St Michaels First School Science Whole School Curriculum Map

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery Seasons, days of the week, months of the year, weather	Autumn hunts Days of the weeks All about me topic Animal home Hibernation hotels Name parts of the body	Polar regions Introduce winter Planting bulbs	Planting bulbs Winter Exploring ice What's in the sky? Night and day Introduce nocturnal animals Light sources	Spring art Life cycles Spring walk Who makes a rainbow Colours Healthy eating Eat a rainbow Jungle animals	Lifecycles – bees Summer hunts Minibeast hunts Animals and their young Where food is from	Summer art Sea creatures – naming
Reception Seasonal changes	Autumn changes Forest School weekly All about me topic Exploring our local environment Autumn treasure hunt	Winter changes Forest school weekly Float and sink Exploring North pole and it's animals	Winter changes Forest school weekly Make a wormery, worm facts and observe over time Exploring ice and melting Exploring south pole to compare	Spring changes Forest school weekly Percy Park Keeper stories New growth Nocturnal and diurnal animals	Summer changes Forest school weekly Minibeast hunts (observe over time) Lifecycles, chicks in classroom	Summer changes Forest school weekly Summer growth Changes in states Float and sink
Year 1 Seasonal changes	The Human Body 1. Labelling body 2. smell 3. taste 4. sight 5. touch 6. hear	Materials 1. Wood, plastic, glass & metal 2. Rocks 3. Melt and freeze 4. Float or sink 5. absorbing	Winter planting Animals Mammals, birds, fish, Amphibians, reptiles, carnivores, herbivores & omnivores. Making comparisons	Sustainability Caring for the planet Spring planting	Plants 1. Plant & tree parts 2. Wild vs garden plants 3. Plants & trees in the local area 4. Deciduous vs evergreen 5. Planting for summer	Sustainability Growing and cooking 1. Where does my food come from? 2. Reflect on our yearly planting
Year 2 Seasonal changes	Animals' need for survival 1. Mammals 2. Birds 3. Fish 4. Amphibians 5. Reptiles Humans 1. Exercise 2. Food 3. Hygiene 4. Teeth	Materials 1. Wood, paper, cardboard 2. Brick, rock 3. Glass, plastic 4. Metal & fabrics 5. Test, plan, investigate Sustainability Plastic	Plants, light and dark 1. Plants and plant parts 2. What do they need to grow 3. Plan & investigate light and dark	Living things and their habitat 1. Habitats in my local area 2. Other habitats such as polar, desert, ocean, woodland 3. Microhabitats 4. Food chains 5. Living, dead, never alive? Plants light and dark Findings from planting in Autumn 2.	Plants Bulbs and seeds 1. Bulb or seed? 2. What do plants need to grow? 3. Plan then plant Growing up 1. Lifecycles of humans, mammals, amphibians, butterfly 2. Patterns between lifecycles	Bulbs and seeds 1. Findings of bulbs and seeds planted in summer 1 Growing up 2. Butterfly diary Sustainability Wildlife 3. What does it do for us? 4. How can we help wildlife?
Year 3	Skeletons 1. Name and identify bones in the human body and animals 2. Functions of a skeleton 3. Animals without a spine 4. Are all skeletons the same? 5. Movement, Joints and how we move Nutrition and diet 1. Food groups	Sustainability Food waste Rocks 1. Identify 2. Groups 3. Test 4. Local rock survey	Fossils 1. Explore 2. Fossil information Soils 3. Plan a soil experiment 4. Investigate 5. Evaluate	Light 1. Light sources 2. The sun 3. How we see 4. Opaque, translucent, transparent 5. Plan shadows, investigate and evaluate	Plants 1. Parts and function of a plant 2. Plant dissection 3. Plan – plant growth then plant 4. Stems and water transportation 5. Explore seeds 6. Reproductive parts of a plant	Forces 1. Explore forces 2. Friction 3. Plan and investigate friction Magnets 1. Magnetic vs non-magnetic 2. Investigate metals 3. North and south poles, attract and repel Plants – findings from planting in Summer 1

	2. Balanced diets 3. Animal diets								7. Pollination and seed dispersal 8. Lifecycles		Sustainability Biodiversity	
Year 4	Group and classify living things 1. Vertebrates and invertebrates 2. Classification keys plants 3. Grouping plants 4. Classification keys animals Data collection A		States of matter 1. Solids, liquid and gases 2. Change of state 3. Using equipment 4. Plan – measuring temperature 5. Investigate 6. Water cycle 7. Plan, investigate and evaluate evaporation		Sound 1. Vibrations 2. The ear 3. Investigate sounds 4. Explore volume & pitch 5. Plan, investigate and evaluate volume Data collection B		Electricity 1. Common appliances 2. Build and draw series circuits 3. Conductors & insulators 4. Conductivity Sustainability Energy		Data collection C Habitats 1. Living things and their habitats 2. Classification keys animals, plants 3. Human impact on habitats Sustainability Deforestation		Digestive system 1. Teeth (omnivores, herbivores, carnivores including human) 2. Plan & findings – tooth decay experiment 3. Digestive system Food chains 1. Interpret and draw	
Year 5 Middle School	Christchurch Introduction to science	Walton Genes - Animal life cycles	Christchurch Light, earth and space, electricity	Walton Matter – properties of materials	Christchurch Living things, habitats	Walton Forces	Christchurch life cycles	Walton Lifecycles Uses of materials	Christchurch Growing up, growing old human life cycle	Walton Earth Human life cycles	Christchurch Digestion and circulation	Walton States of matter Earth seasons and models
Year 6 Middle School	Christchurch Properties and changing of materials	Walton Eco systems and electromagnets	Christchurch Properties and changing of materials	Walton Matter – separating mixtures Organisms – The human body	Christchurch Forces	Walton Waves - light Reactions - reversible and irreversible	Christchurch Classification – living things	Walton Keeping healthy Electrical circuits	Christchurch Evolution and inheritance	Walton Particle model evolution	Christchurch Evolution and inheritance	Walton Waves – reflection Microorganisms

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
Chemistry	• Distinguish between an object and the material from which it is made • Identify and **name** a variety of everyday materials including wood, plastic, glass, metal, water and rock • Describe the simple physical properties of a variety of everyday materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching • 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. • Recognise that soils are made from rock and organic matter. • Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • Compare and group materials together, according to whether they are solids, liquids or gases • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature • 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 • Identify and name a variety of plants and animals in their habitats, including micro-habitats • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy • 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 • 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 • Explore and use classification keys to … local and wider environment • 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 • Recognise that environments can change and this can sometimes pose dangers to living things • Identify and describe the functions of different parts of flowering plants; roots, stem/trunk, leaves and flowers • 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 • 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

	• Observe and describe how seeds and bulbs grow into mature plants • Identify and name a variety of common animals including amphibians, reptiles, birds and mammals • Identify and name a variety of common animals that are carnivores, herbivores and omnivores • Notice that animals, including humans, have offspring which grow into adults • Find out about and describe the basic needs of animals including animals for survival (water, food and air) • 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 parts of the body is associated with each sense • 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 • 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
Physics		• 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 are attracted to a magnet, and identify some magnetic materials • Describe magnets as having two poles • 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.
- British Science week including a whole school competition
- Science work exhibitions in the hall for parents and carers to visit
- Part of the Ogden Trust group