>	<p>Rocks <u>Visitors</u></p>	

<p>thermometers and data loggers</p> <ul style="list-style-type: none"> 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>Plants Pupils should be taught to:</p> <ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and 			<p>kinds of rocks on the basis of their appearance and simple physical properties. They will describe in simple terms how fossils are formed when things that have lived are trapped within rock. Pupils will also recognise that soils are made from rocks and organic matter.</p> <p>States of matter In this unit pupils will compare and group materials together, according to whether they are solids, liquids or gases. They will observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Pupils will also be able identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p>Light In this unit pupils will recognise that they need light in order to see things and that dark is the absence of light. They will notice that light is reflected from surfaces and recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Pupils will recognise that shadows are formed when the light from a light source is blocked by an opaque object. Pupils will find patterns in the way that the size of shadows change.</p> <p>Sound In this unit pupils will identify how sounds are made, associating some of them with something vibrating. They will recognise that vibrations from sounds travel through a medium to the ear. Pupils will find patterns between the pitch of a sound and features of the object that produced it. They will find patterns between the volume of a sound and the strength of the vibrations that produced it. Pupils will recognise that sounds get fainter as the distance from the sound source increases.</p>	<p>Geologist</p> <p><u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>States of matter <u>Trips</u> National Glass Centre (Sunderland)</p> <p><u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>Light <u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>Sound <u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p>	
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<p>how they vary from plant to plant</p> <ul style="list-style-type: none"> investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal <p>Animals, including humans Pupils should be taught to:</p> <ul style="list-style-type: none"> 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 identify that humans and some other animals have skeletons and muscles for support, protection and movement describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey <p>Rocks Pupils should be taught to:</p> <ul style="list-style-type: none"> compare and group together different kinds of rocks on the 		<p>Electricity In preparation for further in depth learning at UKS2 pupils will identify common appliances that run on electricity. They will construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Pupils will 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. They will recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Pupils will recognise some common conductors and insulators, and associate metals with being good conductors.</p> <p>Forces and magnets In this unit pupils will compare how things move on different surfaces. They will notice that some forces need contact between two objects, but magnetic forces can act at a distance. Pupils will observe how magnets attract or repel each other and attract some materials and not others. They will 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. Pupils will describe magnets as having two poles. They will predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>Plants Building on KS1 learning pupils will identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. They will 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. Pupils will investigate the way in which water is transported within plants. They will explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p>Living things and their habitats Building on KS1 learning pupils will recognise that living things can be grouped in a variety of ways. They will explore</p>	<p>Electricity <u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>Forces and magnets <u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>Plants <u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>Living things and their habitats <u>Websites</u> www.natgeokids.com/uk</p>	
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<p>basis of their appearance and simple physical properties</p> <ul style="list-style-type: none"> 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>Light Pupils should be taught to:</p> <ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change <p>Forces and magnets</p> <ul style="list-style-type: none"> compare how things move on different surfaces notice that some forces need contact between 2 objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others compare and group together a variety of everyday materials on the basis of whether they 		<p>and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Pupils will recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>Living things and their habitats <u>Trips</u> Washington Wetland Trust Use of local area (Elba Park/Herrington Park) for habitat study Rainton Meadows Durham Botanic Gardens Use of grounds</p> <p>Light <u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p>	
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<p>are attracted to a magnet, and identify some magnetic materials</p> <ul style="list-style-type: none"> describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing <p>Living things and their habitats Pupils should be taught to:</p> <ul style="list-style-type: none"> recognise that living things can be grouped in a variety of ways explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things <p>States of matter Pupils should be taught to:</p> <ul style="list-style-type: none"> compare and group materials together, according to whether they are solids, liquids or gases observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) identify the part played by evaporation and condensation in the water cycle and 				<p>states of matter <u>Trips</u> National Glass Centre (Sunderland)</p> <p><u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p>	
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<p>associate the rate of evaporation with temperature</p> <p>Sound Pupils should be taught to:</p> <ul style="list-style-type: none"> • identify how sounds are made, associating some of them with something vibrating • recognise that vibrations from sounds travel through a medium to the ear • find patterns between the pitch of a sound and features of the object that produced it • find patterns between the volume of a sound and the strength of the vibrations that produced it • recognise that sounds get fainter as the distance from the sound source increases <p>Electricity Pupils should be taught to:</p> <ul style="list-style-type: none"> • 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 				<p>Sound <u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>Electricity <u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p>	
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<p>not a lamp lights in a simple series circuit</p> <ul style="list-style-type: none"> recognise some common conductors and insulators, and associate metals with being good conductors 					
<p>Working scientifically 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:</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations 	UKS2	Year 5 Year 6	<p>Animals including humans Building on previous understanding of the human body children will learn to describe the changes as humans develop to old age. They will identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Pupils will recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Pupils will describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>Living things and their habitats Building on previous understanding children will describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. They will describe the life process of reproduction in some plants and animals. Pupils will describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. They will give reasons for classifying plants and animals based on specific characteristics.</p> <p>Evolution and inheritance In this unit pupils will recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Pupils will recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. They will identify how</p>	<p><u>Trips</u> NWG STEAM Festival Science workshops at the Winter Gardens (Sunderland) Science workshops at the Great North Museum (Newcastle) Science workshops at the Centre for Life (Newcastle) Code Club (Nissan) Safety Works (Newcastle) National Glass Centre (Sunderland) Elba Park</p> <p><u>Visitors</u> Science teachers from St Leonard’s Engineers (STEM Ambassador Programme) Barclay’s Digital Eagles School Nurse</p> <p><u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p>	

<p>of and a degree of trust in results, in oral and written forms such as displays and other presentations</p> <ul style="list-style-type: none"> identifying scientific evidence that has been used to support or refute ideas or arguments <p>Living things and their habitats Pupils should be taught to:</p> <ul style="list-style-type: none"> describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals 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 <p>Animals, including humans Pupils should be taught to:</p> <ul style="list-style-type: none"> describe the changes as humans develop to old age identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function 		<p>animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p> <p>Properties and changes of materials In this unit 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 know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Pupils will use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. They will give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Pupils will demonstrate that dissolving, mixing and changes of state are reversible changes. They will 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>Forces Building on previous knowledge, children will explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. They will identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Pupils will recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p>Light Building on previous understanding of the properties of light pupils will recognise that light appears to travel in straight lines. They will 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. Pupils will 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. They will use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	<p>states of matter <u>Trips</u> National Glass Centre (Sunderland)</p> <p><u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p> <p>Forces and magnets <u>Websites</u> www.natgeokids.com/uk www.childrensuniversity.manchester.ac.uk/learning-activities/science www.bbc.co.uk/bitesize/primary www.sciencekids.co.nz www.brainpop.com/science/seeall</p>	
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<ul style="list-style-type: none"> describe the ways in which nutrients and water are transported within animals, including humans <p>Properties and changes of materials</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic demonstrate that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes 			<p>Electricity</p> <p>Further developing their understanding of simple circuits pupils will associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. They will 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. Pupils will use recognised symbols when representing a simple circuit in a diagram.</p> <p>Earth and Space</p> <p><i>Linked to the history unit of the Mayans</i></p> <p>Pupils will describe the movement of the Earth, and other planets, relative to the Sun in the solar system. They will describe the movement of the Moon relative to the Earth. Pupils will describe the Sun, Earth and Moon as approximately spherical bodies. They will 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><i>To support our pupils at a significant developmental stage in their lives children will also learn about puberty</i></p>	<p>Light</p> <p><u>Websites</u></p> <p>www.natgeokids.com/uk</p> <p>www.childrensuniversity.manchester.ac.uk/learning-activities/science</p> <p>www.bbc.co.uk/bitesize/primary</p> <p>www.sciencekids.co.nz</p> <p>www.brainpop.com/science/seeall</p>	
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associated with burning and the action of acid on bicarbonate of soda

Earth and space

Pupils should be taught to:

- describe the movement of the Earth and other planets relative to the sun in the solar system
- describe the movement of the moon relative to the Earth
- describe the sun, Earth and moon as approximately spherical bodies
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

Forces

Pupils should be taught to:

- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect

Evolution and inheritance

Pupils should be taught to:

Forces and magnets

Websites

- www.natgeokids.com/uk
- www.childrensuniversity.manchester.ac.uk/learning-activities/science
- www.bbc.co.uk/bitesize/primary
- www.sciencekids.co.nz
- www.brainpop.com/science/seeall

<ul style="list-style-type: none">• 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 <p>Light</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none">• recognise that light appears to travel in straight lines• use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye• explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes• use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them				<p>Light</p> <p><u>Websites</u></p> <ul style="list-style-type: none">www.natgeokids.com/ukwww.childrensuniversity.manchester.ac.uk/learning-activities/sciencewww.bbc.co.uk/bitesize/primarywww.sciencekids.co.nzwww.brainpop.com/science/seeall	
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<p>Electricity</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none">• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit• 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• use recognised symbols when representing a simple circuit in a diagram				<p>Electricity</p> <p>Websites</p> <p>www.natgeokids.com/uk</p> <p>www.childrensuniversity.manchester.ac.uk/learning-activities/science</p> <p>www.bbc.co.uk/bitesize/primary</p> <p>www.sciencekids.co.nz</p> <p>www.brainpop.com/science/seeall</p>	
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Impact

The successful approach at St Thomas More results in a fun, engaging, high-quality science education, that provides children with the foundations and knowledge for understanding the world.

Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. Frequent, continuous and progressive learning outside the classroom is embedded throughout the science curriculum.

Through various workshops, trips and interactions with experts and local charities, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity.

Children learn the possibilities for careers in science, as a result of our community links. They learn from and work with professionals, ensuring access to positive role models within the field of science from the immediate and wider local community.

From this exposure to a range of different scientists from various backgrounds, all children feel they are scientists and capable of achieving. Children at St Thomas More overwhelmingly enjoy science and develop into motivated learners with sound scientific understanding.

