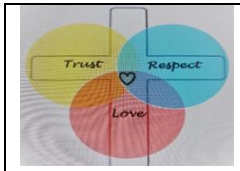
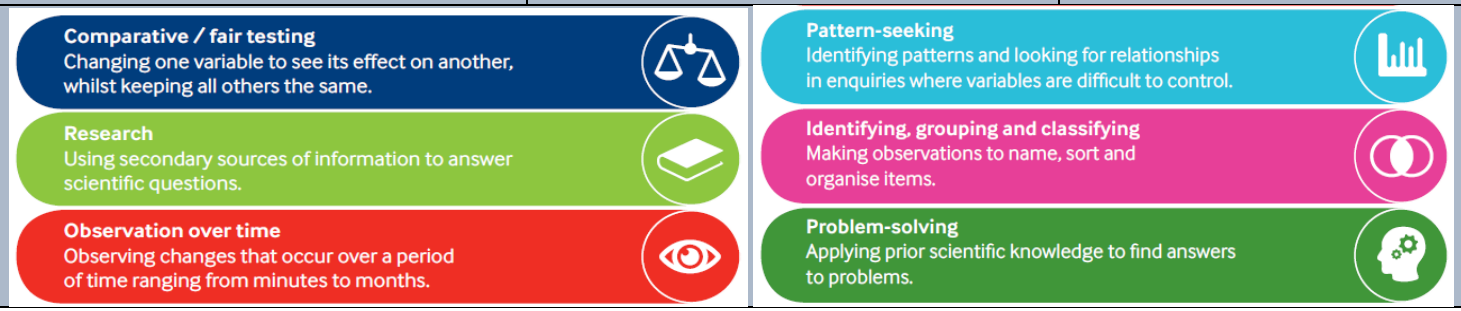


Ettington Primary School Progression Document
Science

INTENT

At Ettington CE Primary School the Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living things. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group. The curriculum is designed to ensure that children are able to understand key scientific knowledge through practical experiences; using equipment, conducting experiments, building arguments and explaining concepts confidently.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Aims The national curriculum for science aims to ensure that all pupils: ▪ develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics ▪ develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them ▪ are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.					
National Curriculum Working scientifically	During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ▪ asking simple questions and recognising that they can be answered in different ways ▪ observing closely, using simple equipment ▪ performing simple tests ▪ identifying and classifying ▪ using their observations and ideas to suggest answers to questions		During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ▪ asking relevant questions and using different types of scientific enquiries to answer them ▪ setting up simple practical enquiries, comparative and fair tests ▪ making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of		During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ▪ planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ▪ taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	

	gathering and recording data to help in answering questions.	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.	▪ recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs ▪ using test results to make predictions to set up further comparative and fair tests ▪ reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations ▪ identifying scientific evidence that has been used to support or refute ideas or arguments.
			

Reception UTW – The Natural World Progression in Learning – small steps to Key Stage 1			
Autumn Term	Spring Term	Summer Term	Key vocabulary
		Talk about similarities and differences between each season.	Autumn, Winter, Spring, Summer, life cycle, shadows, magnet, float, sink, fruit, vegetable, melting, freezing, decay, grow, pollution, shell, **Values** Resilience Individual Liberty Mutual Respect Tolerance Democracy
Describe and explain the changes I see during Autumn.	Describe and explain the changes I see during Winter and Spring.	Describe and explain the changes I see during Summer.	
Draw and ask questions about Autumn resources and changes.	Draw and ask questions about Winter/Spring resources and changes.	Draw and ask questions about Summer resources and changes.	
Talk about ways to look after my environment e.g. school/community.	Talk about ways to look after growing plants and vegetables.	Talk about ways to look after plants and creatures in the ocean.	
Name and talk about woodland animals, asking questions and drawing them.	Name and talk about insects, asking questions and drawing them.	Name and talk about under the sea animals, asking questions and drawing them.	
Describe and explain changes in trees across the year.	Describe and explain changes in food. e.g. melting, freezing, decay, cress growing.	Describe how humans grow and change e.g. life cycle of people.	
Look closely at autumn leaves, asking questions, commenting and drawing my observations. Explore different colours through experimentation Match the weather to the four seasons	Look closely at fruit, vegetables and cress, asking questions, commenting and drawing my observations. Explore which materials float and sink and explain why.	Look closely at sea plants and shells, asking questions, commenting and drawing my observations.	

	Autumn Term	Spring Term	Summer Term
Year 1	Seasonal change (autumn – winter) Materials	Animals including humans	Plants Seasonal change (Spring – summer)
Year 2	Animals including humans	Everyday materials Living things and their habitats	Plants
Year 3	Rocks and fossils Forces and magnets	Animals including humans	Light Plants
Year 4	Animals including humans Sound	Living things and their habitats Electricity	States of matter
Year 5	Properties and changes of materials	Forces Earth and space	Living things and their habitats Animals including humans
Year 6	Animals including humans Light and sound	Electricity	Living things and their habitats Evolution and inheritance

Key Unit Autumn – Year 1	Knowledge	Skills	Vocabulary
SEASONAL CHANGES (ACROSS THE YEAR) · observe changes across the four seasons · observe and describe weather associated with the seasons and how day length varies.	· Names of the seasons · The weather linked to each season · Know that day length varies · Know how to stay safe in the summer	-Observe changes across the 4 seasons -Observe and describe weather associated with the seasons and how day length varies -Be able to discuss how to stay safe in the sun	Weather (sunny, rainy, windy, snowy etc) Seasons (winter, summer, spring, autumn) sun, sunrise, sunset, Day length
Key Unit Autumn – Year 1	**Knowledge**	**Skills**	**Vocabulary**
EVERYDAY MATERIALS · distinguish between an object and the material from which it is made · identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock	· Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock · Know that different objects are made from different materials	-Describe the simple physical properties of a variety of everyday materials -Compare and group together a variety of everyday materials on the	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent,

· 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. - compare and group together a variety of everyday materials on the basis of their simple properties.	· Different materials are used for different purposes	basis of their simple physical properties	breaks/tears, rough, smooth, shiny, dull, see through, not see through.
Key Unit Spring– Year 1	Knowledge	Skills	Vocabulary
ANIMALS, INCLUDING HUMANS - 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) -identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	· Know the names of the main body parts e.g. head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth · Know the 5 senses and the body parts they are linked to · Name a variety of common animals · Know some animals that are carnivore, herbivore or omnivore · Recognise and use key vocabulary linked to the topic	· Know how to observe animals to compare and contrast them · Use their senses to compare different textures, sounds and smells. · Be able to classify animals in different ways	Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, reptile, amphibian, mammal, omnivore, carnivore, herbivore, all senses
Key Unit Summer– Year 1	Knowledge	Skills	Vocabulary
PLANTS · identify and name a variety of common wild and garden plants,	· Identify, name and describe a variety of common wild and garden plants, including deciduous and evergreen trees.	-To be able to label parts of a plant and tree	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud.

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 wild plants and trees. · To know how to tell the difference between different types of trees and plants	-To be able to identify the differences between different types of plants and trees -Sort a variety of plants	Names of trees in local area, garden and wild flowering plants.
Key Unit Summer – Year 1	Knowledge	Skills	Vocabulary
SEASONAL CHANGES (ACROSS THE YEAR) · observe changes across the four seasons · observe and describe weather associated with the seasons and how day length varies.	· Names of the seasons · The weather linked to each season · Know that day length varies · Know how to stay safe in the summer	-Observe changes across the 4 seasons · Observe and describe weather associated with the seasons and how day length varies Be able to discuss how to stay safe in the sun	Weather (sunny, rainy, windy, snowy etc) Seasons (winter, summer, spring, autumn) sun, sunrise, sunset, Day length
A scientist at the end of Year 1 will know: The names of different body parts and name the 5 senses. They will be able to name a variety of common animals and state whether they are carnivore, herbivore or omnivore. That there are lots of different materials and that they are used for different purposes. Name a range of different materials e.g. wood, plastic, glass, metal, water and rock. Name a variety of different plants and trees and label the different parts. Name all of the 4 seasons and identify some key characteristics of each season e.g. weather, special events, clothing. Identify changes across the 4 seasons. Know that the amount of daylight hours changes over the year. Know ways to stay safe in the sun.		**A scientist at the end of Year 1 will be able to:** Know how to observe animals to compare and contrast them Use their senses to compare different textures, sounds and smells. Be able to classify animals in different ways. Gather and record data in a simple table/chart. 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. Ask and answer questions. Identify the differences between different types of plants and trees. Observe changes across the 4 seasons. Observe and describe weather associated with the seasons and how day length varies. Discuss how to stay safe in the sun.	
Links to values and aims Trust, love and respect		**Curiosity, Collaboration, Communication and Perseverance** Perseverance Mutual respect – working together Democracy – making decisions together of others	

Key Unit Autumn – Year 2	Knowledge	Skills	Vocabulary
ANIMALS INCLUDING HUMANS · -- Notice that animals, including humans, have offspring which grow into adults. · Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) · Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	· Notice that animals, including humans, have offspring which grow into adults · Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) · Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	· Asking simple questions and recognising that they can be answered in different ways. · -Observing closely, using simple equipment · -Identifying and classifying -Using their observations and ideas to suggest answers to questions -Gathering and recording data to help in answering questions	Offspring, grow, adults, nutrition, reproduce, survival, water, food, air, exercise, hygiene, survival, exercise
Key Unit Spring– Year 2	**Knowledge**	**Skills**	**Vocabulary**
EVERYDAY MATERIALS · distinguish between an object and the material from which it is made · identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock · describe the simple physical properties of a variety of everyday materials · compare and group together a variety of everyday materials on the	-Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock · Know that different objects are made from different materials · Different materials are used for different purposes	-Observe materials, identifying and classifying their uses. · Compare the suitability of materials for a particular use. -Investigate how the shape of solid objects can be changed by squashing, bending, twisting and stretching.	Names of materials: wood, plastic, glass, metal, water, rock, brick, paper, fabric, card, rubber, suitable/unsuitable, use/useful, hard/soft, stretchy/stiff. Rigid/flexible, waterproof/absorbent, strong/weak, rough/smooth, transparent/opaque, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching.

basis of their simple physical properties.			
Key Unit Spring– Year 2	Knowledge	Skills	Vocabulary
LIVING THINGS AND THEIR HABITATS · explore and compare the differences between things that are living, dead, and things that have never been alive · identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other · identify and name a variety of plants and animals in their habitats, including micro- habitats · describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food	-Explore and compare the differences between things that are living, dead, and things that have never been alive · Identify that most living things live in habitats to which they are suited and describe how different habitats provide for their basic needs. · Identify and name a variety of plants and animals in their habitats, including microhabitats. · Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	-Sort and classify things that are living, dead and never been alive. -Match a plant/animal to its habitat, giving reasons for how its needs are met there. · Search for and classify plants and animals in different habitats. · Use a hand lens to observe · To classify from observations -To be able to create an accurate food chain.	Living, dead, never been alive, suited, suitable, basic need, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland, names of micro habitats e.g. under logs, in bushes etc.
Key Unit Summer – Year 2	Knowledge	Skills	Vocabulary
PLANTS · 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.	-How seeds and bulbs grow into mature plants. · Describe the stages seeds and bulbs go through to grow into mature plants. · Find out and describe how plants need water, light and a suitable	-Observe how different plants grow in the local environment throughout the year. -Observe and record, with some accuracy, the growth of a variety of plants as they change over time from a	Leaf, flower, blossom, bud, petal, berry, root, seed, stalk, trunk, branch, stem, bark, fruit, light, shade, sun, warm, cool, water, grow, healthy, germinate, climate, nutrients.

	temperature to grow and stay healthy.	seed or bulb, or observing similar plants at different stages of growth; · Set up a comparative test to show that plants need light and water to stay healthy	
A scientist at the end of Year 2 will know: All living things have 7 life processes-movement, reproduction, sensitivity, nutrition, excretion, respiration, growth. (MRS NERG). What a habitat and name some different habitats. A herbivore eats plants, a carnivore eats meat and an omnivore eats both. A food chain starts with a plant (the producer), it is then eaten by an animal (the consumer). The word material means what an object is made from. That using a push or pull force through squashing, twisting, bending and stretching a material can change its shape. That plants need air, water, nutrients and light to survive. That all plants and animals are made up of cells—these are different shapes and sizes and used to do different things. That seeds and bulbs have a store of food inside them. The key parts of a plant– root, stem, fruit, flowers and leaves. That animals need air, water, food and shelter to survive. All young animals change at different stages as they grow into adults. Ways we can keep ourselves healthy. That to stop illness and infection spreading, we must be hygienic and keep ourselves clean.		**A scientist at the end of Year 2 will be able to:** Sort and classify things that are living, dead and never been alive. Match a plant/animal to its habitat, giving reasons for how its needs are met there. Search for and classify plants and animals in different habitats. Create a food chain. Observe materials, identifying and classifying their uses. Compare the suitability of materials for a particular use. Investigate how the shape of solid objects can be changed by squashing, bending, twisting and stretching. Understand how to set up a comparative test to find out what seeds and bulbs need to grow. Order the life cycle of a plant. Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment to identify and classify. Use, gather and record data to answer questions.	
Links to values and aims Trust, love and respect		**Curiosity, Collaboration, Communication and Perseverance** Perseverance Mutual respect – working together Democracy – making decisions together	

Key Unit Autumn – Year 3	Knowledge	Skills	Vocabulary
ROCKS · compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	· compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	-making systematic and careful observations of rocks · Classifying types of rocks (extrusive/intrusive igneous rock)	Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb, water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil.

· 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.	· 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.	-identifying differences, similarities or changes related to simple scientific ideas and processes	
Key Unit Autumn – Year 3	Knowledge	Skills	Vocabulary
FORCES AND MAGNETS · compare how things move on different surfaces · notice that some forces need contact between two objects, but magnetic forces can act at a distance · observe how magnets attract or repel each other and attract some materials and not others · compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials · describe magnets as having two poles · predict whether two magnets will attract or repel each other, depending on which poles are facing.	-compare how things move on different surfaces · notice that some forces need contact between two objects, but magnetic forces can act at a distance · compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials · describe magnets as having two poles	-Observe how magnets attract or repel each other · Investigate how magnets attract some materials and not others -Predict whether two magnets will attract or repel each other depending on which poles are facing. -To record results and find conclusions	Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel. Magnetic material, metal, iron, steel, poles, north pole, south pole.
Key Unit Spring– Year 3	Knowledge	Skills	Vocabulary
ANIMALS, INCLUDING HUMANS · identify that animals, including humans, need the right types and	· Skeletons do three important jobs: protect organs inside the body;	-To research the purposes of a of a skeleton	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones,

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.	allow movement; support the body and stop it from falling on the floor. · Muscles work in pairs to move bones · Living things need food to grow and to be strong and healthy. · Plants can make their own food, but animals cannot. · To stay healthy, humans need to exercise, eat a healthy diet and be hygienic. · Animals, including humans, need food, water and air to stay alive.	-To compare and identify exo and endo skeletons -To observe the changes that occur on movement between muscles and bones -To place food into groups on a healthy living plate	muscles, support, protect, skull, ribs, spine, muscles, joints.
Key Unit Summer – Year 3	Knowledge	Skills	Vocabulary
LIGHT · recognise that they need light in order to see things and that dark is the absence of light · notice that light is reflected from surfaces -recognise that light from the sun can be dangerous and that there are ways to protect their eyes · recognise that shadows are formed when the light from a light source is blocked by a solid object · find patterns in the way that the size of shadows change.	-Recognise that we need light in order to see things · Notice that light is reflected from surfaces · Recognise that shadows are formed when light is blocked by a solid object -Know there are ways to protect eyes from sunlight which can be dangerous	-To investigate light reflecting on a variety of surfaces -To create shadows by blocking a light source with a solid object -To record and measure how shadows change outside throughout the day -To find ways to protect eyes from sunlight	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous.
Key Unit Summer – Year 3	Knowledge	Skills	Vocabulary

PLANTS · identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers · explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant · investigate the way in which water is transported within plants · explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	-Name the different parts of flowering plants: roots, stem/trunk, leaves and flowers · Describe the functions of different parts of flowering plants · Know 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 · Know the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal · Know how water is transported within plants	· To identify the parts of a plant and what their functions are -To make detailed observations of how water is transported in plants -To explore the lifecycles of plants · To dissect a flower to identify the parts needed for the lifecycle -Compare the effect of different factors on plant growth by growing seeds in different conditions	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal- wind dispersal, animal dispersal, water dispersal, pollen, roots, stem, trunk, leaves, absorb, nutrients, reproduce, germination, stamen, style.
A scientist at the end of Year 3 will know: The three types of naturally occurring rock. Facts about different types of rocks and how they are formed. That fossils were formed millions of years ago. That soil is the uppermost layer of the Earth and how it is formed. A force is a push or a pull. That magnets have two poles and that opposite poles attract and the same magnetic poles repel. A magnet does not need to touch an object to attract it. Most forces need contact between two surfaces to act. Name magnetic metals. Name the main parts of a flowering plant and know the 5 things that plants need to grow. Know the main job of a flower and what pollination is. That we need light in order to see things and that light is reflected from surfaces. That shadows are formed when light is blocked by a solid object. Name ways to protect eyes from sunlight which can be dangerous.		**A scientist at the end of Year 3 will be able to:** Make systematic and careful observations. Identify differences, similarities or changes related to simple scientific ideas and processes. Observe how magnets attract or repel each other and attract some materials and not others. Predict whether two magnets will attract or repel each other, depending on which poles are facing. Make detailed observations of plant growth and how water is transported in plants. Compare the effect of different factors on plant growth. Investigate light reflecting on a variety of surfaces and create shadows by blocking light source with a solid object. Record and measure how shadows change outside throughout the day.	
Links to values and aims Trust, love and respect		**Curiosity, Collaboration, Communication and Perseverance** Perseverance	

	Mutual respect – working together Democracy – making decisions together Tolerance – listen to other's viewpoints

Key Unit Autumn – Year 4	Knowledge	Skills	Vocabulary
ANIMALS, INCLUDING HUMANS · describe the simple functions of the basic parts of the digestive system in humans · identify the different types of teeth in humans and their simple functions · construct and interpret a variety of food chains, identifying producers, predators and prey.	-Know the simple functions of the basic parts of the digestive system in humans · Identify the different types of teeth in humans and their simple functions · To know that a fair test has only one variable · Construct and interpret a variety of food chains, identifying producers, predators and prey.	-To ask relevant questions and use different types of scientific enquiries to answer them. -To gather, record, classify and present data in a variety of ways to help in answering questions. -To identify differences, similarities or changes related to simple scientific ideas and processes. -To use straightforward scientific evidence to answer questions or to support their findings.	Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, incisor, canine, herbivore, omnivore
Key Unit Autumn – Year 4	Knowledge	Skills	Vocabulary
SOUND · 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	- To understand how sounds are made, making links with vibrations. · To make patterns between pitch and volume and the instrument that makes it. · To recognise that vibrations travel through a medium · To recognise that sounds get fainter as you get further from the source. · To understand how sounds are heard.	- To ask relevant questions and use different types of scientific enquiries to answer them. -To gather, record, classify and present data in a variety of ways to help in answering questions. -To identify differences, similarities or changes related to simple scientific ideas and processes.	Sound, source, vibrate, vibration, travel, pitch, volume, faint, loud, insulation.

· 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.		-To use straightforward scientific evidence to answer questions or to support their findings.	
Key Unit Spring– Year 4	Knowledge	Skills	Vocabulary
LIVING THINGS AND THEIR HABITATS · 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.	- To recognise that living things can be grouped in a variety of ways · To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment · To recognise that environments can change and that this can sometimes pose dangers to living things.	- To ask relevant questions and use different types of scientific enquiries to answer them. · To gather, record, classify and present data in a variety of ways to help in answering questions. · To identify differences, similarities or changes related to simple scientific ideas and processes. · To use straightforward scientific evidence to answer questions or to support their findings	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate, fish, amphibian, reptile, bird, mammal, vertebrate, invertebrate, shelter, food, protection.
Key Unit Summer – Year 4	Knowledge	Skills	Vocabulary
ELECTRICITY · 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	-To identify common appliances that run on electricity · To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers · To identify whether or not a lamp will light in a simple series circuit,	-To observe patterns · To identify differences, similarities or changes related to simple scientific ideas and processes	Electrical, appliance, mains, plug, circuit, component, cell, battery, positive, negative, connect/connectors, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol, voltage, current.

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.	based on whether or not the lamp is part of a complete loop with a battery -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.		
Key Unit Summer – Year 4	Knowledge	Skills	Vocabulary
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.	-Describe the 3 states of matter: solid, liquid or gas · know that some materials change state when they are heated or cooled, · Know the temperature at which water changes state in degrees Celsius (°C) · identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	-Compare and group materials into solids, liquids and gases. -Observe and record temperatures -Investigate the temperature at which certain materials change state -Predict what will happen in an investigation and make observations.	Solid, liquid, gas, state, change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle, matter, air, oxygen, ice, water, water vapor, steam, heated, heat, cooled, cool, temperature, degrees Celsius, melt, melting point, freeze, freezing point, solidify, boil, boiling point, evaporate, evaporation, condense, condensation, precipitation, infiltration.
A scientist at the end of Year 4 will know: How sound is made and how we hear sound. What pitch and volume mean. That sound can travel through solid, liquids and gases but it cannot travel through a vacuum. Electrical conductors are materials that allow electricity to pass through them easily. Electrical insulators are materials that do not allow electricity to pass through them. A circuit must be complete to work.		**A scientist at the end of Year 4 will be able to:** Observe patterns. Identify differences, similarities or changes related to simple scientific ideas and processes. Ask relevant questions and use different types of scientific enquiries to answer them. Use straightforward scientific evidence to answer questions or to support their findings. Gather, record, classify and present data in a variety of ways to help in answering	

The scientific word for a battery and what a batter is a collection of. Who invented the first light bulb. What vertebrates and invertebrates are. That humans are mammals. Flooding, fire and earthquakes cause natural changes to the environment That humans and animals have varying teeth, designed for the specific diet of the species and be able to name different types of teeth. How food travels from the mouth to the stomach. What is meant by the terms producers, consumers, predators and prey. What the arrows in a food chain show. What a solid, liquid and gas are. Melting and freezing points. Explain what happens with boiling, evaporation and condensation.	questions. Sort materials into solids, liquids and gases. Observe and record temperatures. Predict what will happen in an investigation and make observations
Links to values and aims Trust, love and respect	**Curiosity, Collaboration, Communication and Perseverance** Perseverance Mutual respect – working together Democracy – making decisions together Tolerance – listen to other's viewpoints

Key Unit Autumn – Year 5	Knowledge	Skills	Vocabulary
PROPERTIES AND CHANGES OF MATERIALS · 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 materials can be grouped and compared according to whether they are solids, liquids and gases · Understand that some materials will dissolve in liquid to form a solution	-To compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets -To describe the properties of materials using scientific vocabulary	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/not reversible, change, burning, rusting, new material.

· 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	· Know how to recover a substance from a solution · Know how mixtures might be separated, including through filtering, sieving and evaporating · Know that some changes in state are reversible and some are irreversible. · Understand the thermal insulation of different materials.	-To predict how to separate mixtures -To be able to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic -To compare and group materials based on their response to magnets.	
Key Unit Spring– Year 5	Knowledge	Skills	Vocabulary
FORCES · 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.	-Recognise that unsupported objects fall towards the Earth because of the force of gravity acting upon the Earth and falling objects. · Identify the effect of friction between moving surfaces. · Identify the effect of air resistance. · Identify the effect of water resistance. · Recognise that some mechanisms including levers, pulleys and gears	-To test and compare the effect that gravity, friction, air resistance and water resistance might have on various objects. -To plan different types of scientific enquiries to answer questions -To describe what is happening when gravity, friction, air resistance and water resistance is acting upon an object. -To be able to give reasons, based on evidence from comparative and fair tests, to how mechanisms	Force, Gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears, Newton, up thrust, opposing, streamline, brake, cog, weight, mass.

	allow a smaller force to have a greater effect.	including levers, pulleys and gears work as a force.	
Key Unit Spring– Year 5	Knowledge	Skills	Vocabulary
EARTH AND SPACE · 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.	-To identify and describe the planets in our solar system -To explain how we know the earth is a sphere -To describe the movements of the planets and the moon -To explain how we experience day and night -To describe the phases of the moon	-Use secondary sources to research about planets -Use scientific evidence to answer questions and give justifications. -Use identified patterns to predict new trends	Earth, sun, moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune, Pluto (dwarf planet), spherical, solar system, rotates, star, orbit, planets, axis, night, day, season, galaxy. Meteorite, celestial.
Key Unit Summer – Year 5	Knowledge	Skills	Vocabulary
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.	-To describe the 7 life processes- movement, respiration, sensitivity, growth, reproduction, excretion and nutrition. -To describe the life cycles of mammals, amphibians, insects and birds. -To describe the life cycle of a plant -To understand how animals and plants reproduce	-Use secondary sources to research about different mammal's gestation times. -To classify a species from its description and how it reproduces. -Compare similarities and differences between two life cycles	life cycle, live, young, fertilises, egg, runners, reproduce, sperm, metamorphosis gestation, cuttings, plantlets, bulb, sexual/asexual reproduction
Key Unit Summer – Year 5	Knowledge	Skills	Vocabulary
ANIMALS, INCLUDING HUMANS · describe the changes as humans develop to old age	-To understand how humans change as they grow older -To understand how a foetus develops in the womb.	-To make links between topics to evidence a prediction -To represent data by using line graphs	Adolescent, adult, asexual reproduction, sexual reproduction, fertilization, death, teenager, elderly, toddler, reproduction,

	-To understand what changes boys and girls face during puberty. -To know what changes occur as we approach our senior years.	-Use identified patterns to predict what size the foetus will be at a particular gestation period	foetus, growth, puberty, menstrual cycle, gestation
A scientist at the end of Year 5 will know: Chemical changes can be identified by: bubbling, changes in colour, changes in temperature or even a new substance being made. Different materials can be classed using its physical and chemical properties. Reversible reactions can be changed back by sieving, filtering, evaporating or distillation. A solution is made when a solid particle is mixed with a liquid and it dissolve. Materials that dissolve are known as soluble. Those that don't are called insoluble. Chemical reactions are irreversible. You cannot undo them. When the reaction happened a new product is made that cannot be changes back. Which shoe has the greatest friction and which shapes offer the most water resistance. They will know how forces can be helpful and unhelpful in various scenarios and identify the forces involved in each scenario. They will know what a mechanism is and how pulleys, levers and gears are used to allow a smaller force to have a greater effect. They will know that the Earth is part of the Solar system and that the Sun is at the centre of that system. They will learn the names of the other planets (based on their distance from the Sun) and be able to describe the movement of Earth (and other planets) in relation to the Sun. Children will know why there is day and night on Earth and relate this to time. They will understand the phases of the Moon and be able to describe the Moon's movement in relation to the Earth. Children will know the seven life processes that distinguish living from non-living things. They will consolidate and extend previous learning on the life cycles of plants and animals, comparing and describing differences in the life cycles of mammals, amphibians, reptiles, birds and insects. They will learn how animals and plants reproduce; comparing differences and similarities between five different animal groups. Children will know about the different stages of the human life cycle and understand about what happens in the womb, during puberty and when they are older.		**A scientist at the end of Year 5 will be able to:** Compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Identify patterns within data collected and make predictions. Report and present their findings from their enquiries. Plan different scientific enquiries to answer questions, including recognising and controlling variables where necessary. Ask questions and use secondary sources as well as investigations to answer them.	

Links to values and aims Trust, love and respect	**Curiosity, Collaboration, Communication and Perseverance** Perseverance Mutual respect – working together Democracy – making decisions together Tolerance – listen to other's viewpoints

Key Unit Autumn – Year 6	Knowledge	Skills	Vocabulary
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.	-To identify and name the main parts of the human circulatory system -To identify and name the main parts of the human heart · To investigate which activities create an increased heart rate · To describe how water and nutrients are transported in humans · To identify how humans can live a healthy lifestyle · To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function	-Recognise which secondary sources will be most useful to research their ideas and begin the separate opinion from fact -Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary -Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate -Use test results to make predictions to set up further comparative and fair tests	Heart, pulse, rate, pumps, blood, blood vessel, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle.
Key Unit Autumn – Year 6	Knowledge	Skills	Vocabulary
LIGHT · recognise that light appears to travel in straight lines · use the idea that light travels in straight lines to explain that objects	-To name and identify simple parts of the human eye and their functions · To know that light travels in straight lines and can be reflected	-To plan a fair test investigation identifying the variables -To take measurements with increasing accuracy and precision,	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight,

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	· To understand how shadows are formed · To know that light can change direction when it travels from one medium to another · To explore 'white light' using a prism to separate it into its different colours	taking repeat readings when appropriate -To record data using scientific diagrams -To identify scientific evidence that has been used to support or refute ideas or arguments	dangerous, refraction, medium, dense.
Key Unit Spring– Year 6	Knowledge	Skills	Vocabulary
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.	-To construct and draw series circuits using symbols · To understand that a circuit must be complete for the current to flow · To associate the brightness of a lamp with the number and voltage of cells used in 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 position of switches	-To record data using scientific diagrams -To plan a fair test investigation identifying the variables -To take measurements with increasing accuracy and precision, taking repeat readings when appropriate -To use test results to make predictions to set up further comparative and fair tests -To report and present findings from enquiries, including conclusions in written forms	Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage. *NB Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words cells and batteries are now used interchangeably*
Key Unit Summer – Year 6	Knowledge	Skills	Vocabulary
LIVING THINGS AND THEIR HABITATS · describe how living things are classified into broad groups according to common observable characteristics and based on	-To describe how living things can be classified into broad groups · To know how classification keys can be used to help group, identify and name a variety of living things	-To use a classification key -To report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results	Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering

similarities and differences, including micro- organisms, plants and animals · give reasons for classifying plants and animals based on specific characteristics.	· To understand that microorganisms are also living things · To know that scientists have developed different ways to classify living things		
Key Unit Summer – Year 6	Knowledge	Skills	Vocabulary
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.	-To identify how plants are adapted to their environment · To identify how animals are adapted to their environment · To explain natural selection and how it may lead to evolution · To explain adaptations and how they may lead to evolution · To recognise that living things produce offspring of the same kind but normally offspring vary and are not identical to their parents · 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	-Use secondary sources of information to answer scientific questions -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	Offspring, sexual reproduction, vary, variation, characteristics, suited, adapted, environment, inherited, species, fossils, adaptation, acquired characteristic, inherited characteristic, gene, natural selection, artificial selection.
A scientist at the end of Year 6 will know: Different classifications of living things including what microorganisms are and the five main groups that scientists use to classify microorganisms. The main parts of the human heart and the circulatory system and explain that exercise increases heart rate. How water and nutrients are transported in humans. The impact of diet, exercise, drugs and lifestyle on the way their bodies function. Ways in which some animals and plants are adapted to the		**A scientist at the end of Year 6 will be able to:** Sort animals and plants using different criteria and be able to use classification keys. Consider how certain adaptations occur in response to environmental conditions. Plan and conduct experiments and fair test investigations to answer questions, identifying the independent, dependent and controlled variables. Draw scientific diagrams, for example circuit diagrams for	

environment in which they live and that adaptations occur over time and may lead to a species evolving. About natural selection and how this links to inheritance and how some characteristics are inherited from parents and some are not. The scientific symbols used for circuit diagrams and how to construct a simple circuit. That variations in circuits can be caused by the voltage of the battery and by the number of components included. The names and functions of the main parts of the human eye and that we see when light enters the eye. That light travels in straight lines, it can be reflected and that shadows are formed when light is blocked. That refraction is when light changes direction as it travels from one medium to another.	electrical circuits and ray diagrams to show the direction of travel of light. Explain who Carolus Linnaeus, Charles Darwin and Isaac Newton were and why they are important scientists linked to the units covered.
Links to values and aims Trust, love and respect	**Curiosity, Collaboration, Communication and Perseverance** Service - the dedication of doctors and scientists Kindness - Kindness to our own bodies (impact of diet, exercise, drugs and lifestyle) Perseverance - the resilience of species to evolve and adapt Mutual respect – working together Democracy – making decisions together Tolerance – listen to other's viewpoints