Mount Pleasant Primary School

Science Curriculum

Our Intent is to develop a love of science to promote the skills and knowledge they need to succeed in school and beyond.
We create an enthusiasm so that Science and STEM subjects become developed in readiness for their journey through secondary.
There is a focus on investigative and practical science so that children are encouraged to ask questions and be curious about the world around them.
They have the opportunity to plan investigations and understand the idea of fair testing. Science develops and enhances English and maths skills.
We teach the foundations of scientific enquiry to promote and enthuse a desire to choose a scientific career.

Topic Plan

EYFS	**ELGS that feed into Science:** Understanding the World: Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes. Physical Development: Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently. Mathematics: Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them. Communication and Language: Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.

Year 1	**Everyday Materials**	**Everyday Materials**	**Animals Including Humans**	**Plants**	**Seasonal changes (across the year)**
Year 2	**Everyday Materials**	**Living things and their habitats**	**Plants**	**Animals including humans**	
Y3	**Light**	**Rocks**	**Plants**	**Animals including humans**	**Forces and magnets**
Year 4	**Animals including humans**	**Living things and their habitats**	**States of matter**	**Sound**	**Electricity**
Year 5	**Living things and their habitats**	**Earth and Space**	**Forces**	**Materials**	
Year 6	**Electricity**	**Light**	**Animals including humans**	**Living things and their habitats**	**Evolution and inheritance**

Everyday Materials	**Term: 1**	**Year: 1**

Foundations of previous learning:
ELGS that feed into Science:
Understanding the World: Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.
Mathematics: Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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 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	Gather and record data to help in answering questions. Perform a simple test	I can name everyday materials. I know the properties of everyday materials. I can compare the properties of materials. I can explain which material would be best and why.	Solid Similarity Difference Property bendy/ not bendy stretchy/ stiff transparent/ opaque rough/smooth waterproof/not waterproof absorbent/not absorbent metal plastic brick fabric foil elastic
	Assessment of Skills	**Assessment of Knowledge**	
	I can complete results in a table.	Can you name everyday materials? What are the properties of everyday materials? Can you compare the properties of materials? Which material would be best and why?	

Animals including humans	Term: 2	Year: 1

Foundations of previous learning:
ELGS that feed into Science:
Understanding the World: Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.
Physical Development: Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently.
Mathematics: Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.
Communication and Language: Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Identify and classify using their observations and ideas to suggest answers to questions Ask simple questions and recognise that they can be answered in different ways **Assessment of Skills** I can ask simple questions about animals.	To know the parts of our body. To explain the senses. To know there are different kinds of animals. To know how animals feed in different ways. **Assessment of Knowledge** What are the parts of our body? Can you name our senses? Can you name different kinds of animals? How do animals feed in different ways?	Invertebrate (worm, spider, insect (various) woodlouse, centipede) fish amphibian reptile bird mammal carnivore herbivore omnivore sight hear smell touch taste

Plants	**Term: 3**	**Year: 1**

Foundations of previous learning:

ELGS that feed into Science:

Understanding the World: Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.

Physical Development: Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently.

Mathematics: Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

Communication and Language: Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen Identify and describe the basic structure of a variety of common flowering plants, including roots, tem/trunk, leaves and flowers	Observe closely, using simple equipment. Gather and record data to help in answering questions. **Assessment of Skills** I can talk about my observations.	To know the parts of a plant. To name different types of plants. To know how trees survive the winter. To know where to find plants. To know where plants can live. **Assessment of Knowledge** What are the parts of a plant? Can you name different types of plants? What are the two types of trees? Where can I find plants? Where can plants live?	Plant Roots Stem Trunk Branches Leaves flower (petals) fruit bulb seed evergreen deciduous vegetables, (variety of common plant names, e.g. geranium, dandelion, oak, bean)

Seasonal changes	Term: Across the year	Year: 1

Foundations of previous learning:

ELGS that feed into Science:

Understanding the World: Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.

Physical Development: Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently.

Mathematics: Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

Communication and Language: Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
Observe the apparent movement of the sun during the day Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies	Observe closely, using simple equipment. Gather and record data to help in answering questions. **Assessment of Skills** I can talk about differences in the seasons.	Describe the weather To know there are four seasons **Assessment of Knowledge** Can you tell me what the weather is like today? What season is it? What are the other seasons called? What is it like in Autumn etc.?	Season Autumn Winter Spring Summer Year Month Week Day weather (various) temperature rainfall day length shadow

Everyday Materials	**Term: 1**	**Year: 2**

Foundations of previous learning:
Year 1
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 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

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
Identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Ask simple questions and recognise that they can be answered in different ways Observe closely, using simple equipment Perform simple tests	To know what things are made from. To know the properties of different materials To be able to change the shape of materials To know what a solid, liquid and gas are.	Material Cotton Cork Rock Solid Liquid Gas Flexible Stretch Warm Cold Colour Fluid flow
	Assessment of Skills	**Assessment of Knowledge**	
	I can record observations in a table. I can ask questions about materials.	What is this item made from? What are its properties? How can I change the shape of this material? What is a solid? What is a liquid?	

Animals including Humans	Term: 2	Year: 2

Foundations of previous learning:

Year 1

Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals
Identify and name a variety of common animals that are carnivores, herbivores and omnivores
Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets)
Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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	Using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions.	To know what happens to our bodies as they grow. To know how other animals grow and how they differ to us. To know what we need to live and be healthy. To know why exercise is important. To know why it is important to keep clean.	Growth Reproduction Offspring lifecycle human offspring toddler child teenager adult food nutrition breathing respiration diet balanced obesity starvation exercise fitness hygiene bacteria fungi viruses
	Assessment of Skills	**Assessment of Knowledge**	
	I can answer questions using my observations.	Describe the life cycle of a chicen/butterfly. How does your body change? What do you need to live and be healthy? Why is exercise important? Why do you need to keep clean?	

Living things and their habitats	Term: 2	Year: 2

Foundations of previous learning:

ELGS that feed into Science:

Understanding the World: Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.

Physical Development: Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently.

Mathematics: Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

Communication and Language: Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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 Identify and name a variety of plants and animals in their habitats, including microhabitats Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	Identifying and classifying using their observations and ideas to suggest answers to questions. Add labels to diagrams	To know what makes something living. To know what makes something non-living. To be able to identify living, dead and non-living things. To know what a habitat is. To know how are living things suited to their own habits. To know what a food chain is.	Living Dead non-living movement making energy (respiration) sensitivity growth reproduction getting rid of waste (excretion) nutrition habitat microhabitat adapted adaptation conditions temperature humidity food chain
	Assessment of Skills	**Assessment of Knowledge**	
	I can classify animals into different groups.	What makes something living? What makes something non-living? Can you identify living, dead and non-living things? What is a habitat? How are living things suited to their own habits? What is a food chain?	

Plants	**Term: 3**	**Year: 2**

Foundations of previous learning:
Year 1
Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen.
Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers.

Unit Learning			
NC Objective - Coverage	**Skills**	**Knowledge**	**Vocabulary**
Observe and compare 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	Suggest an idea to test from observations Describe patterns in data. Gathering and recording data to help in answering questions.	To know how plants grow. Describe the life cycle of a plant Investigate germination and observe plant growth To know what conditions they need to grow.	Germination Temperature reproduction
	Assessment of Skills	**Assessment of Knowledge**	
	I can talk about the results of data.	Can you describe the life cycle of a plant? What conditions do plants need to grow? What do I need to grow a healthy plant?	

Light	Term: 1	Year: 3

Foundations of previous learning:

Understanding the World: Children know about similarities and differences in relation to places, objects and materials. They talk about the features of their own immediate environment and seasons. Changes in daylight. They make observations of animals and plants and explain why some things occur, and talk about changes.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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.	Ask relevant questions and use different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests	To know what light is. To know where light comes from. To know which materials reflect light and let light through. To know what a shadow is. To know that light can be dangerous.	Darkest Brightest Dim light source reflect reflective dull shadow block transparent opaque
	Assessment of Skills	**Assessment of Knowledge**	
	I can talk about what make a fair test. I can compare results.	What is light? Where does light come from? What materials reflect light? What materials let light through? What is a shadow? Why can strong light be dangerous?	

Rocks	**Term: 2**	**Year: 3**

Foundations of previous learning:
Describe 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

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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.	Ask relevant questions and use different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests	To know there are different types of rocks. To know rocks have lots of uses To know how fossils are made To know soils are made from rocks & organic matter	Igneous Metamorphic Sedimentary Rough Crumbly Grainy Crystals fossil sediment layers pressure organic matter vegetation compost
	Assessment of Skills	**Assessment of Knowledge**	
	I can answer questions using the results of an investigation. I can compare different rocks.	Are there different types of rock? What can rock be used for? How are fossils made? What is soil made of?	

Plants	Term: 3	Year: 3

Foundations of previous learning:	
Year 1 Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen. Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers.	**Year 2** Observe and compare 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.

Unit Learning			
NC Objective - Coverage	**Skills**	**Knowledge**	**Vocabulary**
Identify & describe the functions of different parts of flowering plants: roots, stem, leaves and flowers Explore the requirements for plant life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant Investigate the way in which water is transported within plants Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Gather, record, classify and present data in a variety of ways to help in answering questions	To know the names of the different parts of a plant. To understand the conditions plants need to grow. To understand how water gets around the plant. To understand pollination, seed dispersal and seed formation.	root hairs stem pollen nutrients pollination fertilisation seed dispersal
	Assessment of Skills	**Assessment of Knowledge**	
	I can present data in graphs. I can make observations ad take accurate measurements.	Can you name the parts of a plant? What conditions do plants need to grow? How does water get around the plant? What is pollination? How do seeds disperse?	

Animals including humans	Term: 4	Year: 3

Foundations of previous learning:

Year 1

Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals
Identify and name a variety of common animals that are carnivores, herbivores and omnivores
Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets)
Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Year 2

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

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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 animals have skeletons and muscles for support, protection and movement	Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings **Assessment of Skills** I can answer questions using scientific information.	To know what animals need to eat to stay healthy. To understand what a balanced diet is. To know what a skeleton is and why we have one. To understand how we move. **Assessment of Knowledge** What do animals need to eat to stay healthy? What is a balanced diet? Why do we have skeleton? How do we move?	Nutrition Nutrients balanced unbalanced sugar protein fat vitamins minerals energy oxygen photosynthesis circulation blood heart vertebrate invertebrate skeleton bones support protection movement

Forces and magnets	Term: 5	Year: 3

Foundations of previous learning:

Year 1

Recognise a push or a pull as a force needed to move an object.
Recognise that a force can be bigger or smaller and acts in a particular direction.
Explore how to push objects further with more force.
Explore how to push/pull heavier objects with more force.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
Compare how things move on different surfaces. Notice that some forces need contact between two objects and some forces 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	Identify differences, similarities or changes related to simple scientific ideas and processes Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use straightforward scientific evidence to answer questions or to support their findings Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	To know what a force is. To know what a contact force is and be able to measure them. To know what a magnet is and how it behaves. To know that not all magnets are the same. To know which materials are magnetic and why.	Force contact force distance force gravity force arrow movement magnetic magnetism poles north south attract repel non-magnetic
	Assessment of Skills	**Assessment of Knowledge**	
	I can record the findings from an investigation. I can make predictions. I can suggest improvements to an experiment.	What is a force? How can we show and measure contact forces? What is gravity? How do magnets behave? Are all magnets the same? What materials are magnetic?	

Living things and their habitats	Term: 1	Year: 4

Foundations of previous learning:
Year 2
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.
Identify and name a variety of plants and animals in their habitats, including microhabitats.
Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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.	Ask relevant questions and use different types of scientific enquiries to answer them Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Gather, record, classify and present data in a variety of ways to help in answering questions. Identify differences, similarities or changes related to simple scientific ideas and processes	To know different ways of grouping living things. To know what a classification key is. To know what a habitat is and what animals may live there. To recognise habitats change.	Environment micro-habitat classification amphibian reptile mammal flowering plants non-flowering plants
	Assessment of Skills	**Assessment of Knowledge**	
	I can classify into different groups. I can collect and present data in bar charts.	Name three different groups of Vertebrates. List three features you can use to identify deciduous trees. List three positive effects humans can have on the environment. List three negative effects humans can have on the environment.	

Animals including humans	Term: 2	Year: 4

Foundations of previous learning:		
Year 1 Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	**Year 2** 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	**Year 3** 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 animals have skeletons and muscles for support, protection and movement

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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	Ask relevant questions and use different types of scientific enquiries to answer them. Identify differences, similarities or changes related to simple scientific ideas and processes **Assessment of Skills** I can answer questions about the digestive system. I can discuss similarities and differences about teeth.	To know there are different types of teeth. To know how to care for their teeth. To know what digestion is. To know the parts of the digestive system. To know what a food chain is. To be able to construct a food chain. **Assessment of Knowledge** Name the 7 parts of the digestive system. Name the 3 different types of teeth. Explain the terms, producer, predator, prey in a food chain.	Incisor Canine Molar pre-molar acid bacteria plaque enamel digestion oesophagus stomach small intestine large intestine anus liver pancreas food chain producer consumer predator prey

States of matter	Term: 3	Year: 4

Foundations of previous learning:	Year 1 – Everyday Materials	Year 2 – Everyday Materials
Not previously taught but links to 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 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	Identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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 the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Gather, record, classify and present data in a variety of ways to help in answering questions. Set up simple practical enquiries, comparative and fair tests.	To know what a solid, liquid and a gas are. To know what solids, liquids and gases are made of. To know what happens when substances change state. To understand evaporation and condensation. To understand the water cycle.	State Characteristic Property Particle Heat Bond Attraction Heating Cooling Melting Freezing Evaporating Condensing water cycle
	Assessment of Skills	**Assessment of Knowledge**	
	I can plan a fair test. I can record data using measurements. I can describe and explain findings.	Give an example of a solid, liquid and gas. What makes ice melt quicker? What makes something dry quicker? What is condensation?	

Sound	**Term: 4**	**Year: 4**
Foundations of previous learning: Not previously taught.		

Unit Learning			
NC Objective - Coverage	**Skills**	**Knowledge**	**Vocabulary**
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	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use straightforward scientific evidence to answer questions or to support their findings Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	To know what sound is. To know how sound travels to our ears. To know about and understand pitch and volume. Know that sound travels in waves. Know how instruments make sounds.	Sound Vibration Volume Pitch High Low Quiet Loud tension
	Assessment of Skills	**Assessment of Knowledge**	
	I can make predictions. I can record my findings in tables and a bar graph.	What is sound? How does sound travel to our ears? How can we change the volume of sound? How can we change the pitch of a sound?	

Electricity	**Term: 5**	**Year: 4**
Foundations of previous learning: Not previously taught.		

Unit Learning			
NC Objective - Coverage	**Skills**	**Knowledge**	**Vocabulary**
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.	Identify differences, similarities or changes related to simple scientific ideas and processes. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. **Assessment of Skills** I can raise further questions and test ideas. I can make predictions.	To know how we use electricity in our homes. To be able to make a working series circuit. To know how a switch works. To know what electrical conductors & insulators are. **Assessment of Knowledge** How do we use electricity in our homes? Can you make a working series circuit? How does a switch work? What are electrical conductors & insulators?	Electricity Source Renewable non-renewable circuit component battery/cell bulb buzzer motor series connector wire switch conductor insulator

Living things and their habitats	Term: 1	Year: 5

Foundations of previous learning:

Year 2

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.
Identify and name a variety of plants and animals in their habitats, including microhabitats.
Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Year 4

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.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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 (sexual/asexual)	Draw & annotate diagrams 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.	To be able to compare animal Life cycles To understand and explain reproduction in plants	Internal External Gamete petals sepals carpel stigma ovary anther stamen pollen pollination fertilisation dispersal
	Assessment of Skills	**Assessment of Knowledge**	
	I can draw and annotate a diagram of a life cycle.	What is the life cycle of a ____ like? How do plants reproduce?	

Earth and Space	Term: 2	Year: 5

Foundations of previous learning:
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.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
Describe the movement of the earth, and other planets, relative to the sun in the solar system Describe the movement of the moon relative to the earth Describe the sun, earth and moon as approximately spherical bodies Use the idea of the earth's rotation to explain day and night and the apparent movement of the sun across the sky	Identifying scientific evidence that has been used to support or refute ideas or arguments. **Assessment of Skills** I can use evidence to answer questions.	To know what the solar system is like. To know why the sun moves across the sky. To know why we have day and night. To know what the phases of the moon are. **Assessment of Knowledge** What is the solar system like? Why does the sun move across the sky? Why do we have day and night? What are the phases of the moon? Exploring the solar system	Solar system planets (names) star Earth Moon Gravity orbit (elliptical) rotation axis poles equator northern/southern hemisphere lunar month year leap year eclipse luminous non-luminous phases (names)

Forces	**Term: Spring 1**	**Year: 5**

Foundations of previous learning: **Year 1** Recognise a push or a pull as a force needed to move an object. Recognise that a force can be bigger or smaller and acts in a particular direction. Explore how to push objects further with more force. Explore how to push/pull heavier objects with more force.	**Year 3** Compare how things move on different surfaces. Notice that some forces need contact between two objects and some forces 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

Unit Learning

NC Objective - Coverage	**Skills**	**Knowledge**	**Vocabulary**
Explain that unsupported objects fall towards the earth because of the force of gravity acting between earth and the falling object Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognize that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Assessment of Skills** I can record measurements accurately. I can plan an investigation.	To know what friction is and the effect it has. To know what air resistance is and the effect it has. To know what water resistance is and the effect it has. To know what up-thrust is and the effect it has **Assessment of Knowledge** What is the effect of friction? What is the effect of air resistance? What is up-thrust?	air resistance water resistance up-thrust drag balanced unbalanced force arrow accelerate decelerate Newton force meter multiplier lever pulley gear pivot

Properties and changes of material	Term: 4	Year: 5

Foundations of previous learning:		
Year 1 – 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 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	**Year 2 – Everyday Materials** Identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**Year 4 – 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 the temperature at which this happens in degrees Celsius (°C). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
Compare and group together everyday materials on the basis of properties (e.g. their hardness, solubility, transparency, conductivity (electrical/thermal) and response to magnets Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Using test results to make predictions to set up further comparative and fair tests Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations	To know the properties of materials and how they suit the role of the object. To know what a solution is. To be able to separate mixtures in different ways, To understand that some changes are reversible and some irreversible.	Solution Mixture Particle Dissolve Solute Solvent Saturation Filtering Sieving Reversible irreversible
	Assessment of Skills I can explain results. I can present data in a line graph. I can predictions.	**Assessment of Knowledge** How does a material's property suit its role? What is a solution? How can mixtures be separated? Reversible & irreversible change	

Electricity	**Term: 1**	**Year: 6**

Foundations of previous learning:
Year 4
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.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Use recognised symbols when representing a simple circuit in a diagram	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.	To be able to make a working series circuit. To be able to explain how to change the amount of energy in a circuit. To know what electrical resistance is. To know what happens to the energy as it flows around a circuit.	Battery positive terminal negative terminal voltage (V) Amps (A) Current Wire Filament Voltmeter Ammeter
	Assessment of Skills	**Assessment of Knowledge**	
	I can plan changes to variables. I can take precise readings.	Can you make a working series circuit? How can we change the amount of energy in a circuit? What is electrical resistance? What happens to the energy as it flows around a circuit? Can you make …?	

Light	Term: 2	Year: 6

Foundations of previous learning:
Year 3
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.

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
recognise that light appears to travel in straight lines use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Taking measurements, using a range of scientific equipment, with increasing accuracy and precision ,taking repeat readings when appropriate	To know how light travels. To know what happens when light hits an object. To know how we can see around corners. To know how shadows form.	Light source Luminous non-luminous energy absorbed transmitted scattered image plane concave convex
	Assessment of Skills	**Assessment of Knowledge**	
	I can take repeated readings if required. I can plan an investigation with controlled variables.	How does light travel? What happens when light hits an object? How can we see around corners? How do shadows form?	

Animals Including Humans	Term: 3	Year: 6

Foundations of previous learning:	Year 2	Year 3	Year 4	Year 5
Year 1 Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	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	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 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.	Describe the changes as humans develop to old age (link to school policy on sex education)

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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	Identifying scientific evidence that has been used to support or refute ideas or arguments. 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 **Assessment of Skills** I can write an explanation. I can use evidence to support arguments.	To know where your main organs are in the body. To know why we have blood. To know how the blood gets around our body. To know what happens to our body when we exercise. To know the effects of diet, drugs and lifestyle on our bodies. **Assessment of Knowledge** Do you know where your main organs are in the body? Why do we have blood? How does blood get around our body? What happens when we exercise? What are the effects of diet, drugs & lifestyle?	Organs (various) circulatory system circulation plasma red blood cells oxygenated deoxygenated exchange artery vein heart chambers recovery time drugs (various) alcohol nicotine tar

Living things and their habitats	Term: 4	Year: 6

Foundations of previous learning:		
Year 2 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. Identify and name a variety of plants and animals in their habitats, including microhabitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	**Year 4** 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.	**Year 5** 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 (sexual/asexual).

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics.	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Using test results to make predictions to set up further comparative and fair tests	To know how animals & plants are classified. To know what types of living things there are in different habitats. To make a key to classify. To know where we can find microbes.	Binomial kingdom (phylum, class, order, family, genus, species) Variation
	Assessment of Skills	**Assessment of Knowledge**	
	I can use detailed scientific diagrams.	How are animals & plants classified? What types of living things are there in …? Can you make a key to classify? Where can we find microbes?	

Evolution and inheritance	**Term: 5**	**Year: 6**

Foundations of previous learning:
Year 3: Know there are different types of rocks and they have lots of uses. To know how fossils are made

Unit Learning

NC Objective - Coverage	Skills	Knowledge	Vocabulary
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.	Identifying scientific evidence that has been used to support or refute ideas or arguments. 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.	To know why fossils are so important. To know how we are different and how are we the same. To know how living things are adapted to their environment. To know how living things change.	Extinction Variation Inheritance Feature adaptation species natural selection evolution
	Assessment of Skills	**Assessment of Knowledge**	
	I can use scientific evidence. I can report on findings.	Why are fossils so important? How are we different? How are we the same? How are living things adapted to their environment? How do living things change?	

Ideas for modifying this curriculum to meet the needs of all children

General

- Use of additional adult when possible.
- Differentiated outcomes and tasks
- Simpler versions of text/resources
- Pre-teaching vocabulary, vocabulary maps/word banks
- Mixed ability groupings/paired work/peer support
- Writing frame/structured activities,
- Task targets/clear success criteria
- Visual stimuli/hooks- turn abstract in to concrete
- Awareness of sensory needs, e.g access to fiddle toy, wobble cushion, ear defender.
- Work station/boxes
- Incentives – reward time for completing tasks.
- Extra time to complete tasks
- Emotional support with taking risks and feeling successful

Key stage 1 programme of study – years 1 and 2

Working scientifically

Statutory requirements

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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.

Year 1 programme of study

Plants

Statutory requirements

Pupils should be taught to:

- 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.

Animals, including humans

Statutory requirements

Pupils should be taught to:

- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- identify and name a variety of common animals that are carnivores, herbivores and omnivores

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Statutory requirements

- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)
- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Everyday materials

Statutory requirements

Pupils should be taught to:

- 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.

Seasonal changes

Statutory requirements

Pupils should be taught to:

- observe changes across the four seasons
- observe and describe weather associated with the seasons and how day length varies.

Year 2 programme of study

Living things and their habitats

Statutory requirements

Pupils should be taught to:

- 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
- 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.

Plants

Statutory requirements

Pupils should be taught to:

- 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.

Animals, including humans

Statutory requirements

Pupils should be taught to:

- 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.

Uses of everyday materials

Statutory requirements

Pupils should be taught to:

- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Lower key stage 2 programme of study

Working scientifically

Statutory requirements

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Year 3 programme of study

Plants

Statutory requirements

Pupils should be taught to:

- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
- 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.

Animals, including humans

Statutory requirements

Pupils should be taught to:

- 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.

Rocks

Statutory requirements

Pupils should be taught to:

- 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

Statutory requirements

Pupils should be taught to:

- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by an opaque object
- find patterns in the way that the size of shadows change.

Forces and magnets

Statutory requirements

Pupils should be taught to:

- compare how things move on different surfaces
- notice that some forces need contact between two 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.

Year 4 programme of study

Living things and their habitats

Statutory requirements

Pupils should be taught to:

- 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

Statutory requirements

Pupils should be taught to:

- 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.

States of matter

Statutory requirements

Pupils should be taught to:

- compare and group materials together, according to whether they are solids, liquids or gases
- observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
- identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Sound

Statutory requirements

Pupils should be taught to:

- 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.

Electricity

Statutory requirements

Pupils should be taught to:

- 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.

Upper key stage 2 programme of study

Working scientifically

Statutory requirements

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in 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.

Year 5 programme of study

Living things and their habitats

Statutory requirements

Pupils should be taught to:

- 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.

Animals, including humans

Statutory requirements

Pupils should be taught to:

- describe the changes as humans develop to old age.

Properties and changes of materials

Statutory requirements

Pupils should be taught to:

- compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- demonstrate that dissolving, mixing and changes of state are reversible changes
- explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Earth and space

Statutory requirements

Pupils should be taught to:

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

Forces

Statutory requirements

Pupils should be taught to:

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

Year 6 programme of study

Living things and their habitats

Statutory requirements

Pupils should be taught to:

- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- give reasons for classifying plants and animals based on specific characteristics.

Animals including humans

Statutory requirements

Pupils should be taught to:

- 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.

Evolution and inheritance

Statutory requirements

Pupils should be taught to:

- 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.

Light

Statutory requirements

Pupils should be taught to:

- recognise that light appears to travel in straight lines
- use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
- explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Electricity

Statutory requirements

Pupils should be taught to:

- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
- use recognised symbols when representing a simple circuit in a diagram.