

St Michael's Catholic Primary School



Science progression of knowledge, skills and vocabulary

Foundation Stage

	Biology	Chemistry	Physics
End Point	To explore the natural world around them making observations and drawing pictures of animals and plants (ELG).		To understand some important processes and changes in the natural world around them (ELG).
	<ul style="list-style-type: none"> • Talk about and describe themselves naming similarities and differences of themselves and others • Explore the world around them with all of their senses • Name different parts of the body and face • Explore the natural world around them, making observations and drawing pictures of animals and plants • Be able to name animals from different climates around the world • Be able to name some of the parts of a plant and talk about what plants need to grow (roots and flowers) <p>Key skills: from Characteristics of Effective Teaching and Learning</p> <ul style="list-style-type: none"> • Playing and Exploring – children investigate and experience things and are willing to have a go • Active Learning – children concentrate and keep on trying if they encounter difficulties and enjoy achievements <p>Creating and Thinking Critically – children have and develop their own ideas, make links</p>	<ul style="list-style-type: none"> • Know how to mix colours together to make new colours <p>Key skills: from Characteristics of Effective Teaching and Learning</p> <ul style="list-style-type: none"> • Playing and Exploring – children investigate and experience things and are willing to have a go • Active Learning – children concentrate and keep on trying if they encounter difficulties and enjoy achievements <p>Creating and Thinking Critically – children have and develop their own ideas, make links between ideas and develop strategies for doing things</p>	<ul style="list-style-type: none"> • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter • Be able to talk about and discuss the changing seasons • Explore floating and sinking with a range of materials and objects <p>Key skills: from Characteristics of Effective Teaching and Learning</p> <ul style="list-style-type: none"> • Playing and Exploring – children investigate and experience things and are willing to have a go • Active Learning – children concentrate and keep on trying if they encounter difficulties and enjoy achievements <p>Creating and Thinking Critically – children have and develop their own ideas, make links between ideas and develop strategies for doing things</p>

	between ideas and develop strategies for doing things		
Key Vocabulary	Head, shoulders, knees, toes, feet, arms, hands, fingers, back, tummy Eyes, nose, ears, mouth, eyebrows, cheeks Countries, hot, cold Plant, roots, flower	Red, yellow, blue, purple, orange, green, mix, change, explore, investigate	Autumn, winter, spring, summer, change, leaves changing colour, growing, fallen, mushrooms, preparing, bare, full, hotter, colder, snow, frost, ice, new life
Key Stage One			
	Biology	Chemistry	Physics
End Point	2. To group animals according to their animal group and what they eat 3. To identify parts of a plant	4. Identify everyday materials and their properties.	1. To understand the changes through the seasons.
Year 1	<p>2. Animals, including humans</p> <ul style="list-style-type: none"> Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Identify and name a variety of common animals that are carnivores, herbivores and omnivores <p>Scientist Link: Chris Packham - Animal Conservationist</p> <p>3. Plants</p> <ul style="list-style-type: none"> Identify and name a variety of common, wild and garden plants 	<p>4. Everyday materials</p> <ul style="list-style-type: none"> Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Distinguish between an object and the material from which it is made 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. <p>Scientist Link: William Addis – Inventor of the toothbrush</p> <p>Key Skills</p> <ul style="list-style-type: none"> Set up a test to see which materials keep things warmest, know if the test has been successful and can say what has been learned. Explain to someone what has been learned from an investigation they have been involved with 	<p>1. Seasonal change</p> <ul style="list-style-type: none"> Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies. <p>Scientist Link: Liam Dutton – Weatherperson/Meteorologist</p>

	<ul style="list-style-type: none"> Identify and name the petals, stem, leaves and roots of a plant. Identify and name the roots, trunk, branches and leaves of a tree. <p>Key Skills</p> <p>Ask questions such as:</p> <ul style="list-style-type: none"> -Why do some animals eat meat and others don't? -Why are flowers different colours? <p>Scientist Link: Beatrix Potter - Botanist</p>	<p>and draw conclusions from the answers to the questions asked.</p> <ul style="list-style-type: none"> Measures (within Year 1 mathematical limits) to help find out more about the investigations undertaken 	
Key Vocabulary	Amphibians, birds, fish, mammals, reptiles, carnivore, herbivore, omnivore, breathe, gills, scales, beak, feathers, senses, sight, hearing, touch, taste, smell, brain, tongue, head, ear, mouth, shoulder, hand, fingers, leg, foot, toes, knee, thumb, elbow, teeth, nose, eye	Object, material, hard, soft, stretchy, shiny, dull, rough, plastic, wood, metal, water, glass, smooth, bendy, not bendy, waterproof, not waterproof, absorbent, not absorbent, transparent, opaque, see through	Wild plants, dandelion, daisy, nettles, brambles garden plants, fuchsia, sunflower, rose, weed, deciduous, evergreen, cedar, horse chestnut, oak, roots, nutrients, stem, leaves, flowers, petals, fruit, seed, bulb, grow
	Biology		Chemistry
End Point	To describe different habitats and explain how they provide for things living there.	To know some properties of materials and how they can be changed	
Year 2 (No physics in Year 2)	<p>1. All living things and their habitats</p> <ul style="list-style-type: none"> Classify things by living, dead or never lived. Understand what a habitat is and name some Show an understanding of how a specific habitat provides for the basic needs of things living there (plants and animals) Match living things to their habitats. Name some different sources of food for animals Explain a simple food chain. <p>Scientist Link: Rachel Carson – Marine Biologist</p> <p>Key Skills</p> <ul style="list-style-type: none"> Classify or group things according to a given criteria 	<p>1. Everyday materials</p> <ul style="list-style-type: none"> Identify and compare the suitability of a variety of everyday different materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses based on their properties Understand that materials can be changed by squashing, bending, twisting and stretching. Compare the use of different materials Compare movement on different surfaces Understand why a material might or might not be used for a specific job <p>Scientist/inventor link: Charles Macintosh – inventor of waterproof material</p>	

	<ul style="list-style-type: none"> • Know how to set up a fair test • Draw conclusions from fair tests and explain what has been found out 	Key Skills <ul style="list-style-type: none"> • Classify or group things according to a given criteria • Know how to set up a fair test • Draw conclusions from fair tests and explain what has been found out. • Use measures (within year 2 mathematical limits) to help find out more about the investigations they are engaged with
Key Vocabulary	Life processes, living, dead, never living, food chain, food sources, habitat, microhabitat, depend, survive, woodland, urban, coastal, rainforest, arctic, desert, ocean, river, mountain, short grass, flowers, inside rotting wood, under leaves, in and on soil	Materials, suitability, properties, purpose, squash, bend, twist, stretch, pulling, turning, opposite, direction hard, stiff, strong, opaque, carved, shape, waterproof, transparent, hard, smooth, flexible, smooth, rough, washable, lightweight, light, soft, hard-wearing, warm, elastic,
	Biology	
End Point	To understand how animals, including humans, grow and change	
	2. Animals including humans <ul style="list-style-type: none"> • Identify the basic stages in a life cycle of animals (including humans) • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • Show an understanding as to why exercise, balanced diet are important for humans. • Understand why good hygiene is important Scientist Link: Yann Le Meur – Sports Scientist	
Key Vocabulary	Adult, develop, life cycle, offspring, young, live young, baby, toddler, child, teenager, adult, frogspawn, tadpole, froglet, adult frog, diet, disease, exercise, germs, hygiene, nutrition, pulse, air, food, water, eat well plate, fruit and vegetables, protein, fats, carbohydrates, dairy	

	Biology	Chemistry
End Point	To understand how plants grow and stay healthy	
	<p>3. Plants</p> <ul style="list-style-type: none"> • Explain how seeds and bulbs grow into plants (life cycle of a plant) • Understand what plants need in order to grow and stay healthy (water, light and suitable temperature) <p>Scientist Link: George Washington Carver – Botanist</p> <p>Key Skills</p> <ul style="list-style-type: none"> • As questions such as: <ul style="list-style-type: none"> -Why do some trees lose their leaves in Autumn and others do not? -How long are roots of tall trees? • Use equipment such as thermometers and rain gauges to help observe changes to local environment as the year progresses. • Use microscopes to find out more about plants. • Know how to set up a fair test and do so when finding out about how seeds grow best. • Classify or group things according to a given criteria e.g. deciduous and coniferous trees 	
Key Vocabulary	Germination, sprout, shoot, seed dispersal, soaks, swells, leaves, flowers, fruits, dies, seed or bean, sunlight, water, temperature, nutrition, nourishment,	

Key Stage 2

	Biology	Chemistry	Physics
End Point	To understand a balanced diet and how it can effect the muscular system	To identify the different rock types and understand how a fossil is formed	To understand what friction is and how it works on different surfaces To understand how magnets, attract or repel
Year 3	<p>1. Animals, including humans</p> <ul style="list-style-type: none"> • Understand the importance of a nutritious, balanced diet • Explain how nutrients, water and oxygen are transported within animals and humans • Understand the skeletal and muscular system of a human • Test to see if their right hand is as efficient as their left hand - Explain to a partner why a test is a fair one e.g. lifting weights with right and left hand, etc. <p>Scientist link: Willhelm Rontgen – invented the X-Ray</p> <p>Key Skills:</p> <ul style="list-style-type: none"> • Gather and record information using a chart, matrix or tally chart, depending on what is most sensible • Know how to use a key to help understand information presented on a chart • Present findings using written explanations and include diagrams when needed • Make sense of findings and draw conclusions which help them to understand more about scientific information • Amend predictions according to findings • Be prepared to change ideas as a result of what has been found out during a scientific enquiry 	<p>1. Rocks</p> <ul style="list-style-type: none"> • Compare and group rocks based on their appearance and physical appearance and physical properties, giving reasons • Explain the difference between sedimentary, metamorphic and igneous rock • Use research to find out what the main differences are between sedimentary and igneous rocks • Understand how soil is made– recognise that soil is made from rocks and organic matter. • Explain how fossils are formed <p>Scientist link: Mary Anning - fossilist</p> <p>Key Skills:</p> <ul style="list-style-type: none"> • Gather and record information using a chart, matrix or tally chart, depending on what is most sensible • Present findings using written explanations and include diagrams when needed • Make sense of findings and draw conclusions which help them to understand more about scientific information • Amend predictions according to findings 	<p>1. Forces</p> <ul style="list-style-type: none"> • Understand and describe how objects move on different surfaces • Explain how some forces require contact and some do not, giving examples • Observe how magnets attract or repel each other and attract some materials and not others • Predict whether magnets will attract or repel and give a reason <p>Scientist link: William Gilbert – Magnetism and electricity</p> <p>Key Skills:</p> <ul style="list-style-type: none"> • Gather and record information using a chart, matrix or tally chart, depending on what is most sensible • Use bar charts and other statistical tables (in line with Year 3 mathematics statistics) to record findings • Know how to use a key to help understand information presented on a chart • Present findings using written explanations and include diagrams when needed • Make sense of findings and draw conclusions which help them to

		<ul style="list-style-type: none"> Be prepared to change ideas as a result of what has been found out during a scientific enquiry 	<p>understand more about scientific information</p> <ul style="list-style-type: none"> Amend predictions according to findings Be prepared to change ideas as a result of what has been found out during a scientific enquiry Measure carefully (taking account of mathematical knowledge up to Year 3) and add to scientific learning
Key Vocabulary	Healthy, nutrients, energy, saturated fats, unsaturated fats, carbohydrates, protein, fibre, fats, vitamins, minerals, water, energy, digest, vertebrate, invertebrate, muscles, tendons, joints, skeleton	Igneous, sedimentary, metamorphic, magma, lava, sediment, permeable, impermeable, fossilization, erosion, paleontology, soil, minerals, organic matter, topsoil, subsoil, base rock, permeates	Forces, push, pulls, friction, surface, magnet, magnetic, magnetic field, poles, repel, attract
	Biology	Chemistry	Physics
End Point	To understand the life cycle and the function of plants/flowers		To understand how the eye works To understand how light travels and forms shadows
Year 3	<p>2. Plants</p> <ul style="list-style-type: none"> Group information according to common factors e.g. plants that grow in woodlands or plants that grow in gardens Observe which type of plants grow in different places e.g. bluebells in woodland, roses in domestic gardens, etc. (possible nature walk) Identify the function of different plants of flowering plants and trees Explain how water is transported within plants 		<p>2. Light</p> <ul style="list-style-type: none"> Understand the danger of direct sunlight and describe how to keep protected Understand that dark is the absence of light Identify how the eye works Explain how light travels in a straight line and is needed in order to see and is reflected from a surface

	<ul style="list-style-type: none"> • Explain the plant life cycle, especially the importance of flowers. • Set up a fair test with different variables e.g. the best conditions for a plant to grow <p>Scientist link: Ahmed Mumin Warfa – Somali Botanist</p> <p>Key Skills:</p> <ul style="list-style-type: none"> • Gather and record information using a chart, matrix or tally chart, depending on what is most sensible • Present findings using written explanations and include diagrams when needed • Make sense of findings and draw conclusions which help them to understand more about scientific information • Amend predictions according to findings • Be prepared to change ideas as a result of what has been found out during a scientific enquiry 		<ul style="list-style-type: none"> • Demonstrate how a shadow is formed and explain how a shadow changes • Use research to find out how reflection can help us see things that are around the corner • Be confident to stand in front of others and explain what has been found out, for example about how a shadow changes <p>Scientist link: Ibn Al-Haytham - Astronomer</p> <p>Key Skills:</p> <ul style="list-style-type: none"> • Gather and record information using a chart, matrix or tally chart, depending on what is most sensible • Use bar charts and other statistical tables (in line with Year 3 mathematics statistics) to record findings • Know how to use a key to help understand information presented on a chart • Present findings using written explanations and include diagrams when needed • Make sense of findings and draw conclusions which help them to understand more about scientific information • Amend predictions according to findings • Be prepared to change ideas as a result of what has been found out during a scientific enquiry
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			<ul style="list-style-type: none"> Measure carefully (taking account of mathematical knowledge up to Year 3) and add to scientific learning
Key Vocabulary	Roots, nutrients, stem, leaves, flowers, evaporation, water, light, food, air, room to grow, transports, fertilization, petal, stamen, carpel (pistil), pollinator, ovary, ovules, sepal, pollination, pollinator, germination, seed dispersal, dropping, carrying, eating, bursting, shaking,		Light, light source, dark, reflection, reflect, reflective, ray, wave, object, mirror, shiny, rough, uneven, smooth, pupil, retina, shadow, opaque, translucent, transparent, shadow
	Biology	Chemistry	Physics
End Point	To know why we need food and how the body digests it.	To identify solids, liquids and gases and explain how materials can change state	To know the components of a circuit and how electricity flows through a circuit.
Year 4	<p>1. Animals, including humans</p> <ul style="list-style-type: none"> Identify and name the parts of the human digestive system Understand the functions of the organs in the human digestive system Use research to find out how much time it takes to digest most of our food Identify the different types of human teeth Understand the functions and structure of different human teeth Understand that food and drinks can damage teeth and know how to look after them. Use and construct food chains to identify producers, predators and prey <p>Scientist Link: Ivan Pavlov - Physiologist</p>	<p>1. States of matter</p> <ul style="list-style-type: none"> Compare and group materials together, according to whether they are solids, liquids or gases Explore how some materials can change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius Use a thermometer to measure temperature and know there are two main scales used to measure temperature Use a data logger to check on the time it takes ice to melt to water in different temperatures Know the part played by evaporation and condensation in the water cycle <p>Scientist Link: Daniel Fahrenheit – Inventor of the thermometer</p> <p>Key skills:</p>	<p>1. Electricity</p> <ul style="list-style-type: none"> Identify and name appliances that require electricity to function Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers) Construct a simple series circuit Predict and test whether a lamp will light within a circuit Understand the function of a switch Understand the difference between a conductor and an insulator; giving examples of each Use research to find out which materials make effective conductors and insulators of electricity Group information according to common factors e.g. materials that make good conductors or insulators <p>Scientist Link: Michael Faraday – Physicist</p>

		<ul style="list-style-type: none"> • Ask questions such as: <ul style="list-style-type: none"> - Why are steam and ice the same thing? • Gather and record information using a chart, matrix or tally chart, depending on what is most sensible • Use bar charts and other statistical tables (in line with Year 4 mathematics statistics) to record findings • Present findings using written explanations and include diagrams, when needed • Write up findings using a planning, doing and evaluating process • Set up a fair test with more than one variable • Make sense of findings and draw conclusions which helps them understand more about the scientific information that has been learned • Explain to others why a test that has been set up is a fair one e.g. discover how fast ice melts in different temperatures • When making predictions there are plausible reasons as to why they have done so • Measure carefully (taking account of mathematical knowledge up to Year 4) and add to scientific learning 	
Key Vocabulary	Digest, oesophagus, stomach, small intestine, large intestine, rectum, tongue, teeth, mouth, salivary gland, liver, gall bladder, rectum, anus, pancreas, canine, molar, premolar, incisor, herbivore, carnivore, omnivore, energy, prey, predator, producer, consumer, decay	States of matter, solids, liquids, gases, water vapour, melting, freezing, particles, melt, freeze, evaporate, condense, precipitation, water cycle, cools, heats, rapidly, slowly	Electricity, generate, renewable, non-renewable, appliances, battery, circuit, flow, power supply, bulbs, switches, buzzers, batteries, conductors, insulators
	Biology	Chemistry	Physics

End Point	To know how to classify living things in different ways.		To know how sounds are made and how they travel
Year 4	<p>2. All living things, and their habitats</p> <ul style="list-style-type: none"> • Identify the characteristics of living things • Recognise that living things can be grouped in a variety of ways • Use classification keys to help group, identify and name a variety of living things in their local and wider environment • Understand how changes to an environment could endanger living things <p>Scientist Link: Gladys West</p> <p>Key skills: Ask questions such as:</p> <ul style="list-style-type: none"> • Why is the liver important in the digestive systems? • Present findings using written explanations and include diagrams, when needed • Write up findings using a planning, doing and evaluating process • Set up a fair test with more than one variable • Make sense of findings and draw conclusions which helps them understand more about the scientific information that has been learned • Explain to others why a test that has been set up is a fair one • When making predictions there are plausible reasons as to why they have done so 		<p>2. Sound</p> <ul style="list-style-type: none"> • Understand how sound is made, associating some of them with vibrating • Identify the correlation between the volume of a sound and the strength of the vibrations that produced it • Understand how sound travels from a source to our ears • Explain what happens to a sound as it travels away from its source • Carry out tests to see, for example, which of two instruments make the highest or lowest sounds • Show an understanding of the correlation between pitch and the object producing a sound <p>Scientist Link: Evelyn Glennie – Deaf percussionist</p> <p>Key skills:</p> <ul style="list-style-type: none"> • Ask questions such as: <ul style="list-style-type: none"> - What do we mean by ‘pitch’ when it comes to sound? • Gather and record information using a chart, matrix or tally chart, depending on what is most sensible • Present findings using written explanations and include diagrams, when needed • Write up findings using a planning, doing and evaluating process • Set up a fair test with more than one variable e.g. using different materials to cut out sound

			<ul style="list-style-type: none"> • Make sense of findings and draw conclusions which helps them understand more about the scientific information that has been learned • Explain to others why a test that has been set up is a fair one e.g. discover how fast ice melts in different temperatures • When making predictions there are plausible reasons as to why they have done so • Able to amend predictions according to findings • Be prepared to change ideas as a result of what has been found out during a scientific enquiry
Key Vocabulary	Organisms, life processes, respiration, sensitivity, reproduction, excretion, nutrition, habitat, environment, endangered species, extinct, MRS GREN, movement, respiration, sensitivity, growth, reproduction, excretion, nutrition, habitat, natural, human-made, dangerous		Vibration, sound wave, volume, amplitude, pitch, loud, quiet, high-pitched, low-pitched, faster, slower, ear, particles, distance, soundproof, absorb sound, vacuum, eardrum
	Biology	Chemistry	Physics
End Point	To know how plants and animals reproduce.	To know the properties of everyday materials. To know the difference between reversible and irreversible reactions.	To understand the forces around us and how they affect us.
Year 5	<p>1. All living things and their habitats</p> <ul style="list-style-type: none"> • Understand the process of reproduction in plants • Identify the life cycle of different living things e.g. mammal, amphibian, insect and bird • Understand the differences between different life cycles • Understand the process of reproduction in animals <p>Scientist link:</p>	<p>Properties and changes in materials</p> <ul style="list-style-type: none"> • Identify and understand what soluble and insoluble materials are • Explain how a material dissolves to form a solution • Show how to recover a substance from a solution (evaporation) • Compare and group materials based on their properties (e.g hardness, solubility, 	<p>Forces</p> <ul style="list-style-type: none"> • Explain what gravity is and its impact on our lives (distinguish between weight and mass; know the role Isaac Newton played in developing the theory) • Identify and know the effect of air and water resistance • Identify and know the effect of friction

	<p>Malaika Vaz – National Geographic explorer</p> <p>Key skills:</p> <ul style="list-style-type: none"> • Use diagrams, as and when necessary, to support writing • Clear about what has been found out from recent enquiry and can relate this to other enquiries, where appropriate • Frequently carry out research when investigating a scientific principle or theory 	<p>transparency, conductivity, (electrical & thermal), and response to magnets</p> <ul style="list-style-type: none"> • Demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) • Explain and demonstrate that some changes are reversible and some are not • Understand how some changes result in the formation of a new material and that this is usually irreversible <p>Scientist link: Becky Schroeder – inventor of the glow sheet</p> <p>Key Skills:</p> <ul style="list-style-type: none"> • Keep an on-going record of new scientific words that they have come across for the first time • Is evaluative when explaining findings from scientific enquiry • Clear about what has been found out from recent enquiry and can relate this to other enquiries, where appropriate • Use all measurements as set out in Year 5 mathematics (measurement), including capacity and mass • Make predictions based on information gleaned from investigations • Create new investigations which take account of what has been learned previously 	<ul style="list-style-type: none"> • Explain how levers, pulleys and gears allow a smaller force to have a greater effect <p>Scientist link: Isaac Newton – discovered gravity</p> <p>Key skills</p> <ul style="list-style-type: none"> • Keep an on-going record of new scientific words that they have come across for the first time • Set up a fair test • Use diagrams, as and when necessary, to support writing • Use all measurements as set out in Year 5 mathematics (measurement), including capacity and mass • Is evaluative when explaining findings from scientific enquiry • Use other scientific instruments as needed e.g. thermometer, rain gauge, spring scales (for measuring Newtons) • Create new investigations which take account of what has been learned previously • Frequently carry out research when investigating a scientific principle or theory
<p>Key Vocabulary</p>	<p>Asexual reproduction, fertilise, gestation, life cycle, metamorphosis, pollination, reproduction, sexual reproduction, pregnancy, dependent, similar,</p>	<p>Materials, solids, liquids, gases, melting, freezing, evaporating, condensing, conductivity, flexibility, hardness, insulators, magnetism, solubility, thermal conductivity,</p>	<p>Forces, gravity, earth gravitational pull, weight, mass, newtons, friction, air resistance, water resistance, buoyancy,</p>

	identical, mammals, sexual reproduction, fertilizes, cells, beating heart, pollen, ovule,	transparency, sieving, filtering, dissolving, reversing, irreversible, casein	streamlined, mechanism, upthrust, pulleys, gears, cogs, levers
	Biology	Chemistry	Physics
End Point	To know how the human body changes from conception to death		To know about the different bodies of the Solar System and their movements relative to the Sun
Year 5	<p>2. Animals, including humans</p> <ul style="list-style-type: none"> Describe changes as humans develop from birth to old age, in particular puberty Create a timeline to indicate stages of growth in humans Set up an enquiry-based investigation e.g. find out what adults / children can do now that they couldn't when a baby <p>Scientist link: Sigmund Freud – created psychoanalysis</p> <p>Key Skills:</p> <ul style="list-style-type: none"> Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs Able to present information related to scientific enquiries in a range of ways including using IT Use diagrams, as and when necessary, to support writing Is evaluative when explaining findings from scientific enquiry 		<p>2. Earth and Space</p> <ul style="list-style-type: none"> Explain about the bodies that make up the solar system Describe the Sun, Earth and Moon (using the term spherical) Understand and demonstrate how night and day are created (link to time-zones) Explain the movement of the Earth and other planets relative to the Sun (know what causes seasons) Explain the movement of the Moon relative to the Earth <p>Linked Scientist: Mai Jemison - Astronaut</p> <p>Key skills:</p> <ul style="list-style-type: none"> Able to present information related to scientific enquiries in a range of ways including using IT Use diagrams, as and when necessary, to support writing Their explanations set out clearly why something has happened and its possible impact on other things Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs

Key Vocabulary	Fertilization, prenatal, infancy, childhood, adolescence, early adulthood, middle adulthood, late adulthood, fertilisation, prenatal, gestation, reproduce, asexual reproduction, sexual reproduction, life cycle		Sun, star, moon, planet, sphere, spherical bodies, satellite, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, pluto, dwarf planet, rock, gas, metal, core, celestial bodies, orbit, axis, rotate,
	Biology		Physics
End Point	Understand and explain the function of the heart		Understand and draw the key components in a circuit
Year 6	<p>Animals including humans</p> <ul style="list-style-type: none"> • Identify and name the main parts of the human circulatory system • Explain the function of the heart, blood vessels and blood • Understand the impact of diet, exercise, drugs and lifestyle on health • Explain the ways in which nutrients and water are transported in animals, including humans <p>Scientist Link: Marie M. Daly – chemist</p> <p>Key skills:</p> <ul style="list-style-type: none"> • Keep an on-going record of new scientific words that they have come across for the first time • Know which type of investigation is needed to suit particular scientific enquiry e.g. looking at the relationship between pulse and exercise • Use a range of written methods to report findings, including focusing on the planning, doing and evaluating phases • Clear about what has been found out from their enquiry and can relate this to others in class • Explanations set out clearly why something has happened and its possible impact on other things • Know what the variables are in a given enquiry and can isolate (and justify) each one when investigating • Aware of the need to support conclusions with evidence • Keep an on-going record of new scientific words that they have come across for the first time and use these regularly in future scientific write ups • Use all measurements as set out in Year 6 mathematics (measurement), including capacity, mass, ratio and proportion 		<p>Electricity</p> <ul style="list-style-type: none"> • Compare and give reasons for how components work and do not work in a circuit • Draw circuit diagrams using correct symbols • Understand how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer <p>Scientist Link: Nikola Tesla – inventor/electrical engineer</p> <p>Key skills:</p> <ul style="list-style-type: none"> • Keep an on-going record of new scientific words that they have come across for the first time • Use a range of written methods to report findings, including focusing on the planning, doing and evaluating phases • Clear about what has been found out from their enquiry and can relate this to others in class • Use diagrams, as and when necessary, to support writing and be confident enough to present findings orally in front of the class • Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs • Make accurate predictions based on information gleaned from their investigations and create new investigations as a result • Explanations set out clearly why something has happened and its possible impact on other things

	<ul style="list-style-type: none"> • Use diagrams, as and when necessary, to support writing and be confident enough to present findings orally in front of the class • Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs • Make accurate predictions based on information gleaned from their investigations and create new investigations as a result • Able to present information related to scientific enquiries in a range of ways including using IT 	<ul style="list-style-type: none"> • Know what the variables are in a given enquiry and can isolate each one when investigating
Key Vocabulary	Circulatory system, heart, blood vessels, oxygenated blood, deoxygenated blood, pumps, lungs, organs, capillaries, exchange, nutrients, oxygen, carbon dioxide, veins, arteries, drug, alcohol, plasma, platelets, white blood cells, red blood cells, protein, exercise,	Circuit, symbol, cell/battery, current, amps, voltage, resistance, electrons, components, lamp (indicator), wire, motor, buzzer, switch (open/closed) battery, cell,
	Biology	Physics
End Point	Understand and demonstrate how to classify living things into broad groups according to observable characteristics and based on similarities and differences	Explain how light travels and how refraction occurs
Year 6	<p>All living things and their habitats</p> <ul style="list-style-type: none"> • Classify living things into broad groups according to observable characteristics and based on similarities and differences • Understand and demonstrate how to classify living things • Give reasons for classifying plants and animals in a specific way • Able to give an example of something they have focused on when supporting a scientific theory e.g. classifying vertebrate and invertebrate creatures or why certain creatures choose their unique habitats <p>Scientist Link: Carl Linnaeus – naturalist and botanist</p> <p>Key skills:</p> <ul style="list-style-type: none"> • Use diagrams, as and when necessary, to support writing 	<p>Light</p> <ul style="list-style-type: none"> • Explain how light travels • Demonstrate how we see objects • Explain how the eye works • Investigate how shadows are formed • Explain and demonstrate why shadows have the same shape as the object that casts them <p>Scientist Link: Sir Isaac Newton discovered the rainbow (refraction) CV Raman - physicist</p> <p>Key skills:</p> <ul style="list-style-type: none"> • Keep an on-going record of new scientific words that they have come across for the first time

	<ul style="list-style-type: none"> • Clear about what has been found out from recent enquiry and can relate this to other enquiries, where appropriate • Frequently carry out research when investigating a scientific principle or theory 	<ul style="list-style-type: none"> • Use a range of written methods to report findings, including focusing on the planning, doing and evaluating phases • Set up a fair test when needed e.g. does the time of day impact the size of a shadow? • Use Year 6 maths and diagrams, as and when necessary, to support writing • Is evaluative when explaining findings from scientific enquiry • Create new investigations which take account of what has been learned previously • Frequently carry out research when investigating a scientific principle or theory • Know what the variables are in a given enquiry and can isolate each one when investigating • Aware of the need to support conclusions with evidence
Key Vocabulary	Characteristics, classify, taxonomist, key, bacteria, microscope, species, bacteria, yeast, microorganisms	Light, light source, reflection, incident ray, reflected ray, the law of reflection, energy, wave, surface, bounced, refraction, visible, transparent, separating, spectrum, prism, shadow, transparent, Isaac Newton, colours, rainbow, shadow, cast
	Biology	Physics
End Point	Show a clear understanding about evolution and explain what it is	
Year 6	<p>Evolution and Inheritance</p> <ul style="list-style-type: none"> • Understand how the Earth and living things have changed over time • Explain how fossils can be used to find out about the past • Explain about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) • Understand how animals and plants are adapted to suit their environment • Link adaptation over time to evolution • Show a clear understanding about evolution and explain what it is <p>Scientist Link: Charles Darwin Rosalind Franklin – discovered the structure of DNA</p>	

	<p><u>Key skills:</u></p> <ul style="list-style-type: none"> • Keep an on-going record of new scientific words that they have come across for the first time • Use a range of written methods to report findings • Aware of the need to support conclusions with evidence • Use Year 6 maths and diagrams, as and when necessary, to support writing • Is evaluative when explaining findings from scientific enquiry • Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs 	
Key Vocabulary	offspring, inheritance, variations, characteristics, adaptations, habitat, environment, similar, identical, adaptive traits, inherited traits,	

Cross Curricular Links	
Maths	Measuring; calculations
History	Life of scientists in the past