

Science

EYFS • Compare length, weight and capacity. (M) • Explore the natural world around them. (UW) • Describe what they see, hear and feel whilst outside. (UW) • Recognise some environments that are different to the one in which they live. (UW) • Understand the effect of changing seasons on the natural world around them. (UW) ELG's: • Explore the natural world around them, making observations and drawing pictures of animals and plants. (UW) • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. (UW) • Make comments about what they have heard and ask questions to clarify their understanding. (CAL) • Hold conversation when engaged in back-and-forth exchanges with their teacher and peers. (CAL) • Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. (CAL) • Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate. (CAL)	
Knowledge	Skills
In line with the new curriculum for EYFS in September 2021: Children learn to think and investigate scientifically across most areas of the EYFS curriculum, particularly in their learning around: Understanding The World Pupils will begin to discover and learn about the world around them exploring the following topics: • Growing – Pupils will be exposed to the understanding of plants and how they grow – using the allotment area children will know how plants grow and the care they need to survive. • Myself and my family – pupils will discuss and study what makes them special and family connections. Materials – to study the difference between natural and human made objects. • Healthy Lifestyles – to know the importance of healthy lifestyles. • Ourselves – studying the senses and body parts. • Earth and Space – to begin their journey of studying the wonders of the earth and space • Forces – Floating/sinking and magnets. Early Learning Goals: Communication and Language • Listen attentively and respond to what they hear with relevant questions, comments and actions • Make comments about what they have heard and ask questions to clarify their understanding • Offer explanations of why things might happen, making use of recently introduced vocabulary • Express their ideas and feelings about their experiences in full sentences using all tenses Personal, Social and Emotional Development • Set and work towards simple goals Literacy • Use and understand recently introduced vocabulary during discussions about non-fiction and stories Physical Development • Begin to show accuracy and care when drawing Understanding the World • Describe their immediate environment using knowledge from observation and discussion	Development Matters statements: Communication and Language • Ask questions to find out more and to check what has been said to them. • Describe events in some detail • Use new vocabulary in different contexts Personal, Social and Emotional Development • Know and talk about the different factors that support their overall health and wellbeing. • Regular physical activity; healthy eating; tooth brushing; sensible ‘screen time’; having a good sleep routine; being a safe pedestrian. • Show resilience and perseverance in the face of challenge • Select and use activities and resources that help them to achieve a goal they have chosen Physical Development: • Use one-handed tools and equipment • Choosing the right resources to carry out their plan Literacy • Learn new vocabulary • Offer explanations about why things might happen. Mathematics: • Compare length, weight and capacity. • Link the number symbol (numeral) with its cardinal number value. Understanding the World • Use all their senses in hands on exploration of natural materials • Explore collections of materials with similar and/or different properties • Talk about what they see using a wide vocabulary • Explore how things work • Plant seeds and care for growing plants • Understand the key features of the life cycle of a plant or animal • Begin to understand the need to respect and care for the natural environment and all living things • Explore and talk about different forces they can feel • Talk about the differences between materials and changes they notice • Explore the natural world around them • Describe what they see, hear and feel whilst outside

- Explore the natural world around them making observations and drawing pictures - Talk about the lives of the people around them and their roles in society - Know some similarities and differences between life in this country and life in other countries drawing on knowledge from stories, non-fiction texts and maps - 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. - Understand some important processes and changes in the natural world around them. Progression: This prepares them for Year 1, where pupils will build on what they have learnt and begin to make more observations about why things happen.		- Recognise some environments are different to the one in which they live - Understand the effect of changing seasons on the natural world around them	
Year 1			
	Knowledge	Vocabulary	Skills
Term 1	Animals including Humans (Ourselves/Classifying Animals) Pupils begin Year One by learning about animals, including humans. As part of this, they develop their understanding of the five senses. Pupils use the local environment throughout the term to explore and answer questions about animals in their habitat Pupils will become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as Key Content: - Investigation: Children identify, name, draw and label the basic parts of the human body Children will investigate and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Observation: through looking at baby photos Children will observe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Explanation: Children will say which part of the body is associated with each sense. Children will describe and name a variety of common animals that are carnivores, herbivores and omnivores Progression: This prepares them for Year 2, where pupils will learn more about animal’s habitats. Progression: This prepares them for Year 2, where pupils will develop their understanding of living things further when learning about the food chain.	compare, describe, similar, different, baby, adult, changes, growing, compare, measure, record, data, gather, predict, centimetre, touch, sight, smell, taste, hear, sense birds, fish, amphibians, reptiles, mammals and invertebrates, habitat, healthy, carnivores, herbivores, omnivores	<i>Across Year One and Two, children will be taught the following skills to work scientifically.</i> · asking simple questions and recognising that they can be answered in different ways · observing closely, using simple equipment · performing simple tests · identifying and classifying · using their observations and ideas to suggest answers to questions · gathering and recording data to help in answering questions
Term 2	Autumn & Winter Children are introduced to the topic of seasonal change and this topic is ongoing throughout the year, the children observe the length of a day and seasonal changes. This area of Science is also linked with Geography. Key Content: Investigation: Children investigate the weather through making tables and charts about the weather.	Tier 1 (everyday words) activity, change, clothes, cloudy, cold, cope, hot, month, partly cloudy, rain, snow, sun, thunder and lightning, warm, wind Tier 2 (words that are important in different science topics) animals, autumn, daylight, plants, nature,	

	Observation: Children observe the weather and changes across the 2 seasons Explanation: Children describe weather associated with the seasons and how day length varies	observations, seasons, spring, summer, survive, winter, temperature, thermometer, tree Tier 3 (words that are specific to this science topic) hibernate, migrate, rain gauge, weather, weathervane, wind direction, wind flag	
Term 3	Everyday materials Pupils learn about the differences between everyday materials. They learn how to identify different materials, group, and classify them according to their properties. Investigation: Distinguish between an object and the material from which it is made Observation: Children observe and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Explanation: Children will describe the simple physical properties of a variety of everyday materials and compare and group together a variety of everyday materials on the basis of their simple physical properties Progression: This prepares them for Year 2, where pupils learn more about materials and how materials can be changed.	Tier 1 (everyday words) object, hard, soft, shiny, dull, stretchy, bendy, see-through, wood, metal, water, plastic, rock, glass, brick, paper, cardboard, fabric, rubber Tier 2 (words that are important in different science topics) material, properties, stiff, rough, smooth, recycle, waste Tier 3 (words that are specific to science topics) transparent, opaque, waterproof, absorbent, natural, human-made, environmentally friendly	
Term 4	Nature Protectors Pupils learn about the differences between everyday materials. They learn how to identify different materials, group, and classify them according to their properties. Investigation: Distinguish which materials may be suited to specific tasks Observation: Use observations in enquiries to suggest answers to a question. Explanation: Make simple comparisons of materials based on their simple physical properties. Begin to understand what recycling is and what it means to be environmentally friendly.	Tier 1 (everyday words) <i>object</i>, item, <i>hard, soft</i>, shiny, <i>dull</i>, stretchy, bendy, see-through, stiff, <i>rough, smooth</i>, wood, <i>metal</i>, plastic, <i>glass</i>, brick, <i>paper</i>, cardboard, fabric, <i>rubber</i>, bird, <i>fish</i>, sea, rubbish, litter Tier 2 (words that are important in different science topics) <i>material, natural</i>, human-made, <i>properties</i>, reduce, reuse, recycle, waste, natural environment, nature, ocean, marine Tier 3 (words that are specific to this science topic) transparent, opaque, waterproof, absorbent, environmentally friendly, pollution, reptile, amphibian, mammal, carnivore, omnivore, herbivore	
Term 5	Plants Pupils will label and identify different parts of a plant, the functions of a plant and how plants grow. Key Content: Investigation: Children will identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Observation: Children will describe the basic structure of a variety of common flowering plants, including trees Explanation: Of how plants have changed over time, for example the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants.	diary, wild, garden, common, root, shoot, stem, leaf, growth, petals, pollen, bark, trunk, branches, deciduous and evergreen	

	Progression: This prepares them for Year 2, where pupils will learn how to compare different materials according to their properties and the subsequent plant unit.		
Term 6	Spring & Summer Children are introduced to the topic of seasonal change and this topic is ongoing throughout the year, the children observe the length of a day and seasonal changes. This area of Science is also linked with Geography. Key Content: Investigation: Children investigate the weather through making tables and charts about the weather. Observation: Children observe the weather and changes across the 2 seasons Explanation: Children describe weather associated with the seasons and how day length varies	weather, forecasts, seasons, daylight, shadows, spring, summer, autumn, winter, rainfall, precipitation, data, rise, set,	
Year 2			
	Knowledge	Vocabulary	Skills
Term 1	Animals including humans Building on prior learning, pupils find out about what animals including humans need for survival and the importance of exercise, diet and hygiene. Key Content: Investigation: Children will investigate and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Observation: Children will observe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Explanation: Children will describe and name a variety of common animals that are carnivores, herbivores and omnivores Progression: This prepares them for Year 3, where pupils will begin to learn how to identify animals and begin to look at the skeleton and muscles. Key Content: Investigation: Children will investigate healthy foods and decide what the basic needs of animals, including humans, are for survival (water, food and air) Observation: through studying how an embryo develops inside a chicken's egg children will notice that animals, including humans, have offspring which grow into adults. Explanation: Children will be able to describe the importance for humans to exercise, eat the right amounts of different types of food, and hygiene. Progression: This prepares them for Year 3, where pupils will begin to learn how to identify animals and begin to look at the skeleton and muscles.	birds, fish, amphibians, reptiles, mammals and invertebrates, habitat, healthy, carnivores, herbivores, omnivores Basic needs, water, food, air, breathing, survival Egg, chick, hatch, baby, adult, grow, change, observe, record	<i>Across Year One and Two, children will be taught the following skills to work scientifically.</i> · asking simple questions and recognising that they can be answered in different ways · observing closely, using simple equipment · performing simple tests · identifying and classifying · using their observations and ideas to suggest answers to questions · gathering and recording data to help in answering questions
Term 2	Living things and their habitats Pupils explore and compare the differences between things that are living, dead and things that have never been alive. They begin to delve deeper into habitats and learn that living things live in habitats that they are suited to.	Living, dead, never been alive, categories, needs air, feeds, grows, reproduces, gets rid of waste, food chain, predator, habitats	

	Key Contents: - Identify that most living things live in habitats to which they are suited - Identify and name a variety of plants and animals in their habitats, including micro-habitats Investigation: Children will investigate how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Children will look more closely at what happens in a food chain and understand that the sun's energy travels through a food chain and then back into the ground. Observation: Children will observe the differences between things that are living, dead, and things that have never been alive. Through creating a micro-habitat the children will observe and consider how plants and mini beasts are surviving Explanation: Children will 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. Progression: This prepares them for Year 3, where pupils will begin to learn how to identify animals.	Growth, germination, planting, edible, mini-beasts, habitat, predators	
Term 3	Biodiversity-Minibeasts By the end of this unit children will be able to identify and name a variety of minibeasts and their habitats, name some minibeasts that are pollinators and discuss why pollination is important Investigation: Children will investigate describe the importance of minibeasts in a habitat and be able to describe what a microhabitat is. Observation: children will observe and consider how plants and mini beasts are surviving, identify the basic needs of a minibeast and describe the importance of worms for healthy soil; Explanation: Children will explain why it is important for soil to be healthy and how important minibeasts are to other living things in an ecosystem; discuss what we can do to help protect minibeasts.	pollen, nectar, pollination, pollinator , honey bee, bumblebee, flower, habitat, microhabitat , environment, insect, energy, plant, conservation, minibeast, predator minibeast, decomposer, food chain , consumer, producer, predator, prey, carnivore, omnivore, herbivore, suitable, shelter, temperature, food source, basic needs, soil, nutrients, food waste, natural materials, healthy, unhealthy, water, compost, decomposed, earthworm, ecosystems, biodiversity , local environment, advantages, protect, depend	
Term 4	Use of Everyday Materials Pupils continue to develop their understanding of materials and their properties. They can identify, group and compare materials according to their properties. Key Contents: Investigation: Children identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses	material, properties, tear, strong, absorbent, investigation, results	

	Observation: Children will find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching Explanation: Children can explain for themselves the suitability of different materials for different purposes Progression: This prepares them for Year 3, where pupils will learn more specifically about rocks and soil.		
Term 5	Plants Following on from year one, pupils will learn to observe and describe how seeds and bulbs grow into plants. Pupils will also begin to describe how plants need water, light and a suitable temperature to stay healthy. Key Content: Investigation: Children will find out and describe how plants need water, light and a suitable temperature to grow and stay healthy Observation: through growing our own vegetables children will observe how seeds and bulbs grow into mature plants Explanation: Children will be asked to explain through instructions what a plant needs to be healthy. Progression: This prepares them for Year 3, where pupils will begin to learn in more specifics the parts of plants and the functions of these parts.	Seed, disperse, wind, pollination, water, warmth, nutrients, leaves, stem, roots	
Term 6	Plants		
Year 3			
	Knowledge	Vocabulary	Skills
Term 1	Animals including humans (keeping healthy) Pupils will delve deeper into what kind of nutrition animals including humans need and will identify that some animals have skeletons and muscles for support, protection and movement. Key Content: - Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Investigation: Children create their own bar charts from data, and plan and carry out a practical investigation in groups that attempts to answer a scientific question Observation: Children use observation skills to draw conclusions on how to live healthily. Explanation: Children use their knowledge of food groups and a balanced diet to design healthy meals. They 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	Vertebrate, invertebrate, bone, skeleton, skull, ribcage, pelvis, femur, muscles, joints, tendons, contract, relax, biceps, triceps	<i>During years three and four, pupils should be taught to use the following practical science methods, processes and skills through the teaching of the programme of study content.</i> - Asking relevant questions and using different types of scientific enquiries to answer them. - Setting up simple practical enquiries, comparative and fair tests - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. - Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Recording findings

	Progression: This prepares them for Year 4, where pupils will start to look at food chains in their local and wider environment.		using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. ● Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. ● Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. ● Identifying differences, similarities or changes related to simple scientific ideas and processes. ● Using straightforward scientific evidence to answer questions or to support their findings.
Term 2	Rocks and Soil Pupils will begin to compare and group together different types of rocks based on their appearances and properties and will describe how fossils are formed. Key Content: Investigation: Children will investigate different soils and the properties of rocks. Observation: Children compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Explanation: Children 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	Classification, observation, particles, fair test, compare, sort, predict	
Term 3	Light Pupils learn that we need light in order to see and that darkness is the absence of light. They will begin to investigate how shadows are formed and notice that light is reflected off surfaces. Key Contents: Investigation: Children recognise that shadows are formed when the light from a light source is blocked by an opaque object through investigation. Observation: Children will notice that light is reflected from surfaces and find patterns in the way that the size of shadows change. Explanation: Children will recognise that they need light in order to see things and that dark is the absence of light and recognise that light from the sun can be dangerous and that there are ways to protect their eyes.	Light source, energy, reflector, reflect, predict, reflective, transparent, translucent, opaque, shadow	
Term 4	Forces and Magnets Pupils will learn to compare how things move on different surfaces. They will describe magnets as having two poles and predict whether the magnets will attract or repel each other based on which poles are facing. Key Content: Investigation: Children compare how things move on different surfaces and predict whether 2 magnets will attract or repel each other, depending on which poles are facing.	Magnetic, non-magnetic, attract, attraction, repel, repulsion, poles, north, south	

	Observation: Children will notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. They will observe how magnets attract or repel each other and attract some materials and not others Explanation: Children will 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 and describe magnets as having 2 poles.		
Term 5	Plants They will learn about the different parts of plants and the function of these different parts. Pupils will continue their learning of life cycles by learning the life cycle of a flowering plant and they will also begin to investigate how water moves through a plant. Key Contents: Investigation: Children investigate the way in which water is transported within plants. Observation: Children 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 Explanation: Children identify and describe the functions of different parts of flowering plants; roots, stem/trunk, leaves and flowers, and explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal Progression: This prepares them for Year 4, where pupils will learn to use a classification key to identify the living things in the local and wider environment.	Plants, growth, seedlings, research, root, stem, shoots, leaves, flowers, petals, buds, fruits, seeds, classify Reproduction, male, female, stigma, style, ovary, carpel, stamens, pollination, fertilisation, germination	
Term 6	Plants		
Year 4			
	Knowledge	Vocabulary	Skills
Term 1	Animals including humans about the human body by learning about the parts and function of the digestive system. They will continue to build on their understanding of food chains by identifying producers, predators and prey. Key Content: - Describe the simple functions of the basic parts of the digestive system in humans Investigation: Children will consider why our teeth are different shapes and begin to understand that they have different functions. They will compare the teeth of a herbivore and a carnivore and consider why they are different. They will research the diets of various animals using the internet.	incisors, molars, canines, jaw, digestion, saliva, digestive system, nutrition, oesophagus (gullet), stomach, small intestine, large intestine, herbivore, carnivore, omnivore, digestion, food chain, producer, predator, prey, consumer,	<i>During years three and four, pupils should be taught to use the following practical science methods, processes and skills through the teaching of the programme of study content .</i> ● Asking relevant questions and using different types of scientific enquiries to answer them. ● Setting up simple practical enquiries, comparative and fair tests ● Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.

	Observation: Children will make links between plants and animals in the form of food chains and understand the impact a break in the food chain may have. Explanation: Children will construct and interpret a variety of food chains, identifying producers, predators and prey, and labelling them with the correct vocabulary learnt throughout the topic. Progression: This prepares them for Year 5, where pupils will deepen their knowledge of the human body by describing what happens to the human body in old age.		- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. - Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. - Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. - Identifying differences, similarities or changes related to simple scientific ideas and processes. - Using straightforward scientific evidence to answer questions or to support their findings.
Term 2	Living things and their habitats Pupils will explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment and will recognise that environments can change and that this can sometimes pose dangers to living things. Key Content: - 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. Investigate: Take a trip within the local environment, investigate habitats and record the different living things they find. They discuss the ways in which environments can change and consider how this can sometimes pose dangers to living things. Children look at how our local environment has changed? They consider aspects of the school grounds that have changed and have a class debate about a hypothetical scenario that would bring about environmental change. Observation: Children will understand why it is important to make careful and accurate observations when describing features of living things in order for them to be classified correctly or grouped in a variety of different ways. They will make careful and accurate observational drawings of an invertebrate found in the local environment. They will explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Children will look at the pictures/ videos, first hand experience of the effects of regular changes such as tides and seasons, and other changes which are natural or man-made. They will begin to think about some big changes such as climate change. They will conduct an experiment that highlights what the ‘greenhouse effect’ is and record temperatures over time on a table and a graph. Explanation: Children will write a branching database for a variety of living things from the wider world. They will test their classification key by playing ‘Guess Who?’ and demonstrate their learning by explaining it to others through discussion and the use of their branching database. Children will plan how to protect their local environment. They will be able to describe the changes they are making and explain to others which living things will benefit from these changes. Progression: This prepares them for Year 5, where pupils will begin to learn about the reproduction of some plants and animals.	alive, dead, never been alive, movement, reproduction, sensitivity, nutrition, excretion, respiration, growth, habitat, plant, animal, insect, natural, man-made, vertebrate, invertebrate, arachnid, key environment, living thing, adapt, climate, carbon dioxide, Impact,	

Term 3	Sound Pupils will be taught to identify how sounds are made, associating some of them with something vibrating and then recognise that vibrations from sounds travel through a medium to the ear. They will find patterns between the pitch of a sound and features of the object that produced it. - 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. Investigation: Children will investigate sounds by going on a sound walk around the school, considering which areas are loud or quiet and how sounds might be made. They will Investigate pitch and volume by exploring instruments and the different sounds they make. They will Work in a group to plan an investigation that will find out which material will best to reduce sound. Observation: Record the results of their sound reducing investigation and use the results to draw a conclusion as to what materials would make good ear defenders? Explanation: Children will design a pair of ear defenders and present their design, explaining their findings.	sound, listen, hear, noise, loud, quiet, silent, vibrations, transmit, medium, source, sound waves, particles, volume, loudness, amplitude, pitch, frequency, muffle	
Term 4	Electricity Pupils should be taught 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; 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 conductor. Key Content: Investigation: Children will identify common appliances that run on electricity. They will construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Children will test a variety of different materials within this circuit to see whether they are conductors. Observation: Children will observe what happens when switches within a circuit are opened or closed. They will see that some materials within a circuit will complete it and make a light or buzzer come on and others will not. They will relate this to an understanding of conductors and insulators. Explanation: Children will create a poster warning others of the dangers of electricity. With a partner, use their knowledge and understanding of electrical circuits to build a circuit with a buzzer and a switch They will use their understanding of electrical circuits to create a game for others to play.	electricity, circuit, switch, battery, plug, mains, appliance, device, connection, power, cell, electrocute, energy, flow, current, conductor, insulator,	

	Progression: This prepares them for Year 5, where pupils will begin to learn about the conductivity of materials.		
Term 5	States of Matter Pupils will compare and group materials together, according to whether they are solids, liquids or gases and observe that some materials change state when they are heated or cooled. Pupils will identify the part played by evaporation and condensation in the water cycle. Key Content: - Compare and group materials together, according to whether they are solids, liquids or gases. Investigation: Children will investigate the differences between solids and liquids by examining and comparing the properties of sand and water. Observation: Children will 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). They will use a thermometer to make observations as water changes from one state to another. Explanation: Children will compare and group materials together, according to whether they are solids, liquids or gases They will illustrate and label their own water cycle to explain to others the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature They will be able to use the vocabulary learnt throughout the topic, within this explanation. Progression: This prepares them for Year 5, where pupils will begin to learn about the conductivity of materials.	solid, liquid, gas, state, matter, particle, grain, solidifying, freezing, melting, condensing, condensation, evaporating, evaporation, precipitation, transpiration, Celsius, Fahrenheit, degrees, cycle	
Term 6	Reduce, Reuse, Recycle Children will be able to recognise why waste is a problem for our planet, identify the different types of waste and the different impacts that they can have. They will understand what greenhouse gases are and how they contribute to climate change Investigation: Children will be able to identify how simple daily tasks use energy and then make recommendations to reduce waste; Observation: Children will plan and set up a simple comparative test for plant growth and use the data to draw conclusions and answer questions. Explanation: Children will understand why it is important to conserve water and also suggest ways to reduce our carbon footprint;	biodegradable, decompose, landfill, litter, material, recycle, reduce, reuse, single-use plastic, sustainable, waste, biodiversity, nutrients, variable, predict, carbon footprint, energy, greenhouse gas, greenhouse effect, global warming, climate change, renewable, non-renewable, comparative test, results, conclusions	
Year 5			
	Knowledge	Vocabulary	Skills
Term 1	Animals, including humans In year five pupils will describe the changes as humans develop to old age. Key Content:	respect, baby, infant, child, adolescent, adult, elderly, reproduction, relationship, friendship, independence, dependence,	During year five and six, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

	- Describe the life process of reproduction in some plants and animals Investigation: class discussion to investigate what is known about how a child's body changes on its way to becoming an adult. Observation: children reflect on their family, the different age groups and the levels of dependence there are between each. Explanation: children can identify for themselves some of the changes they will go through and predict how relationships with other members of their family will change as they become more independent. *This unit of work will supplement the Sex and Relationship education, which is in line with our school policy. Children will discuss and learn within a cross curricular approach between Science and RSE. Progression: This prepares them for Year 6, where pupils will begin to give reasons for the way they classify plants and animals.		● Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. ● Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. ● Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
Term 2	Living things and their habitats By year five students will be able to classify animals and will be able to identify the life cycles of a mammal, amphibian, insect and bird. Pupils will describe the life process of reproduction in some plants and animals. Key Content: - Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Investigation: children become 'experts' in the life cycle of either a mammal, an amphibian or a bird and present their findings to the class. Observation: through visiting the outdoor environment and viewing digital resources, children identify the stage of life cycle seen in a variety of living things and where possible, the changes within the cycle. Explanation: children produce leaflets to explain reproduction in a plant and in an animal. Progression: This prepares them for Year 6, where pupils will begin to learn about evolution.	habitat, parents, offspring, cycle,	
Term 3	Forces To consolidate their understanding of forces they will learn about gravity, identify the effects of air resistance, water resistance and friction and learn about levers, pulleys and gears. Key Content: - Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object - Identify the effects of air resistance, water resistance and friction, that act between moving surfaces - Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Investigation: group investigation challenges to identify the effects of air resistance, water resistance and friction.	gravity, resistance, newtons, velocity, aerodynamic, friction, surface,	

	Observation: through research and whole class demonstrations, realise how mechanisms can increase the effect of a force eg pulleys and lever. Explanation: groups produce a television science show, explaining why unsupported objects fall towards the Earth, what helps an object move faster/slower through the water or air Progression: This prepares them for Secondary education, where pupils will learn the topic Chemistry and deepen their understanding of earth and the atmosphere.		
Term 4	Earth and space Pupils will use year five to explore space and describe the movements of earth and other planets in relation to the sun. They will then begin to describe the movement of the moon relative to the earth and explain day and night and the movement of the sun across the sky. Key Contents - 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 Investigation: Investigate how shadows change throughout the school day. Observation: observe how the moon changes in appearance over a four-week period – creating a 'Moon Diary'. Explanation: perform a demonstration of the movement of the earth and moon, relative to the sun.	planet, star, moon, orbit, mnemonic, gravity, circumference, climate, rotation, reflection, shadow, opaque	
Term 5	Properties and changes of materials Pupils will compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. They will learn that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Key Contents: - Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets - Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution - Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating - Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic - Demonstrate that dissolving, mixing and changes of state are reversible changes - explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	change, reversible, irreversible, conductivity, magnetic, insulating, conducting, change, reversible, irreversible, conductivity, magnetic, insulating, conducting, soluble, insoluble, separate, change,	

	Investigation: a range of practical investigations to answer questions on the properties of materials. A range of practical investigations to answer identify how materials can be grouped on the basis of their properties including those which are soluble and insoluble. Observation:in writing conclusions, links are made of why everyday objects are made from given materials. identify materials that are soluble and insoluble, as they undertake the challenge of separating them from one another. Explanation: create a model of a catering van for a food festival, with clear explanations for the choice of materials used. Create a ‘Wacky Professor Show’ to demonstrate to younger children that some changes are reversible – and others not!		
Term 6	Changing Oceans Children will be able to identify key reasons why oceans are important and the essential role they play in supporting life; name a range of ocean habitats and describe their key features; describe the life cycle of a coral reef and explain how it is affected by coral bleaching; describe different fishing methods and their environmental impacts; explain actions that can help make fishing more sustainable; Investigation: use secondary sources to conduct research, taking efficient notes and organising ideas clearly, present information from their research in a variety of ways, such as mind maps, fact files or presentations; Observation: identify threats facing the oceans and explain how they are changing; sort everyday materials, such as plastics, based on similarities and differences; Explanation: record and plot data using a line graph; identify patterns in data and draw conclusions; use relevant scientific vocabulary to communicate ideas clearly;	Tier 1 (everyday words) <i>ocean, sea, birds, fish, temperature, plastic, oil, material, beach, litter, debris, float, sink, seafood, population</i> Tier 2 (words that are important in different science topics) habitat, ecosystem, mammals, reptiles, biodiversity, life cycle, reproduction, carbon dioxide, oxygen, pollution, coastline, global warming, greenhouse gas, <i>properties</i>, sustainable, decompose, <i>current</i>, climate change, coral reef, conservation, algae, exoskeleton, migration, <i>juvenile</i> Tier 3 (words that are specific to this science topic) marine, molluscs, cnidarians, crustaceans, arthropods, annelids, echinoderms, biodegradable, microplastics, buoyancy, coral bleaching, polyp, symbiosis, fertilisation, embryo, metamorphosis, larvae, colony, overfishing, bycatch, fishery, Marine Protected Areas (MPAs), quota, <i>trawling, spawning, stocks</i>	
Year 6			
	Knowledge	Vocabulary	Skills
Term 1	Animals including humans Pupils will round off their learning about the human body by identifying and naming the main parts of the human circulatory system, and describing the functions of the heart, blood vessels and blood. They will recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Key Content: Investigation: Pupils identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood	human, blood, composition, function, heart, groups, vessels, arteries, veins, capillaries, anatomically, nutrients, investigate, diffusion osmosis, circulatory system, air, force, resistance equipment	During year five and six, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

	Observation: Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Explanation:Children to describe the ways in which nutrients and water are transported within animals, including humans Progression: This prepares them for KS3, where pupils will learn the topic Biology and deepen their understanding of nutrition and digestion as well as cells and organisation.		• Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Using test results to make predictions to set up further comparative and fair tests. • Reporting and presenting findings from enquiries, including conclusions, casual relationships and explanations of and a degree of trust in results. In oral and written forms such as displays and other presentations. • Identifying scientific evidence that has been used to support or refute ideas or arguments.
Term 2	Living things and their habitats Pupils will finish off their primary science career by describing how living things are classified into broad groups according to common observable characteristics and give reasons for classifying plants and animals based on specific characteristics. Key Content: - 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 Progression: This prepares them for KS3, where pupils will learn the topic Biology and deepen their understanding of reproduction and health.	classify, classification, living, identify, similar, different, animal, plant, micro-organisms, groups, observe, record, environment, habitat, evolution inheritance, mutations, adaptations, survivor, fossil	
Term 3	Evolution and Inheritance Pupils will also begin to learn about evolution by recognising that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Key Content: - Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals - Give reasons for classifying plants and animals based on specific characteristics Investigation: Children will recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Observation: Understand that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Explanation: Children will identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	classify, classification, living, identify, similar, different, animal, plant, micro-organisms, groups, observe, record, environment, habitat, evolution inheritance, mutations, adaptations, survivor, fossil	
Term 4	Evolution and Inheritance		
Term 5	Light Pupils will understand that light appears to travel in straight lines and use this idea to explain that objects are seen because they give out or reflect light into the eye. Key Content: Investigation: Pupils should recognise that light appears to travel in straight lines and 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.	light, light source, dark,reflect/reflective, mirror, shadow, block, absorb direct/direction, transparent, opaque, translucent straight, circuit, electricity, switch, voltage, test, investigate	

	Observation: that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes Explanation: children identify that light travels in straight lines and to explain why shadows have the same shape as the objects that cast them Progression: This prepares them for KS3, where pupils will learn the topic of Physics and deepen their understanding of energy changes and the atmosphere.		
Term 6	Electricity To complete their learning on electricity, pupils will be able to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit and they will use recognised symbols when representing a simple circuit in a diagram. Key Content: Investigation: The brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Observation: 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 Explanation: Children will use recognised symbols when representing a simple circuit in a labelled diagram Progression: This prepares them for KS3, where pupils will learn the topic of Physics and deepen their understanding of energy changes and the atmosphere.	light, light source, dark,reflect/reflective, mirror, shadow, block, absorb direct/direction, transparent, opaque, translucent straight, circuit, electricity, switch, voltage, test, investigate	