Science Curriculum Overview

These Programmes of study are from the 2014 National Curriculum There will be 6 Programmes of study to cover across the year They can be moved around across each phase - Year 1 and 2, Year 3 and 4, and Year 5 and 6 These changes must be discussed with the curriculum lead prior to this happening. Nursery & Reception objectives are based on the Early Adopters EYFS Framework.

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Nur	Explore materials with different properties. Explore natural materials, indoors and outside.	Explore and respond to different natural phenomena in their setting and on trips.	Use all their senses in hands on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary.	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 can feel.	Talk about the differences between materials and changes they notice.
SKILLS & KNOWLEDGE OBJECTIVES	• Provide open-ended play materials inside and outdoors. Suggestion: Treasure Baskets for repeated exploration of textures, sounds, smells and tastes. • Offer lots of different textures for exploration with fingers, feet and whole body. Suggestions: wet and dry sand, water, paint and playdough.	• Encourage toddlers and young children to enjoy and explore the natural world. • Encourage children's exploration, curiosity, appreciation and respect for living things.	• Provide interesting natural environments for children to explore freely outdoors. Make collections of natural materials to investigate and talk about. • Encourage children to talk about what they see. • Model observational and investigational skills. Ask out loud: "I wonder if…?" Plan and introduce new vocabulary, encouraging children to use it to discuss their findings and ideas.	• Show and explain the concepts of growth, change and decay with natural materials. • Plan and introduce new vocabulary related to the exploration. • Encourage children to use it in their discussions, as they care for living things. • Encourage children to refer to books, wall displays and online resources. This will support their investigations and extend their knowledge and ways of thinking.	• Draw children's attention to forces. Suggestions: - how the water pushes up when they try to push a plastic boat under it - how they can stretch elastic, snap a twig, but can't bend a metal rod - magnetic attraction and repulsion • Plan and introduce new vocabulary related to the exploration, and encourage children to use it.	• Provide children with opportunities to change materials from one state to another. • Explore how different materials sink and float. • Explore how you can shine light through some materials, but not others. • Investigate shadows. • Plan and introduce new vocabulary related to the exploration, and encourage children to use it.

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Rec	Explore the natural world around them.		Describe what they see, hear and feel whilst outside.		Recognise some environments that are different to the one in which they live.	
SKILLS & KNOWLEDGE OBJECTIVES	• Provide children with have frequent opportunities for outdoor play and exploration. • Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. • Create opportunities to discuss how we care for the natural world around us. • Offer opportunities to sing songs and join in with rhymes and poems about the natural world. After close observation, draw pictures of the natural world, including animals and plants. Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water.		• Encourage focused observation of the natural world. • Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in. • Name and describe some plants and animals children are likely to see, encouraging children to recognise familiar plants and animals whilst outside.		• Teach children about a range of contrasting environments within both their local or national region. • Model the vocabulary needed to name specific features of the natural world, both natural and manmade. • Share non-fiction texts that offer an insight into contrasting environments. • Listen to how children communicate their understanding of their own environment and contrasting environments through conversation and in play.	
Seasons	Understand the effect of changing seasons on the natural world around them. • Guide children's understanding by draw children's attention to the weather and seasonal features. • Provide opportunities for children to note and record the weather. • Select texts to share with the children about the changing seasons. • Throughout the year, take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change. • Look for children incorporating their understanding of the seasons and weather in their play. •					

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Y1	**Animals including humans** identify, name, draw and label the basic parts of the human body Say which part of the body is associated with each sense Learn the names of individual body parts through rhyme, play and games Seasonal changes investigation starts	**Animals including humans** identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Identify and classify a range of animals into different groups 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)	**Plants** 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 find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	**Plants** observe and describe how seeds and bulbs grow into mature plants Start to compare the differences in plants Start to understand what is an evergreen and a deciduous tree	**Everyday Materials** 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	**Everyday Materials** 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 Understand and describe waterproof, transparent, opaque	**Working Scientifically:** asking simple questions and recognising that they can be answered in different ways (1) observing closely, using simple equipment (2) performing simple tests (3) identifying and classifying (4) using their observations and ideas to suggest answers to questions (5) gathering and recording data to help in answering questions (6)
	Seasonal Changes • observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies						
SKILLS & KNOWLEDGE OBJECTIVES	To name parts of the body (1,4) To label different body parts (4) To identify the 5 senses and which part of the body they are associated with (4,5) To use my senses to investigate (3)	To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals (4) To identify and group animals in a variety of ways (4) To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) (4,5) To group animals according to what they eat (4) To describe how the makeup of an animal makes it ideal for its environment (5)	To observe how a plant from a seed grows over time (1,2,3) To identify a variety of different plants (1,4) To start to describe what a plant needs to survive (1,5) To label simple parts of a flower (1,4) To identify parts of a plant and discuss their functions (1,4,5)	To observe how a plant from a bulb grows over time (1,2,3) To identify and name a variety of flowering plants (4) To identify the different stages of a life cycle for a flowering plant (1,4) To compare the differences in plants (4) To identify and compare evergreen and deciduous trees (4,5)	To identify everyday materials (4) To identify a variety of objects and to distinguish them from the materials they are made from (2,4) To understand the properties of different materials by testing them (1,3) To compare materials based on their physical properties (1,2,3,5) To understand what waterproof means (2,3) To understand what absorbent means (2,3)	To understand why we use different material (5) To understand the difference between natural and man-made materials (4) To investigate the strength of different materials (3) To understand how humans, use natural and man-made materials (5) I am learning to identify objects than are transparent and opaque (3,6)	

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Y2	**Living things and their habitats** explore and compare the differences between things that are living, dead, and things that have never been alive Explore a range of habitats, including habitats local to us Use research to explore habitats from around the world Identify a range of minibeasts and microhabitats	**Living things and their habitats** identify and name a variety of plants and animals in their 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 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	**Animals including humans** notice that animals, including humans, have offspring which grow into adults find out about and describe the basic needs of animals, including humans, for survival (water, food and air) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene Understand the different food groups and their roles Describe the effects of exercise on the human body	**Plants** observe and describe how seeds and bulbs grow into mature plants identify and describe the basic structure of a variety of common flowering plants, including trees Explain that different plants have different needs Use scientific language to compare the make- up of different plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	**Uses of everyday materials** identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Use the local area to identify and describe the use of every day materials find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	**Uses of everyday materials** Set up simple experiments and record accurate observations Explain the process of recycling materials Discover how new materials can be made Describe which materials are man-made or natural Use scientific research to describe how new materials have impacted modern life	**Working Scientifically:** 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
SKILLS & KNOWLEDGE OBJECTIVES	To describe the differences between alive/dead and never been alive (5,6) To identify a range of minibeast and microhabitats (3) To explore a range of different habitats (2,4) To explore native living things in their own habitat (2,4) To start to understand that different habitats have different climates (2.4) To describe different habitats and match animals to their habitat (4,5)	To describe how different animals, obtain food (4) To understand how an animal is dependent on food sources (1,4,5) To identify the needs of animals and how they have adapted to their habitat (1,4,5) To understand/ create a food chain and link it to specific habitats (1,5) To understand that a food chain must consist of animals that are native in their habitat (2,4)	To identify the basic needs of animals including humans for survival (1,4,5) To understand that animals, including humans, have offspring which grow into adults (1,4,5) To understand the importance of good hygiene (1,2,3) To understand the importance of the different food groups and their functions (1,4,5) To recognise the importance of a balanced diet (4) To understand the importance of exercise (2,5) To identify the effects of exercise on the human body (2,4,5)	To identify and name a variety of different plants and trees, both local and nonlocalised. (4,5) I am learning to observe and describe how seeds and bulbs grow into mature plants (lifecycles) (1,2,3) To investigate and describe how plants need water, light and a suitable temperature to grow and stay healthy (1,2,3,4,5) To discuss how a plant stays healthy (4,5)	To identify everyday materials in different forms (3,4) To identify why there are different uses for every day materials (3,4,5) To compare the properties of everyday materials using developed scientific language. (3,4,5,6) To discuss the suitability of every day materials (3,4,5,6) To compare the suitability of a range of everyday materials for different uses e.g building (4,5,6) To understand what makes a material waterproof (3,4,5,6)	To investigate the transparency of materials (2,3,5,6) To explain how the shape of an object can be changed through different processes (2,3,5,6) To describe how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching (2,3,4,6) To investigate how materials can be recycled (1,5)	

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Y3	**Forces and magnets** 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	**Forces and magnets** Describe magnets as having 2 poles Predict whether 2 magnets will attract or repel each other, depending on which poles are facing 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	**Animals including humans** 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 Label and explain the functions of the muscular and skeletal system	**Plants** Identify the different parts of flowering plants Predict what will happen in an investigation Make observations Identify the main stages of the life cycle of flowering plants Understand pollination and fertilisation Explain the functions of the different parts of a flower Be able to ask and answer questions based on their learning using scientific language Make and record accurate observations	**Rocks** Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties 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	**Light** 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 a solid object Find patterns in the way that the size of shadows change	**Working Scientifically (Y3/4):** asking relevant questions and using different types of scientific enquiries to answer them (1) setting up simple practical enquiries, comparative and fair tests (2) making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers (3) gathering, recording, classifying and presenting data in a variety of ways to help in answering questions (4) recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables (5) reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions (6) using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions (7) identifying differences, similarities or changes related to simple scientific ideas and processes (8) using straightforward scientific evidence to answer questions or to support their findings (9)
SKILLS & KNOWLEDGE OBJECTIVES	To compare how things move on different surfaces (1,2,3,4,5,6) To investigate different types of force (2,3,4) To understand in detail how different forces act (8) To test how some forces act on objects (1,2,3,4,5,6) (NS) To understand that some forces need contact between two objects (2,3,4,8)	To recognise that magnetic forces can be used at a distance (1,2,3,5,6) To test and group materials based on whether they are attracted to a magnet (2,3,4,5) To identify some magnetic materials (1,2,3,4,5,6) To observe how magnets attract or repel each other and attract some materials and not others (2,3,4,5) To be able to describe magnets as two poles (1,8,9) To predict and investigate whether 2 magnets will attract or repel each other, depending on which poles are facing (2,3,4,5,8)	To identify and understand animals, including humans' nutritional needs (8) To understand that humans and animals get nutrition from what they eat (8,9) To label and describe the skeletal system in some animals including humans (8,9) To compare the skeletal system of humans and some other animals (8,9) To understand that the skeletal system is required for support in some animals (7,8,9) To label and describe the functions of the muscles in the human body (1,8,9)	To label and discuss the reproductive parts of a flowering plant (8) To describe what is important for a plant to survive and begin to understand how plants adapt (5,8) To understand pollination and fertilisation (8) To investigate ways in which a plant transports water (9) To explore the part that flowers play in in the life cycle of a flowering plant (8,9)	To discover and investigate different rock types (9) To test the hardness of different rock types (1,2,3) To compare and group together different types of rock based on their properties and appearance (8) To recognise that soil are made from rocks and organic matter (8,9) To observe and compare how different types of soil drain (8) To understand and describe how fossils are formed (8)	To recognise that humans need light to be able to see things and that darkness is the absence of light (1,2,8) To investigate how light travels in straight lines and can be reflected (1,2,8) To understand how a mirror works (1,2,3,8) To understand that light from the sun can be dangerous (8) To discover which materials allow light to travel through (1,2,3,8) To investigate which materials block light to form shadows (1,2,3,8) To investigate how shadows, change size (1,2,5,6,8)	

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Y4	**Sound** 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	**Living things and their habitats** 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	**Animals including humans** Set up simple enquiries Make observations, record findings and use results to draw simple conclusions Name parts of the digestive system Add functions to the parts of the digestive system Identify the function of teeth in humans Construct a simple food chain Explain the functions of the digestive system Identify the types and functions of teeth	**Electricity** identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors	**States of matter** 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)	**States of matter** 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	**Working Scientifically (Y3/4):** asking relevant questions and using different types of scientific enquiries to answer them (1) setting up simple practical enquiries, comparative and fair tests (2) making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers (3) gathering, recording, classifying and presenting data in a variety of ways to help in answering questions (4) recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables (5) reporting on findings from enquiries, including oral

SKILLS & KNOWLEDGE OBJECTIVES	To identify how sounds are made and travel (2,3,4,8) To recognise that sounds are associated with vibrations (1,2,3,4,8,9) To find patterns between the volume of a sound and the strength of the vibrations that produced it (1,2,3,4,5) To label the inner ear and describe how humans hear (1,8,9) To investigate the pitch of a sound and understand how an object creates this sound (2,3,4,5) To understand that sound becomes fainter as the distance it travels increases (2,3,4,5,6) To investigate the sound made from different objects (2,3,4,5)	To observe how a plant from a seed grows over time using results to draw up scientific conclusions. (1,2,3,4,5,6) To sort living things in to a variety of groups (8) To use classification keys to help group living things (1,8,9) To identify a variety of habitats and recognise that habitats can change over time (8) To understand that changes to a habitat can pose dangers and have an impact on living things (1,8,9)	To understand how the human body's digestive system works (1,8,9) To label the basic parts of the digestive system (1,8,9) To describe the basic functions of the digestive system (1,8,9) To understand how a food chain is formed (1,8,9) To interpret food chains consisting of producer, predator and prey (1,8,9) To identify the different types of teeth in humans and describe their basic functions (1,8,9) To understand how tooth decay occurs (1,2,3,4,5,6) (NS)	To explain ways that electricity is generated (1,8) To identify electrical appliances and how they work (1,8) Use symbols to draw complete and incomplete circuits (5) Identify electrical conductors and insulators and associate metals with being good conductors(1,2,3,4,5,6) To test switches on a constructed complete and incomplete circuit (1,2,3,4,5) To be able to use switches, lights and buzzers to complete a circuit (2,3,4,5,6)	To identify and classify materials into different states (1,8,9) To investigate how particles behave in different states (1,2,3,4,5,6) To group and describe liquids, solids and gases (1,8,9) To observe how materials change through different processes (1,2,3,4,5,6) To investigate the viscosity of different materials (2,3,4,5,6,7)	To explore evaporation and condensation (2,3,4,5) To explore how rain falls (1,8) To identify and describe the different parts of the water cycle (1,8,9)	and written explanations, displays or presentations of results and conclusions (6) using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions (7) identifying differences, similarities or changes related to simple scientific ideas and processes (8) using straightforward scientific evidence to answer questions or to support their findings (9)

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5	**Living things and their habitats** 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 Compare the lifecycles of amphibians, mammals, birds and insects	**Forces** 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	**Properties and changes in materials** 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 Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	**Properties and changes in materials** 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 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 associated with burning and the action of acid on bicarbonate of soda	**Earth and Space** Name at least two different shapes the Earth was thought to be Identify scientific evidence that has been used to support or refute ideas Describe some features of the planets Place the planets in the solar system in the correct order Explain theories of planetary movement in the solar system using evidence Explain using evidence how night and day occur Explain why night and day occur at different times in different places on Earth Explain how the Earth and Moon move relative to the Sun	**Animals including humans** Describe the changes as humans develop to old age Name the 6 stages of human development Give reasons why changes occur during puberty Explain the changes that occur during stages of human development Demonstrate understanding of how babies grow in height and weight Analyse the similarities and differences between how boys and girls experience puberty	Working Scientifically (Y5/6): planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary (1) taking measurements, using a range of scientific equipment, with increasing accuracy and precision (2) recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs (3) using test results to make predictions to set up further comparative and fair tests (4) reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations (5) identifying scientific evidence that has been used to support or refute ideas or arguments (6)
SKILLS & KNOWLEDGE OBJECTIVES	To study the life cycle of an amphibian, mammal and bird (1,8,9) To compare and discuss the life cycles of amphibians, mammals and birds (1,8,9) Describe the life process of reproduction in plants (1,8,9) Describe the life process of a variety of animals (1,8,9) To compare and describe the reproduction process of a variety of plants and animals (1,8,9)	To understand how gravity acts between the Earth and the falling object (5,6) To identify a range of different forces and how they act on objects (1,2,3,4,5) To describe in detail the action of a variety of forces (5,6) To investigate how pulleys operate (1,2,3,4,5) To explore how pulleys, levers and gears allow a smaller force to have a greater effect (1,2,3,4,5)	To identify group a variety of materials based on their properties (1,2,3,4,5) To test materials based on their properties (1,2,3,4,5) To plan comparative or fair tests and then take accurate measurements and make accurate observations with scientific reason. (bounciest ball) (NS) (1,2,3,4,5) To plan comparative or fair tests and then take accurate measurements and make accurate observations with scientific reason. (best 'mopper-upper') (NS) (1,2,3,4,5)	To understand that some materials will dissolve in liquid to form a solution (1,2,3,4,5) To describe how to recover a substance from a solution(1,2,3,4,5) To explain that some changes result in the formation of new materials (5,6) (NS) To classify changes as reversible and irreversible (5,6) To explore making and separating mixtures (1,2,3,4,5) To describe the process of separating mixtures (5,6)	To understand that the sun, moon and Earth are spherical bodies (5,6) To describe to movement of Earth and other planets in our solar system (5,6) To investigate the relative size of each spherical body in our solar system (5,6) To explain how the different planets orbit the sun (5,6) To understand how Earth's rotation creates night and day (5,6) To explain why night and day occur at different times and places	To describe the stages of human development (5,6) To explain the development and growth of babies (5,6) To describe and explain the main changes that occur during puberty (Links to PSHE) (NS) (5,6) To compare the gestation period of different animals (5,6) To identify the changes that occur in old age (5,6) To investigate the pattern between gestation periods and life expectancy (5,6)	

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Y6	**Electricity** 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 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	**Evolution** 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	**Animals including humans** 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 Describe the ways in which nutrients and water are transported within animals, including humans	**Living things and their habitats** 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 Match groups of animals to their characteristics Give reasons for classifying plants and animals based on specific characteristics Describe the useful and harmful effects of different microorganisms	**Light** Explain how light travels Understand that all objects reflect light Identify angles of reflection and incidence Explain how prisms allow us to see visible spectrum	**Light** Understand that colours are a result of light reflecting Understand how shadows change size Understand that shadows are the same shape as the object that casts them	Working Scientifically (Y5/6): 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 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and 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 of results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments
SKILLS & KNOWLEDGE OBJECTIVES	To explain the importance of the major discoveries in electricity (5,6) To use recognised symbols when representing a simple circuit in a diagram and use this to create a complex circuit (5) To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit (1,2,3,4,5) To compare and give reasonsfor variations in how components function (1,2,3,4,5)	To recognise the differences between people through genetics (5,6) understand that offspring resemble their parents in some but not always (5,6) To investigate how plants and animals are adapted to their environment (Plant investigation) (1,2,3,4,5,6) To discuss how adaptation may lead to evolution (5,6) To understand that animals and plants change over time (5,6) To understand how fossils are provide evidence for evolution (5,6)	To identify the main parts of the human circulatory system (5,6) To describe the functions of the heart, blood vessels and blood (5,6) Recognise the impact of exercise on the human body (1,2,3,4,5,6) Understand how drugs, alcohol and diet affects how the body functions (5,6) To describe how nutrients are transported around the bodies of humans and animals (5,6)	To explain how living things are classified into broader groups (5,6) To use classification methods to group living things (5,6) To give reasons for classifying plants and animals based on characteristics (5,6) To discover a variety of microorganisms (1,5,6) To investigate and describe the useful and harmful effects of microorganisms (5,6)	To understand how light travels (1,2,3,4,5) To describe how objects are seen (1,2,3,4,5) To investigate how refraction changes the direction that light travels (1,2,3,4,5) To explore how mirrors work by building a periscope (1,2,3,4,5) (NS) To explore and understand different lenses and mirrors (1,2,3,4,5) To investigate how prisms changes a ray of light (1,2,3,4,5)	To understand how humans see colour (5,6) To understand how shadows are formed by creating a shadow puppet theatre (1,2,3,4,5,6) To describe the parts of the eye, their functions and how humans are able to see (5,6) To create devices that use light (1,2,3,4,5,6) (NS) To understand how light affects life and nature (5,6) (NS)	