Science - Long term overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	**All about me** Growing Me Body Seasons Where I live Seasons - Autumn	**Let's celebrate** Seasons - Autumn	**Terrific tales** Materials Forces Seasons - Winter	**Amazing animals** Growing (animals) Animals Habitats Seasons - Spring	**Come outside** Growing (plants) Plants Insects Seasons - Spring Food	**Out of this world** Space Seasons - Summer
Year 1	Seasons / Materials and their properties/ Human body		Seasons/ Animals/ Plants		Animals / Plants/ Seasons	
Year 2	Animals including humans		Materials and their uses		Living things and their habitat /	
Year 3	Rocks		Light / Forces and Magnets		Plants / Animals including Humans	
Year 4	Animals including Humans		Living things and their habitats / Animals including humans		Sound / Electricity / States of matter	
Year 5	Forces / Earth and Space		Properties and changes of materials		Living things and their habitat / Forces / Animals	
Year 6	Light		Electricity		Living things and their habitat / Animals including humans / Evolution and inheritance	

Science - Medium term plans

		Autumn - All about me / Let's Celebrate now	Spring - Terrific Tales / Amazing Animals	Summer - Come outside / out of this world
EYFS	**Animals including humans (containing…** ● **Growing** ● **Me** ● **Body** ● **Senses)**	● To understand that humans grow and change over time. ● To understand what humans need to grow. ● To sequence the life cycle of a human (Nursery - 2 pictures/Reception - 3 pictures) ● Identify key features of my appearance. ● To identify similarities and differences between myself and others. ● To learn about different parts of my body. ● To identify the 5 senses and their sense organ	● To know the names for the offspring animals. ● To know what animals need to grow. ● To know what an animal needs/How to care for an animal. ● Nursery - pets/farm ● Reception - pets/farm/wild	● To know what an insect is. ● To learn where insects live. ● To identify and describe insects. ● To understand why Bees are important.
	Where I live	● To name important places in my community		
	Seasons	● To explain the changes that happen in Autumn	● To explain the changes that happen in Winter ● To understand the difference between hot and cold ● To understand how humans react differently to hot and cold. ● To explain the changes that happen in Spring	● To explain the changes that happen in Spring. ● To explain the changes that happen in Summer.
	Habitats		● To know where animals live. ● To understand what a habitat is. ● To understand what makes a good habitat. ● To match animals to an appropriate habitat. ● Nursery - pets/farm ● Reception - pets/farm/wild ● To describe some similarities and differences between ● the natural world and contrasting environments ● -Rainforest/Woodland/Polar habitat. ● To identify how animals adapt to their environment	
	Plants			● To understand what plants need to grow. ● Identify the difference between a plant and tree. ● To look closely at a flower and identify different parts.

	Forces		• To explore forces. • To know what happens when you push or pull something. • To explore floating and sinking.	
	Space			• To understand some features of our Solar System • To name some planets. • Explore outer space. • Learn about rockets • To compare similarities and differences between the • natural world around us and contrasting environments (Space)
	Materials and their properties		• To know that things can change shape • To learn about melting • To know how water changes. • To explore different materials and talk about their strengths/weaknesses (3 Little Pigs house)	
	Food			• To understand where food comes from. • eggs - chicken • milk - cows • To identify healthy/unhealthy foods. • To learn about fruit and vegetables
	Working Scientifically	• I show curiosity in my environment. • With help, I can choose equipment to help me follow my own enquiry of interest. • I show curiosity in my environment. I use all my senses in hands-on exploration. • I am beginning to make simple predictions with help from an adult. • I take part in simple experiments led by an adult (floating and sinking) discussing the differences in the objects. • I record my observations in drawings, writing and photographs.	• I can make simple predictions with help from an adult. • With help I record my observations in photographs. • I can carry out a simple set up experiment (sorting materials) that enables me to talk about similarities. • I can classify materials based on their similarities and differences	• I select equipment to help me follow my own enquiry of interest, eg, Which mini beasts live in the outdoor classroom? • I make observations of animals. • I make observations of plants. • I observe and talk about the changes in objects over a period (melting).

		Autumn	Spring	Summer
Year 1	**Seasons** (Ongoing throughout the year).	<u>Autumn</u> ● Observe changes across the 4 seasons ● Observe and describe weather associated with the seasons and how day length varies ● Identify and name a variety of common animals specific to the seasons. ● identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.	<u>Winter</u> ● Observe changes across the 4 seasons ● Observe and describe weather associated with the seasons and how day length varies ● Identify and name a variety of common animals specific to the seasons. ● identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.	<u>Spring/Summer</u> ● Observe changes across the 4 seasons ● Observe and describe weather associated with the seasons and how day length varies ● Identify and name a variety of common animals specific to the seasons. ● identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.
	<u>Materials</u>	● Distinguish between an object and the material from which it is made ● Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock ● Describe the simple physical properties of a variety of everyday materials ● Compare and group together a variety of everyday materials on the basis of their simple physical properties	●	● Recall a variety of everyday materials, including wood, plastic, glass, metal, water, and rock ● Describe the simple physical properties of a variety of everyday materials
	<u>Plants</u>	● identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.	● identify and describe the basic structure of a variety of common flowering plants, including trees.	● identify and describe the basic structure of a variety of common flowering plants, including trees (Spring/Summer focus).
	<u>Animals including humans</u>	● Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	<u>Cold climate.</u> ● Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals ● Identify and name a variety of common animals that are carnivores, herbivores and omnivores. ● Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)	<u>Warm climate</u> ● Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals ● Identify and name a variety of common animals that are carnivores, herbivores and omnivores. ● Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)
	<u>Working Scientifically</u>	● Perform simple tests ● Use observations to suggest answers to questions.		

		● Gather and record data to answer simple questions.

		Autumn	Spring	Summer
Year 2	**Animals**	● Notice that animals, including humans,	●	●

	including Humans	have offspring which grow into adults ● Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) ● Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		
	Uses of everyday materials	●	● Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses ● ● Compare how things move on different surfaces. ● Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	●
	Living things and their habitats	●	●	● Explore and compare the differences between things that are living, dead, and things that have never been alive ● Identify and name a variety of plants and animals in their habitats, including microhabitats ● Observe and describe how seeds and bulbs grow into mature plants ● Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. ● 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.
	<u>Working Scientifically</u>	●	● -identifying and classifying ● -performing simple tests ● -identifying and classifying ● using their observations and ideas to suggest answers to questions	● -Asking simple questions and recognising that they can be answered in different ways ● -Gathering and recording data to help in answering questions ● -Identifying and classifying ● observing closely, using simple equipment

		Autumn	Spring	Summer
Year 3	<u>Rocks</u>	● To compare and group together different kinds of rocks on the basis of their	●	●

		appearance and simple physical properties ● To describe in simple terms how fossils are formed when things that have lived are trapped within rock ● To recognise that soils are made from rocks and organic matter		
	Light	●	● To recognise that they need light in order to see things and that dark is the absence of light ● To notice that light is reflected from surfaces ● 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 the light from a light source is blocked by an opaque object ● To find patterns in the way that the size of shadows change	●
	Forces and Magnets	●	● To compare how things move on different surfaces ● To notice that some forces need contact between 2 objects, but magnetic forces can act at a distance ● To observe how magnets attract or repel each other and attract some materials and not others ● 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 describe magnets as having 2 poles ● To predict whether 2 magnets will attract or repel each other, depending on which poles are facing	●
	Plants	●	●	● To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers ● 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 explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal
	Animals, including humans	●	●	● To identify that animals, including humans, need the right types and amount of nutrition, and that they

				cannot make their own food; they get nutrition from what they eat ● identify that humans and some other animals have skeletons and muscles for support, protection and movement.
	Working Scientifically	● Asking relevant questions and using different types of scientific enquiries to answer them ● Setting up simple practical enquiries, comparative and fair tests ● 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 ● Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers ● Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions ● Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables ● Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions ● Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions ● Identifying differences, similarities or changes related to simple scientific ideas and processes ● Using straightforward scientific evidence to answer questions or to support their findings.		

		Autumn	Spring	Summer
Year 4	**Animals**	● Describe the simple functions of the	● Describe the simple functions of the	●

	including humans	basic parts of the digestive system in humans	basic parts of the digestive system in humans • Identify the different types of teeth in humans and their simple functions • Construct and interpret a variety of food chains, identifying producers, predators and prey	
	<u>Living things and their habitats</u>	•	• 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	•
	<u>Sound</u>	•	•	• 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
	<u>Electricity</u>	•	•	• identify common appliances that run on electricity • construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery • recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit

				• recognise some common conductors and insulators, and associate metals with being good conductors
	States of matter	•	•	• compare and group materials together, according to whether they are solids, liquids or gases • observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) • identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature
	Working Scientifically	• Asking relevant questions and using different types of scientific enquiries to answer them • 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 • Identifying differences, similarities or changes related to simple scientific ideas and processes • Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes • Using straightforward scientific evidence to answer questions or to support their findings.		

		Autumn	Spring	Summer
Year 5	**Forces**	• I can explain what gravity is and its impact on our lives.	•	• I can identify and explain the effect of water resistance - boat building.

		• I can identify and explain the effect of air resistance. • I can identify and explain the effect of friction.		• I can explain how levers, pulleys and gears allow a smaller force to have a greater effect - bridge building
	Earth and space	• I can describe and explain the movement of the Earth and other planets relative to the Sun. • I can describe the Sun, Earth and Moon (using the term spherical). • I can describe and explain the movement of the Moon relative to the Earth. • I can explain and demonstrate how night and day are created.	•	•
	Properties and changes of materials	•	• I can 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 • I can describe how to recover a substance from a solution • I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • I can demonstrate that dissolving, mixing and changes of state are reversible changes • I can 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	•
	Living Things and their Habitats	•	•	• I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • I can describe the life process of

				reproduction in some plants and animals
	Animals	•	•	• I can describe the changes as humans develop to old age.
	Working scientifically	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision • Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations • Sc5/1.6 identifying scientific evidence that has been used to support or refute ideas or arguments.	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision • Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Sc5/1.4 using test results to make predictions to set up further comparative and fair tests • Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision • Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • Sc5/1.4 using test results to make predictions to set up further comparative and fair tests • Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations

		Autumn	Spring	Summer
Year 6	Light	• recognise that light appears to travel in straight lines • use the idea that light travels in straight	•	•

		lines to explain that objects are seen because they give out or reflect light into the eye • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them		
	electricity	•	• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches • use recognised symbols when representing a simple circuit in a diagram	•
	Living things and their habitats	•	•	• describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals • give reasons for classifying plants and animals based on specific characteristics
	Animals including humans	•	•	• identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • describe the ways in which nutrients and water are transported within animals, including humans

	Evolution and inheritance	•	•	• recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
	<u>Working scientifically</u>	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	•	• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and 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