

Year		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Rec	Unit/outcome:	Objectives to be taught across the year Animals, including humans: Explore the natural world around them, making observations and drawing pictures of animals. 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. • Begin to learn about the lifecycle of a caterpillar (the hungry caterpillar) and other animals. • Observing over time. How does the caterpillar change over time? • Demonstrate an inquisitive nature about the world around them. • Describe weather and seasonal change - what animals do we see at different times of the year? • Name body parts and talk about basic bodily functions. • Begin to consider what we need to keep healthy. • Recall the five senses and talk about each one. • Learn about different types of animals and habitats. • Identify and explore pets, British wildlife and zoo animals. • Identify and describe a range of minibeasts. Plants: Explore the natural world around them, making observations and drawing pictures of plants. Know some similarities and difference between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Begin to learn about how to look after plants and care for plants in the word around them. • Observing over time: how have the plants or trees in our outdoor learning area changed over time? • Demonstrate an inquisitive nature about the world around them. • Describe weather and seasonal change. • Recall the five senses and talk about each one. Everyday materials Pupils will distinguish between an object and the material from which it is made. They will identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. They will begin to describe and compare the simple physical properties of a variety of everyday materials. • Demonstrate an inquisitive nature about the world around them. • Recall the five senses and talk about each one. • Explore a range of materials and their uses. • Experiment to see which materials float and which sink. • Explore and investigate change					

	Seasonal change Pupils will observe changes across the year and the four seasons. Pupils will observe and describe weather associated with the seasons. • Demonstrate an inquisitive nature about the world around them. • Describe weather and seasonal change. • Recall the five senses and talk about each one. • Explore the immediate and local environment. • During the year as seasons change the children will look at how the natural world changes and compare similarities and differences. • Explore and investigate change		
Key enquiry questions:	How do animals change as they grow? How does the natural world change over the seasons? What five sense do humans have? What is different or the same about animals we have observed? What different materials can you experiment with in your learning environment (inside or outside)? What can I observe in the world around me?		
Reoccurring concept:	Sustainability Knowledge		
United Nations Sustainable Goals:	 There is a need to protect plant and animal life on land  Effective use of recycled materials in order to reduce waste.		
Disciplinary concepts:	Animals including humans Plants Seasonal change Materials		
Sticky knowledge:	Plants: To know that there are four seasons. To know that we are in autumn (September – end of November) and discuss the impact of autumn. To know that we eat some plants (autumn harvest).	To know that we are in Winter (January-February) and discuss the impact of Winter. To know that we are now in Spring (March-May) and discuss the impact of Spring.	To know that we are now in Summer (June-July) and discuss the impact of Winter. To know that different materials feel and look different. To know that different materials are used for different purposes.

Science Overview

		To know that's during the Autumn months plants stop making food (everything in nature is slowly starting to fall asleep). Animals including Humans: To know that we have senses and that we can use them to explore the world around us. To know what body parts are used for the five senses. To know that's during the Autumn months plants stop making food (everything in nature is slowly starting to fall asleep).	To know that in spring plants and flowers start to grow. To know that animals have a lifecycle. To know that we can keep our bodies healthy by eating fruits and vegetables (plants). To know that plants grow from seeds and/or beans. To know that we need to look after plants to help them grow.	To know that some materials can change over time. To know how to make healthy food choices.
	Language:	Autumn, Winter, Spring, Summer, weather, walk, leaves, trees, change, colour, green, red, orange, yellow, brown, find, birds, acorns, conkers, harvest, hedgehog, squirrel, investigate, explore. Senses, sight, eyes, hearing, ears, smell, nose, taste, touch, hands, birds, hedgehog, squirrel, investigate, explore.	Autumn, Winter, Spring, Summer, weather, plants, grow, animals, lifecycle, healthy, bodies, fruits, Vegetables, seeds, bulbs.	Autumn, Winter, Spring, Summer, weather, Materials, soft, hard, squishy, round, flat, fold, scrunch, twist, recycling, reuse.
	Progression:	• Use their senses to explore the world around them. • Look closely at the five senses and how these are used. • Know about similarities and differences in relation to places, objects, materials and living things. • Look closely at similarities in relation to the four seasons and when different weather occurs. • Developing ideas about changes in state of matter.	• Make observations about the world around them. • Explain similarities and differences in relation to places, objects, materials and living things. • Look closely at similarities in relation to the four seasons and when different weather occurs. • to know the properties of some materials.	• Explain why things occur and talk about changes. • Talk about the features of their own environment and how environments might vary from one another. • Look closely at similarities in relation to the four seasons and when different weather occurs. • Developing ideas around cause and effect in relation to movement i.e. toys, cars etc. • Suggest the purpose behind using certain materials. • Become familiar with basic scientific concepts such as floating, sinking and experimentation.

1	Unit outcome:	Biology: Animals, including humans Identify, name, draw and label body parts and senses.	Everyday materials Sorting, describing and naming basic common materials. Know how to distinguish between different materials. Test whether different materials have that property i.e. what are the properties of plastic, wood?	Plants Identify and name plants.	Animals, including humans Identify fish, amphibians, reptiles, birds and mammals. Classification of carnivores, herbivores and omnivores.	Seasonal Change Seasonal changes to be taught throughout the year.
	Key enquiry questions:	<u>What is special about me?</u>	<u>What are the properties of different materials?</u>	<u>What do I know about plants?</u>	<u>What do I know about animals?</u>	<u>How do the seasons change throughout the year?</u>
	Reoccurring concept:	Equality Legacy	Innovation Sustainability	Knowledge Legacy	Knowledge Legacy	Knowledge Sustainability
	United Nations Sustainable Goal	 Overcome barriers to ensure an equal opportunity for all.	 Understand the importance of reduce, reuse, recycle.			
	Disciplinary concepts	Biology: Animals, including humans	Chemistry: Everyday materials	Biology: Plants	Biology: Animals including humans	Biology: Seasonal Change
	Sticky knowledge	To know the names of human body parts. To know the 5 senses and what they do.	To know and name different materials. To know that objects are made from different materials (glass, metal, water and rock).	To know and name different garden plants and deciduous and evergreen trees. To be able to explain the difference between deciduous and evergreen trees.	To know and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. To know and name a variety of common animals that are carnivores, herbivores and omnivores.	To know the different seasons across the year. To know some features of each season. To know the day lengths changes linked to the seasons.

Science Overview

		Working Scientifically: To know what the term 'prediction' means. To know what the term 'observe' means and give an example. To know the difference between 'fair' and 'unfair' in an experiment To know that we need to test ideas	To know, name and describe properties of materials. Working Scientifically: To know what the term 'prediction' means. To know what the term 'observe' means and give an example. To know the difference between 'fair' and 'unfair' in an experiment To know that we need to test ideas	To know and describe the basic structure of a variety of common flowering plants, including trees. Working Scientifically: To know what the term 'prediction' means. To know what the term 'observe' means and give an example. To know how to identify and classify	To know that herbivores eat plants; carnivores eat other animals and omnivores eat both animals and plants. To know, describe and compare different animal body parts. Working Scientifically: To know what the term 'prediction' means. To know what the term 'observe' means and give an example. To know the difference between 'fair' and 'unfair' in an experiment To know that we need to test ideas	Working Scientifically: To know what the term 'observe' means and give an example.
	Language	ourselves, head, neck, arms, elbow, face, ears, eyes, hair, mouth, teeth, stomach, feet, foot, nose, fingers, skin, knees, textures, sound, smell, touch, see, tall, taller, tallest, similar to, different, difference.	Property, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, not bendy, waterproof, absorbent, opaque, transparent, wood, paper, plastic, glass, fibre, plastic, paper, foil, man-made, natural, matter. Prediction, observe, fair, unfair, test, experiment, identify, classify.	Deciduous, evergreen, trees, leaves, stem, flowers, blossom, petals, fruits. Prediction, observe, fair, unfair, test, experiment, identify, classify.	Fish, amphibian, reptile bird, mammal, carnivores, herbivores and omnivores. Prediction, observe, fair, unfair, test, experiment, identify, classify.	Seasonal changes – seasons, summer, spring, autumn, winter, day, night, light, dark, weather, sunny, rain, fog, snow, sleet, hail. Prediction, observe, fair, unfair, test, experiment, identify, classify.

		Prediction, observe, fair, unfair, test, experiment, identify, classify.				
	Progression	• To know that we can ask simple questions and recognize that they can be answered in different ways. • To predict what will happen based on their scientific knowledge. • To observe closely, using simple equipment. • To know that the term observe means to watch someone or something carefully. • To perform simple tests. • To know that we can carry out a test to check our hypothesis. • To know the meaning of 'fair' and 'unfair' in an experiment. • To identify and classify. • To suggest answers to questions using their observations and ideas. • To gather and record data to help in answering questions.				
		• To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. • To understand how humans change over time. • To name the basic body parts of animals and humans. • To know the 5 human senses and their job.	• To distinguish between an object and the material from which it is made. • To know that an object is made from/of a material. • To know and name a wide variety of materials. • To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. • To know that	• To know the names of a variety of common wild and garden plants, including deciduous and evergreen trees. • To know that evergreen trees maintain their leaves throughout the year and that deciduous trees shed their leaves in autumn. • To identify a variety of common wild and garden plants, including deciduous and evergreen trees. • To identify and describe the basic structure of a variety of common flowering plants, including trees.	• To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. • To identify and name a variety of common animals that are carnivores, herbivores and omnivores. • To know that herbivores eat plants; carnivores eat other animals and omnivores eat both animals and plants. • To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).	• To observe changes across the four seasons. • To observe and describe weather associated with the seasons and how day length varies.

Science Overview

			materials have properties and name these. - To describe the simple physical properties of a variety of everyday materials. - To compare and group together a variety of everyday materials on the basis of their simple physical properties.			
2	Unit/outcome:	Biology: Animals including Humans Basic needs, eating the right amounts of different types of food. Importance of exercise on health and wellbeing. Importance of hygiene.	Everyday Materials Uses and properties of materials.	Living things and their habitats Living and dead, animal/human offspring. Food chains	Plants How seeds grow and what plants need to thrive.	Living things and their habitats Habitats and simple adaptations.
	Key enquiry questions:	<u>How can I keep myself healthy?</u>	<u>Why are different materials important?</u>	<u>What are food chains?</u>	<u>How do plants grow?</u>	<u>What is a habitat?</u>
	Reoccurring concept:	Legacy Knowledge	Legacy Sustainability	Knowledge Legacy	Knowledge Legacy	Knowledge Legacy

	United Nations Sustainable Goals	 What it means to be healthy The impact of malnutrition on individuals and countries.  The impact of malnutrition on individuals and countries.		 Protect ecosystems.		
	Disciplinary concepts	Biology: Animals including humans	Chemistry: Everyday Materials	Biology: Living things and their habitats	Biology: Plants	Biology: Living things and their habitats
	Sticky knowledge	To know that animals have offspring. To know that offspring grow in to adults. To know that animals need water, food and air to survive.	To know why certain materials are used for different objects. To know and identify different properties of materials. To know that a force can be added to a material so that it can be squashed, twisted, bended and stretched to change their shape.	To know and name things living, dead and things that have never been alive. To know that living things grow and reproduce. To know what a habitat and micro-habitat are. To know how a simple food chains works. Working Scientifically:	To know how seeds and bulbs grow in to plants. To know that plants need water, light and a suitable temperature to grow and stay healthy. Working Scientifically: To know what the term 'prediction' means.	To know that most living things live in habitats that help them survive and grow. To know how different habitats provide for the basic needs of different kinds of animals and plants. To know how plants and animals depend on each other.

Science Overview

		To know why it is important to exercise. To know the importance of a healthy diet. To know the importance of hygiene. Working Scientifically: To know what the term 'prediction' means. To know what the term 'observe' means and give an example. To know the difference between 'fair' and 'unfair' in an experiment To know that we need to test ideas	Working Scientifically: To know what the term 'prediction' means. To know what the term 'observe' means and give an example. To know the difference between 'fair' and 'unfair' in an experiment To know that we need to test ideas To know how to identify and classify	To know what the term 'prediction' means. To know what the term 'observe' means and give an example. To know the difference between 'fair' and 'unfair' in an experiment To know that we need to test ideas To know how to identify and classify	To know what the term 'observe' means and give an example. To know the difference between 'fair' and 'unfair' in an experiment To know that we need to test ideas	To know how animals obtain food from plants and other animals. To know and name different sources of food. To know and name a variety of plants and animals in their habitats. Working Scientifically: To know what the term 'prediction' means. To know what the term 'observe' means and give an example. To know how to identify and classify
	Language	Survival, water, air, food, adult, baby, offspring, kitten, calf, puppy, pupa, spawn, tadpole, frog, exercise, hygiene, baby, toddler, child,	Reinforce words from Year 1 plus squashing, twisting, bending, stretching, conductor, suitability, flexible, rigid. Prediction, observe, fair, unfair, test, experiment, identify, classify.	Habitat, micro-habitat (stones, leaf litter, path), shelter, warmth, ocean, rainforests, desert, polar region, woodland, seashore, living, not-living, alive, food chain, energy, predator, prey, life processes. Prediction,	Seeds, bulbs, water, light, temperature, growth, healthy. Prediction, observe, fair, unfair, test, experiment, identify, classify.	Habitat, micro-habitat (stones, leaf litter, path), shelter, warmth, ocean, rainforests, desert, polar region, woodland, seashore. Prediction, observe, fair,

Science Overview

		teenager, adult, exercise. Prediction, observe, fair, unfair, test, experiment, identify, classify.		observe, fair, unfair, test, experiment, identify, classify.		unfair, test, experiment, identify, classify.
	Progression	• To know that we can ask simple questions and recognize that they can be answered in different ways. • To predict what will happen based on their scientific knowledge. • To observe closely, using simple equipment. • To know that the term observe means to watch someone or something carefully. • To perform simple tests. • To know that we can carry out a test to check our hypothesis. • To know the meaning of 'fair' and 'unfair' in an experiment. • To identify and classify. • To suggest answers to questions using their observations and ideas. • To gather and record data to help in answering questions.				
		• To know that animals, including humans, have offspring which grow into adults. • To know, explore and understand the life cycle of a human and animal. • To know how animals reproduce. • Find out about and describe the basic needs	• To compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • To identify the properties of materials that make them suitable or unsuitable for particular purposes. • To find out how the shapes of	• To explore and compare the differences between things that are living, dead, and things that have never been alive. • To know that living things move, grow, consume nutrients and reproduce. • To know the terms habitat and micro-habitat. • To know how a habitat provides for the basic needs of animals and plants. • To describe how animals obtain their food from plants and other animals.	• To observe and describe how seeds and bulbs grow into mature plants. • To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. • To know what seeds, need to germinate and grow. • To observe and record how a plant changes over time.	• To 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. • To know that

Science Overview

		of animals, including humans, for survival (water, food and air). - To describe the importance for humans of exercise and eating the right amounts of different types of food. - To know the basic food groups. - To know the effects that fatty foods can have on our bodies. - To know the impact of exercise on the heart and body. - To describe the importance for humans of hygiene. - To know the reasons for keeping clean	solid objects made from some materials can be changed by squashing, bending, twisting and stretching. To know that applying forces to objects can change their shape, by squeezing, stretching, bending and twisting.	To know how a simple food chain works.		all animals have certain characteristics that are essential for keeping them alive and healthy. - To identify and name a variety of plants and animals in their habitats, including microhabitats. - To 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. - To explain what carnivores, herbivores and omnivores are.
--	--	--	--	--	--	--

Science Overview

		and staying healthy.					
3	Unit/outcome:	Biology: Animals, including humans Nutrition, skeletons and muscles.	Rocks Compare and group rocks, soil and fossils.	Plants Flowering plants, requirements for growth, transportation, life cycle of plants.	Forces Friction.	Magnets Magnetic forces, actions of magnets, non/magnetic materials.	Light Seeing, reflection, and shadows.
	Key enquiry questions:	<u>Are bones important?</u>	<u>What are the physical properties of rocks, soil and fossils?</u>	<u>What is the life cycle of a flowering plant?</u>	<u>How does friction effect movement?</u>	<u>How do magnets work?</u>	<u>How does light travel?</u>
	Reoccurring concept:	Legacy Knowledge	Knowledge	Knowledge Sustainability	Knowledge Innovation	Knowledge	Knowledge
	United Nations Sustainable Goals	 What it means to be healthy.					
	Disciplinary concepts	Biology: Animals including humans	Chemistry: Rocks	Biology: Plants	Physics: Forces	Physics: Magnets	Physics: Light
	Sticky knowledge	To know why animals including humans need the right amount of nutrients. To know we get nutrients from the food we eat. To know that animals have a skeleton.	To know that there are three types of rocks: igneous, sedimentary and metamorphic. To know the properties of igneous, metamorphic and sedimentary rocks. To know how and why rocks change over time.	To know the name and function of plants: roots, stem/trunk, leaves and flowers. To know what plants need for life and growth (air, light, water, nutrients from soil, and room to grow) and how this varies from plant to plant.	To know how things move on different surfaces. To know how friction impacts on movement. To know a force can be thought of as a push or a pull.	To know that magnets as having two poles (called north and south). To know why and how magnets attract or repel. To know that magnetic forces can act at a distance.	To know that they need light in order to see things and that dark is the absence of light. To know that light is reflected from a surface. To know that light from the sun can be dangerous and that there are ways to protect their eyes.

Science Overview

		To know the job of the skeleton. To know that muscles help animals move. Working scientifically: To know how to set up fair and comparative testing To know how to gather, record and present data To know how to use results to draw simple conclusions To know how to use scientific evidence to answer questions or support findings.	To know how fossils are formed. To know how soil is made. Working scientifically: To know how to set up fair and comparative testing To know how to gather, record and present data To know how to use results to draw simple conclusions To know how to use scientific evidence to answer questions or support findings.	To know how to carry out an investigation. To know how and why water is transported within plants. To know how flowers reproduce and disperse their seeds. To know the part the flower plays in the life cycle of the plant including pollination, seed formation and seed dispersal. Working scientifically: To know how to set up fair and comparative testing To know how to gather, record and present data To know how to use results to draw simple conclusions	Working scientifically: To know how to set up fair and comparative testing To know how to gather, record and present data To know how to use results to draw simple conclusions To know how to use scientific evidence to answer questions or support findings.	To know how to compare and group together a variety of everyday magnetic and non-magnetic materials. To know how to predict whether two magnets will attract or repel each other, depending on which poles are facing. Working scientifically: To know how to set up fair and comparative testing To know how to gather, record and present data To know how to use results to draw simple conclusions To know how to use scientific evidence to answer questions or support findings.	To know that shadows are formed when light from the light source is blocked by an opaque object. To know what might cause a shadow to change. To know that the size of a shadow changes dependant on where the light source is. Working scientifically: To know how to set up fair and comparative testing To know how to gather, record and present data To know how to use results to draw simple conclusions To know how to use scientific evidence to answer questions or support findings.
--	--	--	---	--	---	--	--

Science Overview

				To know how to use scientific evidence to answer questions or support findings.			
	Language	Movement, muscles, bones, skull, skeleton, nutrition, fat, sugar, carbohydrate, protein, vitamins, minerals, dairy produce, meat, fruit, vegetables, diet. Prediction, fair test, comparative test, data, bar charts, tables, results, conclusions, evidence.	physical properties igneous, sedimentary and metamorphic rock, granite, basalt, limestone, sandstone, marble, slate, fossils, soil, pumice, crystals, absorbent, clay, similarities, differences, tectonic plates, weathering, crust, mantle, outer core, inner core. Prediction, fair test, comparative test, data, bar charts, tables, results, conclusions, evidence.	Air, light, water, nutrients, soil, reproduction, transportation, dispersal, pollination, flower. Prediction, fair test, comparative test, data, bar charts, tables, results, conclusions, evidence.	force, contact, friction, push, pull. Prediction, fair test, comparative test, data, bar charts, tables, results, conclusions, evidence.	Magnetic force, force, contact, attract, repel, friction, poles. Prediction, fair test, comparative test, data, bar charts, tables, results, conclusions, evidence.	Light, dark, shadows, mirror, shiny, smooth, rough, surfaces, reflective, transparent, translucent, opaque. Prediction, fair test, comparative test, data, bar charts, tables, results, conclusions, evidence.
	Progression	• To know that we can ask relevant questions and answer them by setting up scientific enquiries. • To know how to make relevant predictions that will be tested in a scientific enquiry. • To know how to set up a fair or comparative test to explore and answer simple practical enquiries. • To know how to use a range of equipment to make systematic and careful observations accurately, including thermometers, data loggers, rulers and stopwatches. • To gather, record, classify and present data in a variety of ways to help in answering questions. • To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • To use straightforward scientific evidence to answer questions or to support their findings. • To identify differences and similarities, or changes related to simple scientific ideas.					
	• To identify that animal, including humans, need the	• To compare and group together different kinds of rocks on the basis of their	• To identify and describe the functions of different parts of	• To compare how things move on different surfaces.	• To describe magnets as having two poles (called north and	• To recognise that they need light in order to see things and that dark is the absence of light. • To know how light	

		right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. • To know that humans and some animals have skeletons and muscles for support, protection and movement. • To know that skeletons provide support for muscles and protect the body. • To know the function of the human skeleton. • To know that muscles work in pairs. • To know what vertebrate and invertebrate means.	appearance and simple physical properties. • To know that there are three types of rocks: igneous, sedimentary and metamorphic. • To know the properties of igneous, metamorphic and sedimentary rocks. • To observe rocks, including those used in buildings and gravestones, and explore how and why they might have changed over time. • To describe in simple terms how fossils are formed when things that have lived are trapped within rock. • To know that fossils can help us learn about things that lived long ago. • To know and	flowering plants: roots, stem/trunk, leaves and flowers. • To know the job of the root, petals, stem. • To 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. • To investigate the way in which water is transported within plants. • To know how flowers reproduce and disperse their seeds. • To explore the part that flowers play in the life cycle of flowering plants, including	• To know objects move differently on rough and smooth surfaces. • To know objects resist movement more on rough surfaces because there is higher friction as the object moves. • To know a force can be thought of as a push or a pull.	south). • To observe how magnets attract or repel each other and attract some materials and not others. • To notice that some forces need contact between two objects, but magnetic forces can act at a distance. • To 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. • To predict whether two magnets will attract or repel each other, depending on which poles are facing.	behaves. • To know that we need light to see things and that darkness is the absence of light. • To know that objects can be opaque, translucent or transparent. • To know that light is reflected from a surface. • To recognise that light from the sun can be dangerous and that there are ways to protect their eyes. • To recognise that shadows are formed when light from the light source is blocked by an opaque object. • To know what might cause a shadow to change. • To know that the size of a shadow changes dependant on where the light source is. • To find patterns in the way that the size of shadows change.
--	--	---	---	---	--	--	---

Science Overview

		To know that a nutritious diet can be achieved in a variety of ways.	recognize that soils are made from rocks and organic matter. To know that soils are made from.	pollination, seed formation and seed dispersal.			
4	Unit/outcome:	Living things and their habitats. Classification, changes in environment and dangers this poses including the impact of climate change.	Animals, including humans Digestive system and teeth.	States of matter Solids, liquids or gases, changes of state. Evaporation and condensation in the water cycle.	Sound How sounds are made, the ear, find patterns between the pitch, volume of a sound and the strength of the vibrations that produced it, how sound reduces as its sources get further away.	Electricity Basic circuit components, electrical appliances, conductors and insulators.	
	Key enquiry questions:	<u>How can we use groupings to categorise animals?</u>	<u>How does the digestive system work?</u>	<u>What are the properties of solids, liquids and gases?</u>	<u>How does sound travel?</u>	<u>What is electricity?</u>	
	Reoccurring concept:	Legacy Partnership					
	United Nations Sustainable Goals	 There is a need to protect plant and animal life on land.					
	Disciplinary concepts	Biology: Living things and their habitats	Biology: Animals including humans	Chemistry: States of matter	Physics: Sound	Physics: Electricity	
	Sticky knowledge	To know how to group living things in a variety of ways. To know that a classification key uses	To know how the digestion system works. To know how to construct and interpret a variety of food chains,	To know how to compare and group materials together, according to whether they are solids, liquids or gases.	To know that sound is generated when an object vibrates. To know that vibrations from sounds travel through a	To know and name appliances that run on electricity. To know cells, batteries and the mains are all	

Science Overview

	questions to sort and identify different living things. To know that changes to the environment can make it more difficult for living things to survive and reproduce. To know the impact of humans on environments. Working scientifically: To know how to set up fair and comparative testing To know how to gather, record and present data To know how to use results to draw simple conclusions To know how to use scientific evidence to answer questions or support findings.	identifying producers, predators and prey. To know what a primary and secondary consumer are. To know that a human has three types of teeth, incisors, canines and molars and that these each perform different functions. Working scientifically: To know how to set up fair and comparative testing To know how to gather, record and present data To know how to use results to draw simple conclusions To know how to use scientific evidence to answer questions or support findings.	To know that some materials change state when they are heated or cooled. To know that some changes are irreversible. To know the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. Working scientifically: To know how to set up fair and comparative testing To know how to gather, record and present data To know how to use results to draw simple conclusions To know how to use scientific evidence to answer questions or support findings.	medium to the ear. To know how sounds can be changed in a variety of ways for example, through pitch and volume. To know how the strength of vibration affect the volume of a sound. To know which materials, provide the best insulation against sound. To know that the volume of a sound is quieter if the listener is further away from the object. Working scientifically: To know how to set up fair and comparative testing To know how to gather, record and present data To know how to use results to draw simple conclusions To know how to use scientific evidence to answer questions or support findings.	sources of electrical energy. To know how to draw simple circuit diagrams. To know that wires allow electrical current to flow around a circuit. To know what a loop circuit is and explain how it works. To know that a switch opens and closes a circuit. To know and name some common conductors and insulators. To know that metals are used as because they good conductors. Working scientifically: To know how to set up fair and comparative testing To know how to gather, record and present data To know how to use results to draw simple conclusions
--	---	---	--	--	---

Science Overview

						To know how to use scientific evidence to answer questions or support findings.
Language	Fish, amphibians, reptiles, birds, mammals, herbivore, carnivore, omnivore, invertebrates, slug, snail, worms, spiders, insects, vertebrates, group, classify, environment, habitats. Prediction, fair test, comparative test, data, bar charts, tables, results, conclusions, evidence.	Mouth, tongue, teeth, incisors, canines, pre-molars, molars, oesophagus, stomach, small intestine, large intestine, digestive system, food chain, energy. Prediction, fair test, comparative test, data, bar charts, tables, results, conclusions, evidence.	Solid, liquid, gas, evaporation, condensation, bond, particles, temperature, freezing, heating, cooling, Celsius, water cycle, melting, reversible change. Precipitation, transpiration, surface run-off, groundwater. Prediction, fair test, comparative test, data, bar charts, tables, results, conclusions, evidence.	Vibration, volume, pitch, medium, insulation. Prediction, fair test, comparative test, data, bar charts, tables, results, conclusions, evidence.	Cells, wires, bulbs, switches, battery, buzzers, circuit, series, conductors, insulators, components, brighter, dimmer. Prediction, fair test, comparative test, data, bar charts, tables, results, conclusions, evidence.	
Progression	- To know that we can ask relevant questions and answer them by setting up scientific enquiries. - To know how to make relevant predictions that will be tested in a scientific enquiry. - To know how to set up a fair or comparative test to explore and answer simple practical enquiries. - To know how to use a range of equipment to make systematic and careful observations accurately, including thermometers, data loggers, rulers and stopwatches. - To gather, record, classify and present data in a variety of ways to help in answering questions. - To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. - To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. - To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. - To use straightforward scientific evidence to answer questions or to support their findings. - To identify differences and similarities, or changes related to simple scientific ideas.					
	To recognise that living things can be grouped in a variety of ways.	- To know and be able to explain the digestive system. - To describe the	To compare and group materials together, according to	To identify how sounds are made, associating some of them with	To identify common appliances that run on	

Science Overview

		- To know that animals can be grouped based on their physical characteristics. To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. - To know that a classification key uses questions to sort and identify different living things. To recognise that environments can change and that this can sometimes pose dangers to living things. - To know that changes to the environment can make it more difficult for living things to survive and reproduce. - To know the impact of humans on environments.	simple functions of the basic parts of the digestive system in humans. To construct and interpret a variety of food chains, identifying producers, predators and prey. - To know what a primary and secondary consumer are. To identify the different types of teeth in humans and their simple function. - To know that a human has three types of teeth, incisors, canines and molars and that these each perform different functions.	whether they are solids, liquids or gases. To 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). - To know that some changes are irreversible. To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. - To know that, as temperature increases, solids can change into liquids. - To know that, with a further increase of	something vibrating. - To know that sound is generated when an object vibrates. - To explore and identify the way musical instruments use vibration to make sound. To recognise that vibrations from sounds travel through a medium to the ear. - To know that sound travels through a medium. To find patterns between the pitch of a sound and features of the object that produced it. - To know how sounds can be changed in a variety of ways for example, through pitch and volume. To find patterns between the volume of a sound and the strength of the vibrations that produced it. - To know which materials provide the best insulation against sound. To recognise that	electricity. - To identify how to work safely with electricity. - To know cells, batteries and the mains are all sources of electrical energy. To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. - To know how to draw simple circuit diagrams. - To know that electrical current can flow if there is a complete circuit. - To know that when electrical current is
--	--	---	---	---	--	--

Science Overview

				temperature, the liquid changes into gas. • To know when solids turn into liquids, this is called melting and that the reverse process is called freezing. • To know when liquids turn into gasses, this is called evaporation and that the reverse process is called condensation. • To know that the melting point of water is 0 degrees Celsius and that the boiling point is 100 degrees Celsius. • To know that water flows around our world in a continuous process called the water cycle.	sounds get fainter as the distance from the sound source increases. • To know that the volume of a sound is quieter if the listener is further away from the object.	needed to make a circuit work. • To know that wires allow electrical current to flow around a circuit. • To 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. • To know that a switch functions by completing or breaking a complete circuit. • To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a
--	--	--	--	---	--	---

						simple series circuit. - To recognise some common conductors and insulators, and associate metals with being good conductors. - To draw and explain a circuit with symbols.
5	Unit/outcome:	Earth and space Earth, planets, day/night.	Forces Gravity, air resistance, water resistance and friction, that act between moving surfaces, levers and pulleys.	Properties of changing materials Grouping materials by properties, solids, liquids and gases, changes of state.	Living things and their habitats Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.	
	Key enquiry questions:	<u>How have our ideas about space changed over time?</u>	<u>Why are forces important?</u>	<u>What are the properties of different materials and how can they change?</u>	<u>Are all life cycles the same?</u>	
	Reoccurring concept:	Legacy Equality Innovation				
	United Nations Sustainable Goals	 Women feel valued and empowered to do whatever they have a passion to do				

Science Overview

	Disciplinary concepts	Physics: Earth and Space	Physics: Forces	Chemistry: Properties of Changing Materials	Biology: Living things and their habitats
	Sticky knowledge	To know how the movement of the Earth and other planets relative to the sun in the solar systems. To know that the Sun is a star at the centre of our solar system. To know that the Earth takes 365.25 days to orbit the sun. To know and explain the movement of the moon relative to the Earth. To know that the sun, Earth and moon as approximately spherical bodies. To know and explain the idea of the Earth's rotation for day and night and the apparent movement of the sun across the sky. Working scientifically: To know how scientific evidence supports or refutes ideas and give examples.	To know unsupported objects are pulled towards the Earth by the force of gravity. To know a force is measured in a unit called Newtons. To know and name the scientist who discovered gravity. To know the amount of matter in an object is its mass. To know how forces and mass make things move faster or slower. To know the effects of air resistance, water resistance and friction that act between moving surfaces. To know that gears, levers and pulleys are simple machines that are used to allow a smaller force to have a greater effect. Working scientifically: To know what a hypothesis is. To know and identify suitable variables to test hypothesis To know how to control variables when necessary.	To know how to compare and group together everyday materials on the basis of their properties. To know that some materials dissolve in liquid to form a solution. To know how to recover a substance from a solution. To know how to sort solids, liquids and gases. To know how to filtering, sieving and evaporating. To know how to carry out a fair test. To know and 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. Working scientifically: To know what a hypothesis is. To know and identify suitable variables to test hypothesis	To know that living things are classified into broad groups. To know how to and give reasons for classifying plants and animals based on specific characteristics. Working scientifically: To know how to present and report findings. To know how scientific evidence supports or refutes ideas and give examples.

Science Overview

			To know why repeated measurements are sometimes necessary.	To know how to control variables when necessary. To know why repeated measurements are sometimes necessary. To know how to present and report findings.	
	Language	Earth, sun, moon, axis, rotation, day, night, phases of the moon, star, sphere, planet, dwarf planet, Mercury, Venus, Mars, Jupiter, Saturn, Uranus and Neptune, scientific evidence, refute, support.	Refraction, reflection, light, spectrum, rainbow, colour, shadow. Hypothesis, variables, dependent variable, independent variable, control, repeated measures.	Hardness, solubility, solution, transparency, conductivity, filter, evaporation, sieve, melting, dissolving, mixing, burning, irreversible. Hypothesis, variables, dependent variable, independent variable, control, repeated measures, conclusion.	Classification, vertebrates, invertebrates, micro-organisms, amphibians, reptiles, mammals, insects. Hypothesis, variables, dependent variable, independent variable, control, repeated measures, conclusion, scientific evidence, refute, support.
	Progression	- To know how to choose appropriate variables to test a hypothesis (e.g. plant height as a dependent variable when measuring effect of light on plant growth). - To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. - To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. - To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. - To use test results to make predictions to set up further comparative and fair tests. - To know how to report and present findings from enquiries in a variety of oral and written forms. - To know how to identify scientific evidence that has been used to support or refute ideas or arguments.			
		- To describe the movement of the Earth and other planets relative to the sun in the solar systems. - To know that the Sun is a star at the centre of our solar system and that it has eight planets.	- To be able to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. - To know unsupported objects are pulled towards the Earth by	To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and	- To 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. - To know that animals can be categorised into broad

Science Overview

		- To know that all planets in our solar system orbit the sun. - To know that the Earth takes 365.25 days to orbit the sun. To describe the movement of the moon relative to the Earth. - To know that a moon orbits a planet. To describe the sun, Earth and moon as approximately spherical bodies. To explain the idea of the Earth's rotation for day and night and the apparent movement of the sun across the sky. - To know that the work of scientists and astronauts has informed our current knowledge of space and how it continues to change. - To know that women have had an impact on space travel in the last 20 years.	the force of gravity. - To know a force is measured in a unit called Newtons. - To know and name the scientist who discovered gravity. - To know the amount of matter in an object is its mass. - To know that gravity is a force that acts between all objects. - To know that gravity acts stronger when objects have more mass and are close together. - To explore how forces make things move faster or slower. To identify the effects of air resistance, water resistance and friction that act between moving surfaces. - To explore the effects of air resistance on different objects. - To know that gears, levers and pulleys are simple machines that are used to allow a smaller force to have a greater effect. To recognise that some mechanisms, including levers, pulleys and	thermal), and response to magnets. To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes	groupings and then sub divided. To give reasons for classifying plants and animals based on specific characteristics.
--	--	--	---	---	---

Science Overview

				gears, allow a smaller force to have a greater effect.	associated with burning and the action of acid on bicarbonate of soda.	
6	Unit/outcome:	Animals including humans Human circulatory system, the functions of the heart, blood vessels and blood, impact of diet, exercise, drugs and lifestyle nutrients and water transportation within animals, including humans.	Light How light travels, shadows, how eyes see.	Electricity Circuit symbols, effects of cells in circuits.	Evolution and inheritance Fossils, living producing offspring, adaptation.	Living things and their habitats Classifying micro-organisms, plants and animals.
	Key enquiry questions:	<u>Why is our heart so important?</u>	<u>How are light and sight linked?</u>	<u>What are the different parts of a circuit?</u>	<u>What is evolution?</u>	<u>Why is classification important?</u>
	Reoccurring concept:	Knowledge	Knowledge Legacy			
	United Nations Sustainable Goals	 Understand a variety of ways to improve their own and other people's well-being.			 There is a need to protect plant and animal life on land.	
	Disciplinary concepts	Biology: Animals including humans	Physics: Light	Physics: Electricity	Biology: Evolution and Inheritance	Biology: Living things and their habitats

Science Overview

	Sticky knowledge	To know and name the main parts of the human circulatory system. To know and describe the functions of the heart, blood vessels and blood. To know the impact of diet, exercise, drugs and lifestyle on the way their bodies function. To describe the ways in which nutrients and water are transported within animals including humans. Working scientifically: To know what a hypothesis is. To know and identify suitable variables to test hypothesis To know how to	To know that light travels in straight lines. To know that objects are seen because they give out or reflect light into the eye. To know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. To know why shadows, have the same shape as the object that cast them. Working scientifically: To know how scientific evidence supports or refutes ideas and give examples.	To know that as the number and voltage of cells in a circuit increases the brightness of a bulb or the volume of a buzzer. To know the recognized symbols for a battery, bulb, motor, buzzer and wire when representing a simple circuit in a diagram. To know what a series circuit is and explain how it works. To know how to construct a simple series circuit using components. Working scientifically: To know what a hypothesis is. To know and identify suitable variables to test hypothesis To know how to control variables when necessary. To know why repeated measurements are sometimes necessary. To know how to present and report findings.	To know and explain how living things change over time. To know that fossils provide information about living things that inhabited the Earth millions of years ago. To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. To know how animals and plants adapt to suit their environment in different ways and that adaptation may lead to evolution. Working scientifically: To know how scientific evidence supports or refutes ideas and give examples.	To know how to classify living things into broad groups according to common observable characteristics and based on similarities and differences. To know how to classifying plants and animals based on specific characteristics.
--	--------------------------------	---	---	---	---	--

Science Overview

		control variables when necessary. To know why repeated measurements are sometimes necessary. To know how to present and report findings.				
	Language	Circulatory system, heart, blood, arteries, veins, vessels, oxygenated, deoxygenated, valve, carbon dioxide, nutrients, muscles, exercise, respiration, nutrients, diet, drugs, harmful, beneficial, respiration. Hypothesis, variables, dependent variable, independent variable, control, repeated measures, conclusion, scientific evidence, refute, support.	Refraction, reflection, light, spectrum, rainbow, colour, shadow, refute, support.	Cells, wires, bulbs, switches, buzzers, series, conductors, insulators, amps, volts, cell, symbols, current, voltage. Hypothesis, variables, dependent variable, independent variable, control, repeated measures, conclusion, scientific evidence, refute, support.	Fossils, adaptation evolution, characteristics, reproduction, genetics, environment, palaeontologist, advantage, disadvantage, species, refute, support.	Classification, vertebrates, invertebrates, micro-organisms, amphibians, reptiles, mammals, insects.
	Progression	To know how to choose appropriate variables to test a hypothesis (e.g. plant height as a dependent variable when measuring effect of light on plant growth).				

Science Overview

	- To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. - To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. - To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. - To use test results to make predictions to set up further comparative and fair tests. - To know how to report and present findings from enquiries in a variety of oral and written forms. - To know how to identify scientific evidence that has been used to support or refute ideas or arguments.				
	- To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. - To know that oxygen is pumped around your body through the blood by the heart. - To know the names of the parts of the heart and how blood circulates through it. - To know what makes the heart beat faster. - To know that the lungs are	- To recognise that light appears to travel in straight lines. - To know that when light reflects off an object, the angle of incidence is equal to the angle of reflection. - To know that light travels in straight lines - To 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. - To explain that we see things because light	- To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. - To know that voltage is a measure of the power of a cell to produce electricity. - To know how to predict whether components will function in a given circuit, depending on whether or not the circuit is complete; whether or not a switch is in an on or off position; and whether or not there is a cell to provide electrical current to the circuit. - To compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off	- 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. - To know that living things change over time and that this is called evolution. - To know that the gradual change of species over millions of years can be observed by looking at examples of fossils. - To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. - To know that characteristics are passed from parents to their offspring. - To identify how animals and plants are adapted to suit their environment in different ways and that	- To 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. - To know that animals can be categorised into broad groupings and then sub divided. - To give reasons for classifying plants and animals based on specific characteristics.

Science Overview

		an important part of the circulatory system. • To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. • To know what damages their body. • To explore the relationship between diet, exercise, drugs, lifestyle and health. • To describe the ways in which nutrients and water are transported within animals including humans.	travels from light sources to our eyes or from light sources to objects and then to our eyes. • To use the idea that light travels in straight lines to explain why shadows have the same shape as the object that cast them. • To know and explain refraction. • To know that white light comprises all the colours of light.	position of switches. • To know that as the number and voltage of cells in a circuit increases the brightness of a bulb or the volume of a buzzer. • To know the recognized symbols for a battery, bulb, motor, buzzer and wire. • To use recognised symbols when representing a simple circuit in a diagram. • To know what a series circuit is and explain how it works. • To know how to construct a simple series circuit using components.	adaptation may lead to evolution.	
--	--	--	---	--	---	--

DRAFT