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** *People, Culture and Communities:* The children can describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps. *The Natural World:* They explore the natural world around them, making observations and drawing pictures of animals and plants. The children know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. They should understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. **Personal, Social and Emotional Development:** *Managing Self:* Children manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. **Mathematics:** *Numerical Pattern:* Children compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. **Communication and Language:** All elements				
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	
Year 3	Rocks	Light	Plants	Animals Including Humans	Forces and Magnets
Year 4	Living Things and their Habitats	Animals Including Humans	States of matter	Sound	Electricity
Year 5	Living Things and their Habitats	Earth and Space	Forces	Materials	
Year 6	Electricity	Light	Evolution and Inheritance	Living Things and their Habitats	Animals Including Humans

Everyday Materials	Term: Autumn	Year: 1

Foundations of previous learning:

ELGS that feed into Science:

Understanding the World

People, Culture and Communities: The children can describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps.

The Natural World: They explore he natural world around them, making observations and drawing pictures of animals and plants. The children know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. They should understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Personal, Social and Emotional Development:

Managing Self: Children manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

Mathematics:

Numerical Pattern: Children compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.

Communication and Language: All elements

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. **Assessment of Skills** I can complete results in a table.	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. **Assessment of Knowledge** Can you name everyday materials? (wood / plastic / metal/ rock) What are the properties of glass and wool? Why is plastic used to make children's toys?	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

Animals including humans	Term: Spring	Year: 1

Foundations of previous learning:
ELGS that feed into Science:
Understanding the World
People, Culture and Communities: The children can describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps.
The Natural World: They explore he natural world around them, making observations and drawing pictures of animals and plants. The children know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. They should understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.
Personal, Social and Emotional Development:
Managing Self: Children manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
Mathematics:
Numerical Pattern: Children compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
Communication and Language: All elements

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 5 senses? Can you name different kinds of animals?	Invertebrate (worm, spider, insect (various) woodlouse, centipede) Fish Amphibian Reptile Bird Mammal Carnivore Herbivore Omnivore Sight Hear Smell Touch Taste

Plants	**Term: Summer**	**Year: 1**

Foundations of previous learning:

ELGS that feed into Science:

Understanding the World

People, Culture and Communities: The children can describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps.

The Natural World: They explore he natural world around them, making observations and drawing pictures of animals and plants. The children know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. They should understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Personal, Social and Emotional Development:

Managing Self: Children manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

Mathematics:

Numerical Pattern: Children compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.

Communication and Language: All elements

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.	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.	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)
	Assessment of Skills	**Assessment of Knowledge**	
	I can talk about my observations.	What are the main parts of a plant? What is the function of roots and leaves? Can you name different types of plants? What are seeds and what do they do?	

Seasonal changes	Term: Across the year	Year: 1

Foundations of previous learning:

ELGS that feed into Science:

Understanding the World

People, Culture and Communities: The children can describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps.

The Natural World: They explore he natural world around them, making observations and drawing pictures of animals and plants. The children know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. They should understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Personal, Social and Emotional Development:

Managing Self: Children manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

Mathematics:

Numerical Pattern: Children compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.

Communication and Language: All elements

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.	Describe the weather. To know there are four seasons.	Season Autumn Winter Spring Summer Year Month Week Day Weather (various) Temperature Rainfall Day length Shadow
	Assessment of Skills	**Assessment of Knowledge**	
	I can talk about differences in the seasons.	Can you tell me what the weather is like today? What season is it? What are the four seasons called? What is it like in Autumn etc.?	

Everyday Materials	Term: Autumn	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 play dough, chocolate, water? What is a solid? What is a liquid? Name a gas.	

Animals including Humans	Term: Spring	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 chicken/butterfly. What do you need to be healthy? Why is exercise important? Why do you need to keep clean?	

Living things and their habitats	Term: Spring	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: Summer	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?	

Rocks	Term: Autumn	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.	Name 3 different types of rock? How are Igneous, Sedimentary and Metamorphic rocks formed? How are fossils made? What is soil made up of?	

Light	Term: Autumn	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?	

Plants	Term: Spring	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 and take accurate measurements.	Can you name the parts of a flower? How does water get around the plant? What is pollination? How do seeds disperse?	

Animals including humans	Term: Spring	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? What foods provide protein? What does carbohydrate provide for the body? Why do we have skeleton?	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: Summer	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. **Assessment of Skills** I can record the findings from an investigation. I can make predictions. I can suggest improvements to an experiment.	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. **Assessment of Knowledge** What is a force? What causes different materials to move faster or slower on different surfaces? What is gravity? What materials are magnetic?	Force Contact force Distance force Gravity Force arrow Movement Magnetic Magnetism Poles North South Attract Repel Non-magnetic

Living things and their habitats	Term: Autumn	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: Autumn	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: Spring**	**Year: 4**
Foundations of previous learning: **Not previously taught but links to Everyday Materials**	**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.

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: Summer	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: Summer**	**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.	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.	Electricity Source Renewable Non-renewable Circuit Component Battery/cell Bulb Buzzer Motor Series Connector Wire Switch Conductor Insulator
	Assessment of Skills	**Assessment of Knowledge**	
	I can raise further questions and test ideas. I can make predictions.	How do we use electricity in our homes? How does a switch work? What are electrical conductors? What are electrical insulators?	

Living things and their habitats	Term: Autumn	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.	How do plants reproduce by wind and by animals? Name parts of a flowering plant in detail.	

Earth and Space	Term: Autumn	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.	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.	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)
	Assessment of Skills	**Assessment of Knowledge**	
	I can use evidence to answer questions.	Why does the sun appear to move across the sky? Why do we have day and night? What are the phases of the moon? Name some planets in our solar system	

Forces	Term: Spring	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 Accelerate Decelerate Newton Force meter Multiplier Lever Pulley Gear Pivot

Properties and changes of material	Term: Summer	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	**Assessment of Knowledge**	
	I can explain results. I can present data in a line graph. I can predictions.	What is a solution? How can mixture of salt and water be separated? Name materials that can have a reversible & irreversible change.	

Electricity	Term: Autumn	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.	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?	

Light	Term: Autumn	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?	

Evolution and inheritance	Term: Spring	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. **Assessment of Skills** I can use scientific evidence. I can report on findings.	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. **Assessment of Knowledge** What is evolution? Why are fossils so important? How is a polar bear adapted to its environment? How will climate change affect animals? Name an animal which has become extinct- why?	Extinction Variation Inheritance Feature Adaptation Species Natural selection Evolution

Living things and their habitats	Term: Summer	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.	What are the characteristics of a reptile, bird, and mammal? What is a microbe? Where can we find microbes? Why are microbes helpful?	

Animals Including Humans	Term: Summer	Year: 6

Foundations of previous learning: Year 1	Year 2	Year 3	Year 4	Year 5
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.	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.	Organs (various) Circulatory system Circulation Plasma Red blood cells Oxygenated Deoxygenated Exchange Artery Vein Heart chambers Recovery time Drugs (various) Alcohol Nicotine Tar
	Assessment of Skills	**Assessment of Knowledge**	
	I can write an explanation. I can use evidence to support arguments.	What are the main organs in the body? Where are the main organs in the body? Why do we have blood? How does blood get around our body? What happens when we exercise?	