# St Michaels First School Science Whole School Curriculum Map

| | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| | Autumn/ Animals/ colours/ Nursery Rhymes | Festivals/ Families/ Nursery Rhymes | Winter/ Chinese New Year | Spring/ growing things/Easter/ Farm animals | Traditional Stories/ Nursery Rhyme | Seaside & Holidays |
| **Nursery** Season changes | Autumn hunts<br>Colour hunts<br>Naming colours<br>Days of the weeks<br>All about me topic | Autumn art<br>Describe leaves<br>Leaf collage<br>Making cakes – changes in materials | Winter/ Spring hunts<br>Planting<br>Exploring ice | Spring art<br>Life cycles | Summer hunts<br>Months of the year | Summer art<br>Sea creatures – naming |
| | Marvellous me and my family tree | Celebrations | People who help us | Nocturnal animals | Growing and hatching | Shiver me timbers! |
| **Reception** Seasonal changes | Autumn changes<br>Forest School weekly<br>All about me topic<br>Exploring our local environment | Winter changes<br>Forest school weekly<br>Exploring mud<br>Exploring sticks | Winter changes<br>Forest school weekly<br>Exploring ice and melting<br>Exploring wind<br>Minibeast hunts (observe over time) | Spring changes<br>Forest school weekly<br>Percy Park Keeper stories<br>New growth<br>Nocturnal and diurnal animals | Summer changes<br>Forest school weekly<br>Minibeast hunts (observe over time)<br>Lifecycles | Summer changes<br>Forest school weekly<br>Summer growth<br>Changes in states |
| | Fun on the Farm | Let's Celebrate!<br>Christmas, Diwali, Hanukah | Polar places | Once upon a time…<br>Knights, Castles and Dragons | Where in the World…<br>Safari Explorer's | Fun at the Seaside… |
| **Year 1** Seasonal changes | Who am I?<br>1. Labelling body<br>2. smell<br>3. taste<br>4. sight<br>5. touch<br>6. hear | Celebrations<br>1. Light<br>2. Music<br>3. food | Polar Places<br>1. Planning the expedition<br>2. Animals we meet<br>3. Food for explorers I | Plants and animals where we live<br>1. Our local area<br>2. Birds and animals | On safari<br>1. Mini beasts, bugs and invertebrates<br>2. Comparing ourselves and invertebrates | Holiday<br>1. Get packed<br>2. By the seaside<br>3. Protect the environment |
| | The Great Fire of London | Blast from the Past | Fabulous Fairy tales | Crazy Crayons | Awesome Authors | Animal Antics |
| **Year 2** Seasonal changes | Healthy Me.<br>1. Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.<br>2. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. | Material Monsters.<br>1. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.<br>2. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. | Squash, twist, bend, stretch.<br>1. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. | Our local environment.<br>1. Explore and compare the differences 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<br>2. Identify and name a variety of plants and | Young gardeners<br>1. 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. | Little Masterchefs.<br>1. Find out about and describe the basic needs of humans for survival (water, food and air).<br>2. Describe the importance for humans of eating the right amounts of different types of food, and hygiene.<br>3. Observe and describe how seeds and bulbs grow into mature plants.<br>4. Identify and compare the suitability of a |

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| | | | | animals in their habitats, including micro-habitats.<br>3. 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 | | variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. |
| | Prehistoric Britain | European Adventure | The Romans in Britain | Chocolate | Maps | Rivers<br>Go With The Flow |
| Year 3 | Rocks, Soils & Fossils<br>1. Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.<br>2. Describe in simple terms how fossils are formed when things that have lived are trapped within rock.<br>3. Recognise that soils are made from rocks and organic matter. | Light and shadows<br>1. Recognise that we need light in order to see things and that dark is the absence of light.<br>2. Notice that light is reflected from surfaces.<br>3. Recognise that light from the Sun can be dangerous and that there are ways to protect the eyes.<br>4. Recognise that shadows are formed when the light from a light source is blocked by a solid object.<br>5. Find patterns in the way that the sizes of shadows change. | Forces & Magnets<br>1. Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance.<br>2. 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 are attracted to a magnet, and identify some magnetic materials.<br>3. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. | Food & our bodies<br>1. 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.<br>2. Identify that humans and some other animals have skeletons and muscles for support, protection and movement. | Plants & germination (How does your garden grow?<br>1. Identify and describe the functions of different parts of flowering plants: roots, stem / trunk, leaves and flowers.<br>2. 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.<br>3. 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. | Science in action<br>(Investigation Unit) |
| | Anglo-Saxons & Vikings | | | Chocolate | | Ancient Egyptians |
| Year 4 | Teeth and Eating<br><br>Understand principles of a healthy and varied diet.<br>Prepare and cook dishes using a range of cooking techniques.<br><br>Describe the simple functions of the basic parts of the digestive system in humans. | Looking at States<br><br>Compare and group materials together, according to whether they are solids, liquids or gases<br><br>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in | Power it Up<br>Identify common appliances that run on electricity<br><br>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers<br><br>Identify whether or not a lamp will light | What's That Sound?<br><br>Identify how sounds are made, associating some of them with something vibrating<br><br>Recognise that vibrations from sounds travel through a medium to the ear<br><br>Find patterns between the pitch of a | Living Things<br><br>Recognise that living things can be grouped in a variety of ways<br><br>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment | |

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| | Identify the different types of teeth in humans and their simple functions.<br><br>Construct and interpret a variety of food chains, identifying producers, predators and prey. | | degrees Celsius (°C)<br><br>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. | | in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery<br><br>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit<br><br>Recognise some common conductors and insulators, and associate metals with being good conductors. | | sound and features of the object that produced it<br><br>Find patterns between the volume of a sound and the strength of the vibrations that produced it<br><br>Recognise that sounds get fainter as the distance from the sound source increases. | | Recognise that environments can change and that this can sometimes pose dangers to living things | | | |
| Year 5 Middle School | Christchurch<br><br>Introduction to science<br><br>Light | Walton<br><br>Out of this World - Earth & Space | Christchurch<br><br>Electricity | Walton<br><br>Let's Get Moving - Forces & Gravity | Christchurch<br><br>Digestion and circulation | Walton<br><br>Growing up and Getting Old | Christchurch<br><br>Human life cycles | Walton<br><br>Properties of Materials | Christchurch<br><br>Practical skills. Principles of scientific enquiry | Walton<br><br>Circle of Life | Christchurch<br><br>Living things and their habitats | Walton<br><br>Developing working scientifically |
| Year 6 Middle School | Christchurch<br><br>Evolution and inheritance | Walton<br><br>Living organisms | Christchurch<br><br>Classification | Walton<br><br>Light | Christchurch<br><br>Electricity | Walton<br><br>Reversible and irreversible reactions | Christchurch<br><br>Light | Walton<br><br>The body | Christchurch<br><br>Properties and changes in materials | Walton<br><br>Electricity | Christchurch<br><br>Practical microscope skills | Walton<br><br>Evolution |

## Purpose of Study (National Curriculum)

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

## Aims (National Curriculum)

The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

**Early Years Foundation Stage Curriculum**

Three and four year olds

- 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 feel
- Talk about different materials and changes

Reception

- Explore the natural world around them
- Describe what they see, hear and feel when outside
- Explore the natural world around them.
- Understand the changing of seasons

ELG

- 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.

| | Key Stage 1 | Key Stage 2 |
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| **Chemistry** | • Distinguish between an object and the material from which it is made<br>• Identify and **name** a variety of everyday materials including wood, plastic, glass, metal, water and rock<br>• Describe the simple physical properties of a variety of everyday materials<br>• Compare and group together a variety of everyday materials on the basis of their simple physical properties<br>• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching<br>• Identify and **compare** the suitability of a variety of materials such as wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. | • Describe in simple terms how fossils are formed when things that lived are trapped in a rock.<br>• Recognise that soils are made from rock and organic matter.<br>• Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties<br>• Compare and group materials together, according to whether they are solids, liquids or gases<br>• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature<br>• Observe that some materials change state when they are heated and cooled, and measure or research the temperature at which this happens in degrees Celsius |
| **Biology** | • 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<br>• Identify and name a variety of plants and animals in their habitats, including micro-habitats<br>• 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<br>• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy<br>• Identify and name a variety of common wild and garden plants including deciduous and evergreen trees<br>• Identify and describe the basic structure of a variety of common flowering plants, including trees<br>• Explore and compare the differences between things that are living, dead and that have never been alive | • Recognise that living things can be grouped in a variety of ways<br>• Explore and use classification keys to … local and wider environment<br>• Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) they vary from plant to plant<br>• Recognise that environments can change and this can sometimes pose dangers to living things<br>• Identify and describe the functions of different parts of flowering plants; roots, stem/trunk, leaves and flowers<br>• Investigate the way in which water is transported within plants<br>• Explore the part that flowers play in the life cycle of flowering plants including pollination, seed formation and seed dispersal<br>• 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 |

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| | • Observe and describe how seeds and bulbs grow into mature plants<br>• Identify and name a variety of common animals including amphibians, reptiles, birds and mammals<br>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores<br>• Notice that animals, including humans, have offspring which grow into adults<br>• Find out about and describe the basic needs of animals including animals for survival (water, food and air)<br>• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)<br>• Identify, name, draw and label the basic parts of the human body and say which parts of the body is associated with each sense<br>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene | • Identify that humans and some other animals have skeletons and muscles for support, protection and movement<br>• Describe the simple functions of the basic parts of the digestive system in humans<br>• Identify the different types of teeth in humans and their simple functions<br>• Construct and interpret a variety of food chains, identifying producers, predators and prey |
| **Physics** | | • Compare how things move on different surfaces<br>• Notice that some forces need contact between 2 objects but magnetic forces can act at a distance<br>• Observe how magnets attract or repel each other and attract some materials and not others<br>• 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<br>• Describe magnets as having two poles<br>• Predict whether two magnets will attract or repel each other, depending on which poles are facing |

**Assessment & Attainment Targets**

At St Michael's we assess science as an ongoing subject through daily conversation and use of vocabulary. We input data onto OTrack termly for Biology, Chemistry and Physics as well as the Working Scientifically strands. For EYFS the Understanding the World data is inputted in Autumn 1 as a baseline and again in Summer Term, however throughout the year it is assessed verbally and checked when looking at work.

Throughout the year the Science Lead will moderate books and engage in pupil voice sessions to assess a child's ability, knowledge and understanding. This then feeds into the Working Scientifically document mapping out topics which have covered; comparative testing, observe over time, group and classify, notice patterns, secondary sources.

**Curriculum Enrichment**

Our children's scientific learning is enriched by the following;

- Extensive outdoor area to explore with grounds next to the canal, woodland area and pond area
- Forest school lessons with a Level 3 forest school lead on site to support daily
- Trips and residential visits
- British Science Week
- STEM club
- Lego coding club - Years 3 & 4
- Engaging the local community. E.g. Holding exhibitions of work, inviting local people in to discuss their work in STEM and local area trips.