Nursery Science

Key Vocabulary	Definition
cat	a small animal with fur, four legs, a tail, and claws.
dog	a common animal with four legs, often kept by people as a pet.
pet	an animal that is kept in the home as a friend and treated kindly.
puppy	a young dog.
kitten	a young cat.
head / leg / arm / ears / eyes / mouth / nose / hair	parts of an animal's or human's body.
baby	a young human.
tree	a tall plant that has a wooden trunk and branches that grow from its upper part.
flower	the part of a plant that is often brightly coloured and has a pleasant smell.
hard/soft	not easy to bend, cut, or break /
feel	not hard or firm.
weather	the conditions in the air above the earth such as wind, rain, or temperature.
rainy / sunny / cloudy / windy	raining a lot / bright because of light from the sun / many clouds in the sky / with a lot of wind.
Spring / Summer / Autumn / Winter	names of the four season in the UK.
hot / cold	a high temperature / a low temperature.
float / sink	to stay on the surface of a liquid and not sink / to go down below the surface or to the bottom of a liquid.

What I need to know?

For 2-3 year olds

- Know that words and signs can be used to identify and name living things.
- Know that things will roll down a slope/slide.
- Know that things fall back down after being thrown up.
- Notice changes in the weather and use simple words to describe weather conditions (e.g. 'hot' and 'cold').

For 3-4 year olds (Pre-Reception)

- Know that different words can be used to describe plants and animals.
- Know that plants grow from seeds.
- Know that caterpillars change in to butterflies.
- Know that throwing something harder will make it go further.
- Know that riding a trike down a slope makes it go faster.
- Know that simple words can be used to describe different objects (e.g. hard or soft).
- Know that in the UK there are 4 seasons called spring, summer, autumn, winter.
- Know that know that in summer it is hot, in winter it is cold, in autumn the leaves fall from the trees.
- Know that that some objects float (above water).
- Know that some objects sink (below water).

By the end of Nursery, I will be able to:

For 2-3 year olds

• Show interest in living things and name some, using words or signs.

• Demonstrate an understanding of cause and effect in play e.g. knowing that things will roll down a slope/slide, or that things come back down after being thrown up.

• Notice changes in the weather and use words to describe the weather conditions (e.g. 'hot' and 'cold').

For 3-4 year olds (Pre-Reception)

• Talk about changes in living things (e.g. plants grow from seeds, and caterpillars change in to butterflies).

• Talk about cause and effect in play, and show an understanding of how to affect simple changes (e.g. throwing something harder make it go further, or riding a trike down a slope makes it go faster).

• Talk about seasonal changes and know basic facts (e.g. in summer it is hot, in winter it is cold, in autumn the leaves fall from the trees).

• Begin to understand that different objects float (above water) and sink (below water).

• Use magnifying glasses and understand that they are used to make things appear bigger.

Reception Science

Key Vocabulary	Definition
cow / calf / pig / piglet / horse / foal / sheep / lamb / goat / hen / frog / tadpole / spider / worm / butterfly / caterpillar / snail / ladybird / bee / penguin / polar bear	examples of names used for different animals.
body / face / eyebrows / knees / neck / shoulders / feet / toes	examples of different names for animal body parts.
seed	a small, round or oval object produced by a plant and from which a new plant can grow.
flower	the part of a plant that is often brightly coloured and has a pleasant smell.
stem	the stick-like central part of a plant that grows above the ground and from which leaves and flowers grow.
leaf	one of the flat, usually green parts of a plant that are joined at one end to the stem.
soil	the material on the surface of the ground in which plants grow.
grow	to increase in size or amount.
water	a clear liquid, without colour or taste, that falls from the sky as rain.
hard / soft	solid, firm, and rigid; not easily broken, bent, or pierced / easy to mould, cut, compress, or fold; not hard or firm to the touch.
rough / smooth	having an uneven or irregular surface; not smooth or level / having an even and regular surface.

What I need to know?

- Different words are used to name plants and animals (e.g. dog).
- Pictures can be drawn to represent different plants and animals.
- There are different words for the different parts of a plant (e.g. leaf).
- There are different words for the different parts of animals (e.g. legs).
- Shadows are sometimes created when light is blocked by an object.
- Know that some materials freeze at lower temperatures.
- Know that some materials melt at higher temperatures.
- Weather and seasonal changes can be noticed according to what we see, hear, smell and feel.
- Different words can be used to describe and compare different natural places.

By the end of Reception, I will be able to:

• Explore the natural world around them using their senses, making observations and drawings of plants and animals, naming and describing some they may see.

• Observe and interact with natural processes such as light and shadows, floating and sinking, freezing and melting and notice and talk about the weather and seasonal changes.

• Talk about contrasting environments, describing similarities and differences.

Links to prior learning:

• Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)

Y1 Science - seasonal changes

Key Vocabulary	Definition
Autumn	Temperature starts to get colder
Winter	The coldest time of the year.
Spring	Weather starts to get warmer.
Summer	Warmest time of the year.
Sunny	When the sun shines and it is warm.
Rainy	When the weather is wet.
Windy	We can see windy weather by watching things blow about.
Snowy	When the water freezes and creates snow.
Day length	The number of hours it is light.
Sunrise	The start of the day, beginning to get light.
Sunset	The end of the day- beginning to get dark.
Monsoon	Strongest windy conditions- cause wet and dry seasons through the tropics.

What I need to know?

- In the UK, the day length is longest at mid-summer (about 16 hours)
- Day length gets shorter each day until mid-winter (about 8 hours) before getting longer again.
- The weather also changes with the seasons.
- There are four seasons in the UK (spring, summer, autumn, winter)
- In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer.
- The change in weather causes many other changes. Some examples are: numbers of minibeasts found outside; seed and plant growth; leaves on trees; and type of clothes worn by people.
- The weather can be recorded by writing down or drawing observations, and taking different types of measurements.

By the end of this unit, I will be able to:

• Observe changes across the four seasons.

• Observe and describe weather associated with the seasons and how day length varies.

I can ask simple questions.
I can observe closely, using some simple equipment.
I can perform simple tests.
I can identify and classify.
I can use observations and ideas to suggest answers to questions.
I can begin to make records of findings in appropriate forms.
I can collect evidence to try to answer a question.
I can say what I think might happen.
I can say what my observations show, and whether it was what I expected.

Links to prior learning:

• Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)

Y1 Science - Everyday materials

Key Vocabulary	Definition
Hard	Not easy to break.
Soft	Easy to fold, cut or change shape.
Stretchy	Can be made longer or wider without breaking.
Brittle	Hard, but may break easily
Shiny	Reflects light easily
Dull	Not very shiny or bright
Squashy	Easily crushed or squeezed.
Rough	Has an uneven surface
Smooth	Has an even surface with no lumps of bumps.
Bendy	Can be bent easily
Waterproof	Keeps water out.
Absorbent	Easily soaks up liquid.
Transparent	Easy to see through.
Opaque	Cannot be seen through.

What I need to know?

- All objects are made of one or more materials.
- Each different material has a specific name.
- Some objects can be made from different materials (e.g. plastic, metal or wooden spoons).
- Materials can be described by their properties, using specific words (e.g. shiny, stretchy, rough etc).
- Some materials (e.g. plastic can be in different forms with very different properties).
- Objects are made by humans using materials that have been chosen because of their properties.
- Different properties make different materials suitable for particular purposes

By the end of this unit, I will be able to:

• 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.

I can ask simple questions.
I can observe closely, using some simple equipment.
I can perform simple tests.
I can identify and classify.
I can use observations and ideas to suggest answers to questions.
I can begin to make records of findings in appropriate forms.
I can collect evidence to try to answer a question.
I can say what I think might happen.
I can say what my observations show, and whether it was what I expected.
I can draw simple conclusions and explain what they did.

Links to prior learning:

• Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)

Y1 Science - Animals, including humans

Key Vocabulary	Definition
Carnivore	Eats meat.
Omnivore	Eats plants and meat.
Herbivore	Eats plants
Amphibian	Live on land and water.
Reptile	Cold blooded with skeleton inside body, dry scales, or hard skin.
Bird	Warm blooded and lay eggs. Body covered in feathers.
Mammal	Warm blooded vertebrates.
Fish	Lives in water and has fins for swimming and gills for breathing.
Insect	Have bodies with 3 segments, protected by hard shell.
Minibeast	Small creatures without backbones.
Vertebrate	Has a backbone.

What I need to know?

• Animals vary in many ways, having different anatomical structures (e.g. wings, tails, ears etc).

• Animals also have different skin coverings (e.g. scales, feathers, hair).

• These key features can be used to identify and compare animals.

• Different parts of the body have different names for all animals.

• Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.

• Humans have key body parts in common, but these vary from person to person.

• Humans (and other animals) find out about the world using their senses.

• Humans have five senses – sight, touch, taste, hearing and smelling.

• Each of these senses is linked to particular parts of the body.

By the end of this unit, I will be able to:

• 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.

I can ask simple questions.
I can observe closely, using some simple equipment.
I can perform simple tests.
I can identify and classify.
I can use observations and ideas to suggest answers to questions.
I can begin to make records of findings in appropriate forms.
I can collect evidence to try to answer a question.
I can say what I think might happen.
I can say what my observations show, and whether it was what I expected.

Links to prior learning:

• Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)

Y1 Science - Plants

Key Vocabulary	Definition
Plant	A living thing that usually grows from the ground.
Flower	The part of a plant that blossoms.
Leaves	Use light, air and water to make food for the plant.
Stem	Carries water and nutrients to different parts of the plant.
Roots	Holds the plant in the ground and absorbs water and nutrients from the soil.
Seed	Part of the production of a flowering plant, develops into another plant.
Bulb	Round storage system in some plants e.g lily, daffodil.
Bud	Compact growth on a plant which develops into a leaf, flower or shoot.
Blossom	A flower or mass of flowers on a tree or bush.

What I need to know?

• Growing locally, there will be a vast array of plants which all have specific names.

• These can be identified by looking at the key characteristics of the plant.

• The different parts of plants are named and can be identified through close observation.

• Each part of a plant has one or more specific functions.

• Plants have common parts, but they vary between the different types of plants. (E.g. different plants have different shaped leaves)

• Some trees keep their leaves all year (evergreen) while other trees drop their leaves during autumn and grow them again during spring (deciduous)

• Plants grow and flower at different times of the year and in different ways.

By the end of this unit, I will be able to:

• 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.

I can ask simple questions.
I can observe closely, using some simple equipment.
I can perform simple tests.
I can identify and classify.
I can use observations and ideas to suggest answers to questions.
I can begin to make records of findings in appropriate forms.
I can collect evidence to try to answer a question.
I can say what I think might happen.
I can say what my observations show, and whether it was what I expected.

Links to prior learning:

• Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)

Y2 Science - Living things and their habitats

Key Vocabulary	Definition
Habitat	A place where something lives
Biome	A specific environment home to living things suited to the place or climate e.g. rainforest, desert, tundra, woodland, grasslands, savannah.
Microhabitat	A very small habitat. Habitat within a habitat.
Living	Being alive: move, breathes, sensitive to environment, nutrients, excretes, reproduce and grow.
Dead	Things that were once alive.
Never been alive	Things that were never living e.g. metal spoon, gold ring.
Life Processes	Movement, respiration, sensitivity, grow, reproduce, excrete, nutrition. These are things that all living things do.
Food Chain	A diagram showing how each animal gets it food
Organism	A living thing, including plants and animals
Food Sources	This is a place a living thing's food comes from.

What I need to know?

• All objects are either living, dead or have never been alive.

• Living things are either plants (including seeds) or animals (this is a simplification, but appropriate for Year 2 children.)

• Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (this is a simplification, but appropriate for Year 2 children.)

• An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels).

• Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well.

• The habitat provides the basic needs of the animals and plants – shelter, food and water.

• Within a habitat there are different micro-habitats (e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves).

• These micro-habitats have different conditions (e.g. light or dark, damp or dry).

• These conditions affect which plants and animals live there.

• The plants and animals in a habitat depend on each other for food and shelter etc.

• The way that animals obtain their food from plants and other animals can be shown in a food chain.

By the end of this unit, I will be able to:

• 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

I can ask simple questions.
I can observe closely, using some simple equipment.
I can perform simple tests.
I can identify and classify.
I can use observations and ideas to suggest answers to questions.
I can gather and record data to help in answering questions and consider presenting findings.
I can start to consider the idea of fair testing.
I can say what I think might happen.
I can describe my predictions and explain the conclusion.

Links to prior learning:

• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants)

• Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants)

• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans)

• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals including humans)

• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans)

• Observe changes across the four seasons. (Y1 - Seasonal changes)

Y2 Science - Animals, including humans

Key Vocabulary	Definition
Carnivore	Eats meat.
Omnivore	Eats plants and meat.
Herbivore	Eats plants
Offspring	The child of an animal.
Lifecycle	A series of changes that an animal passes through from birth to death.
Diet	The food and water and animal needs.
Exercise	A physical activity to keep your body fit.
Hygiene	How clean something is.
Germ	Bacteria or virus.
Medicine	A drug or other substance used to treat disease or other illnesses and symptoms.
Reproduce	When living things make a new living thing of the same kind.

What I need to know?

- Animals, including humans, have offspring, which grow into adults.
- In humans and some animals, these offspring are known as 'young' (such as babies or kittens) and often look like one of both parents.
- The 'young' produced by and animal can grow into adults.
- In other animals, such as chickens or insects, there may be eggs laid that hatch to young, or other stages which then grow to adults.
- The young of some animals do not look like their parents (e.g. tadpoles).
- All animals, including humans, have the basic needs of feeding, drinking and breathing (food, water and air) that must be satisfied in order to survive.
- To grow into healthy adults, they also need the right amounts and types of food and exercise.
- Good hygiene is also important in preventing infections and illnesses.

By the end of this unit, I will be able to:

• 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.

I can ask simple questions.
I can observe closely, using some simple equipment.
I can perform simple tests.
I can identify and classify.
I can use observations and ideas to suggest answers to questions.
I can gather and record data to help in answering questions and consider presenting findings.
I can start to consider the idea of fair testing.
I can say what I think might happen.
I can describe my predictions and explain the conclusion.

Links to prior learning:

• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans)

• Identify, name, draw and label the basic parts of the human body and say which part of the body

Y2 Science - Uses of everyday materials

Key Vocabulary	Definition
Materials	What objects are made from.
Suitability	Having the right properties for purpose.
Properties	What a material is like and how it behaves.
Waterproof	Keeps water out.
Shock absorbent	Absorbing energy to sudden shocks/impact.
Reflective	To reflect light.

What I need to know?

• All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. (For example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water).

• Different materials have different properties. These properties can be identified, described and compared using a range of adjectives.

• When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities.

• A material can be suitable for different purposes

• An object can be made of different materials.

• Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc.

By the end of this unit, I will be able to:

• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.

• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

I can ask simple questions.
I can observe closely, using some simple equipment.
I can perform simple tests.
I can identify and classify.
I can use observations and ideas to suggest answers to questions.
I can gather and record data to help in answering questions and consider presenting findings.
I can start to consider the idea of fair testing.
I can say what I think might happen.
I can describe my predictions and explain the conclusion.

Links to prior learning:

• Distinguish between an object and the material from which it is made. (Y1 - Everyday materials)

• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials)

• Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials)

• Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)

Y2 Science - Plants

Key Vocabulary	Definition
Plant	A living thing that usually grows from the ground.
Flower	The part of a plant that blossoms.
Leaves	Use light, air and water to make food for the plant.
Stem	Carries water and nutrients to different parts of the plant.
Roots	Holds the plant in the ground and absorbs water and nutrients from the soil.
Seed	Part of the production of a flowering plant, develops into another plant.
Bulb	Round storage system in some plants e.g lily, daffodil.
Bud	Compact growth on a plant which develops into a leaf, flower or shoot.
Germinate	The start of growth.

What I need to know?

• Plants may grow from either seeds or bulbs.

• Seeds or bulbs may germinate and grow into seedlings.

• Several variables can affect the success of seed germination.

• All seeds need water, oxygen, and proper temperature in order to germinate. Some seeds require proper light also.

• Some germinate better in full light while others require darkness to germinate.

• Seedlings may continue to grow into mature plants.

• Several variables can affect the success of plant growth from seedling to mature plant.

• Plants need air, light, warmth, water and nutrients to be healthy. If a plant doesn't have one of these requirements it could affect its growth or even die.

• Mature plants may have flowers which then develop into seeds, berries, fruits etc.

• Seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates.

• Some plants are better suited to growing in full sun and some grow better in partial or full shade.

• Plants also need different amounts of water and space to grow well and stay healthy.

By the end of this unit, I will be able to:

• 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.

I can ask simple questions.
I can observe closely, using some simple equipment.
I can perform simple tests.
I can identify and classify.
I can use observations and ideas to suggest answers to questions.
I can gather and record data to help in answering questions and consider presenting findings.
I can start to consider the idea of fair testing.
I can say what I think might happen.
I can describe my predictions and explain the conclusion.

Links to prior learning:

• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants)

• Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants)

Y3 Science - Rocks and soil

Key Vocabulary	Definition
Magma	Molten rock that remains underground.
Lava	Molten rock that comes out of the ground is called lava.
Sediment	Natural solid material that is broken down by processes of weathering, erosion and transported by the action of wind, water or ice or by the force of gravity acting on it.
Permeable	Allows liquid to pass through.
Impermeable	Does not allow liquids to pass through.
Durable	Withstand pressure, damage or hard wearing.
Acidity	The level of acid in substances.

What I need to know?

• Rock is a naturally occurring material.

• Rocks can be grouped according to how they were formed (metamorphic, sedimentary, igneous)

• There are different types of rock which have different properties (e.g. sandstone, limestone, slate etc.)

• Rocks can be hard or soft.

• Rocks have different sizes of grain or crystal.

• Some rocks may absorb water.

• Rocks can be different shapes and sizes (stones, pebbles, boulders).

• Soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter).

• The type of rock, size of rock pieces and the amount of organic matter affect the property of the soil.

• Different types of soil have different colours and can be identified and compared in this way.

• Soil properties are linked to the way in which they were formed.

• Some rocks contain fossils.

• Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water.

By the end of this unit, I will be able to:

• Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.

• Describe in simple terms how fossils are formed when things that have lived are trapped within rock.

• Recognise that soils are made from rocks and organic matter.

I can ask relevant questions.
I can set up simple practical enquiries, comparative and fair tests.
I can make accurate measurements using standard units, using some equipment.
I can gather, record, classify and present data in a variety of ways to help with answering questions.
I can record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.
I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions.
I can use results to draw simple conclusions and suggest improvements.
I can identify differences, similarities or changes related to simple scientific ideas and processes.
I can use straightforward scientific evidence to answer questions or to support their findings.
I can make generalisations and begin to identify simple patterns in results presented in tables.

Links to prior learning:

• Distinguish between an object and the material from which it is made. (Y1 - Everyday materials)

• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials)

• Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials)

• Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)

• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)

Y3 Science - Animals, including humans

Key Vocabulary	Definition
Vertebrate	An animal with a backbone inside their body.
Bones	The hard parts inside your body which form your skeleton.
Skeleton	The framework of bones in your body.
Backbone (Spine)	The column of small, linked bones down the middle of your back.
Muscle	Move the different parts of your body, inside and out.
Healthy	Feeling well and not suffering any illness.
Exercise	A physical activity to keep your body fit.
Hygiene	How clean something is.
Disease	An illness which affects people, animals or plants.
Balanced diet	Choosing foods in the right amounts from each of the food groups.

What I need to know?

- Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need.
- Food contains a range of different nutrients
- Food is grouped into different categories: carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water, and fibre
- All these categories of nutrition are required by the body to stay healthy. A piece of food will often provide a range of nutrients.
- Humans, and some other animals, have skeletons and muscles which help them move and provide protection and support.
- The adult human skeleton has over 213 bones (with some variation possible)
- Each bone is named, and has a specific function in different parts of the body

By the end of this unit, I will be able 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.

I can ask relevant questions.
I can set up simple practical enquiries, comparative and fair tests.
I can make accurate measurements using standard units, using some equipment.
I can gather, record, classify and present data in a variety of ways to help with answering questions.
I can record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.
I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions.
I can use results to draw simple conclusions and suggest improvements.
I can identify differences, similarities or changes related to simple scientific ideas and processes.
I can use straightforward scientific evidence to answer questions or to support their findings.
I can make generalisations and begin to identify simple patterns in results presented in tables.

Links to prior learning:

• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals, including humans)

• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans)

• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 - Animals, including humans)

• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Animals, including humans)

• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans)

Y3 Science - Light

Key Vocabulary	Definition
Light	Light is a type of energy that makes it possible for us to see.
Source of light	The sun and other stars, fires, torches and lamps all make light are examples of light sources.
Dark	With little or no light
Absence of light	Refers to darkness. No or little light
Transparent	Allows light to pass through
Translucent	Allows light but not detailed shapes to pass through- diffuses light.
Opaque	An opaque material does not let light through. It does not reflect light.
Shiny	Reflect light, typically clean and polished.
Matt	Dull and flat without a shine.
Surface	Outside part of uppermost layer of something
Shadow	Dark area or shape produced by an object coming between rays of light and a surface.
Reflect	Throw back light without absorbing it.
Sunlight	Light from the sun.

What I need to know?

• We see objects because our eyes can sense light.

• Dark is the absence of light. We cannot see anything in complete darkness.

• Some objects, for example, the sun, light bulbs and candles are sources of light.

• Objects are easier to see if there is more light.

• Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective.

• The light from the sun can damage our eyes and therefore we should not look directly at the sun. We can protect our eyes by wearing sunglasses or sunhats in bright light.

• Shadows are formed on a surface when an opaque or translucent object is positioned between a light source and the surface, blocking some of the light.

• The size of the shadow depends on the position of the source, object and surface.

By the end of this unit, I will be able to:

• 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 an opaque object.

• Find patterns in the way that the size of shadows change.

I can ask relevant questions.
I can set up simple practical enquiries, comparative and fair tests.
I can make accurate measurements using standard units, using some equipment.
I can gather, record, classify and present data in a variety of ways to help with answering questions.
I can record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.
I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions.
I can use results to draw simple conclusions and suggest improvements.
I can identify differences, similarities or changes related to simple scientific ideas and processes.
I can use straightforward scientific evidence to answer questions or to support their findings.
I can make generalisations and begin to identify simple patterns in results presented in tables.

Links to prior learning:

• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)

• Describe the simple physical properties of a variety of everyday materials. (Y1 - Materials)

Y3 Science - Forces and magnets

Key Vocabulary	Definition
Forces	Changes the motion of an object. Pushes and pulls in a particular direction.
Gravity	A force which pulls things towards the centre of the Earth. Discovered by Sir Isaac Newton.
Push	A force which causes movement away from something.
Pull	A force which causes movement towards something.
Contact force	Requires contact to happen.
Non-contact force	Doesn't require contact.
Attract	Causes something to move towards.
Repel	Causes something to move away.
Poles	Magnets have a North and South Pole.
Magnetic field	Magnets electric charge

What I need to know?

• In simple terms, a force is a push or a pull.

• When an object moves on a surface, the texture of the surface and the object affect how it moves. This is a type of 'contact force'.

• A 'contact force' may help the object to move better or it may hinder its movement (e.g. ice skater compared to walking on ice in normal shoes).

• A magnet attracts magnetic material. Iron and nickel and other materials containing these, (e.g. stainless steel) are magnetic.

• The strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole.

• If two like poles (e.g. two north poles) are brought together they will push away from each other – repel.

• If two unlike poles (e.g. a north and south) are brought together they will pull together – attract.

• For some forces to act, there must be contact (e.g. a hand opening a door, the wind pushing the trees).

• Some forces can act at a distance (e.g. magnetism). The magnet does not need to touch the object that it attracts.

By the end of this unit, I will be able to:

• 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.

I can ask relevant questions.
I can set up simple practical enquiries, comparative and fair tests.
I can make accurate measurements using standard units, using some equipment.
I can gather, record, classify and present data in a variety of ways to help with answering questions.
I can record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.
I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions.
I can use results to draw simple conclusions and suggest improvements.
I can identify differences, similarities or changes related to simple scientific ideas and processes.
I can use straightforward scientific evidence to answer questions or to support their findings.
I can make generalisations and begin to identify simple patterns in results presented in tables.

Links to prior learning:

• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)

Y3 Science - Plants

Key Vocabulary	Definition
Plant	A living thing that usually grows from the ground.
Germinate	The start of growth.
Photosynthesis	When a plant uses sunlight to make food for the plant.
Pollination	Flower reproduction.
Animal dispersal	Seeds transported on animals through being buried, carried on fur, in berries or in poo.
Water dispersal	Seeds are carried from one place to another in the water.
Wind dispersal	Seeds are carried from one place to another by wind.
Capillary action	Water being transported through the plant.

What I need to know?

• Many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom.

• The leaves use sunlight and water to produce the plant's food. This process is called photosynthesis.

• The roots absorb water and nutrients from the soil and anchor the plant in place.

• The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal.

• Some plants produce flowers which enable the plant to reproduce.

• The structure of a flower can be examined to identify the male and female parts that facilitate sexual reproduction.

• Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination).

• There are several ways that pollination can occur.

• After pollination, seeds are formed, sometimes contained in berries or fruits which are then dispersed in different ways.

• Different plants require different conditions for germination and growth.

By the end of this unit, I will be able to:

• 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.

I can ask relevant questions.
I can set up simple practical enquiries, comparative and fair tests.
I can make accurate measurements using standard units, using some equipment.
I can gather, record, classify and present data in a variety of ways to help with answering questions.
I can record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.
I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions.
I can use results to draw simple conclusions and suggest improvements.
I can identify differences, similarities or changes related to simple scientific ideas and processes.
I can use straightforward scientific evidence to answer questions or to support their findings.
I can make generalisations and begin to identify simple patterns in results presented in tables.

Links to prior learning:

• Observe and describe how seeds and bulbs grow into mature plants. (Y2 - Plants)

• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 - Plants)

Y4 Science - Living things and their habitats

Key Vocabulary	Definition
Classify	To arrange or group things into categories depending on characteristics.
Vertebrate	An animal with a backbone.
Invertebrate	An animal without a backbone.
Cold-blooded	An animal whose body temperature varies with the environment they are in e.g. fish.
Warm-blooded	Animals that maintain a regular body temperature.
Sample	A small amount of something to show what the whole of it may be like.
Exoskeleton	An external covering of the body found in some invertebrates such as arthropods.
Creature	An animal, distinct from a human being.
Habitat	The place where an organism makes its home.
Hibernate	To become inactive or dormant
Migrate	Move from one region or habitat to another.
Amphibian	Cold-blooded vertebrate animal
Reptile	Vertebrate animal with scaly skin and typically lay soft-shelled eggs on land.
Mammal	Warm-blooded animal with fur/hair, give birth to live young.
Endangered	At risk of extinction.

What I need to know?

• Living things can be grouped (classified) in different ways according to their features.

• Classification keys can be used to identify and name living things.

• Living things live in a habitat which provides an environment to which they are suited (development of Year 2 learning).

• These environments may change naturally e.g. through flooding, fire, earthquakes etc.

• Humans also cause the environment to change. This can be in a good way (e.g. positive human impact, such as setting up nature reserves) or in a bad way (e.g. negative human impact, such as littering).

• These environments also change with the seasons; different living things can be found in a habitat at different times of the year.

By the end of this unit, I will be able to:

• 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.

I can ask relevant questions.
I can set up simple practical enquiries, comparative and fair tests.
I can make accurate measurements using standard units, using a range of equipment.
I can gather, record, classify and present data in a variety of ways to help with answering questions.
I can record findings using scientific language, drawings, labelled diagrams, bar charts and tables.
I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions.
I can use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.
I can identify differences, similarities or changes related to simple scientific ideas and processes and consider patterns.
I can use straightforward scientific evidence to answer questions or to support my findings.

Links to prior learning:

• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants)

• Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants)

• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans)

• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans)

• Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)

Y4 Science - States of matter

Key Vocabulary	Definition
Matter	Objects that take up space and have a mass. Everything around you is made up of matter. Particles are tightly packed.
Solid	A solid holds its shape and has a foxed volume.
Gas	Easy to compress, expand to fill containers and occupy more space than liquids or solids.
Liquid	A liquid fills up the shape. Particles move freely over each other.
Evaporation	Turn liquid into a gas; pass away in the form of vapour.
Condensation	Small drops of water which form when water vapour or steam touches a cold surface.
Temperature	Degree or intensity of heat present in a substance or object.
Celsius	A scale of temperature on which water freezes at 0 degrees and boils at 100 degrees.
Molecules	Very tiny particles that make matter.

What I need to know?

• Matter can exist in different forms, called 'states' (liquid, solid, gas)

• A solid keeps its shape and has a fixed volume.

• A liquid has a fixed volume but changes in shape to fit a container.

• A liquid can be poured and keeps a level, horizontal surface.

• A gas fills all available space; it has no fixed shape or volume.

• Temperature usually affects the 'state' of a substance.

• Melting is a 'state' change from solid to liquid.

• Freezing is a 'state' change from liquid to solid. The freezing point of water is 0°C.

• Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C.

• Evaporation is the same state change as boiling (liquid to gas), but it happens slowly, at lower temperatures, and only at the surface of the liquid.

• Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy.

• Condensation is the change back from a gas to a liquid caused by cooling.

• These processes are evident in the movement of water around the planet, known as the 'the water cycle'. There are several stages to this process, which can be represented as a cyclical diagram.

By the end of this unit, I will be able to:

• 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.

I can ask relevant questions.
I can set up simple practical enquiries, comparative and fair tests.
I can make accurate measurements using standard units, using a range of equipment.
I can gather, record, classify and present data in a variety of ways to help with answering questions.
I can record findings using scientific language, drawings, labelled diagrams, bar charts and tables.
I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions.
I can use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.
I can identify differences, similarities or changes related to simple scientific ideas and processes and consider patterns.
I can use straightforward scientific evidence to answer questions or to support my findings.

Links to prior learning:

• Distinguish between an object and the material from which it is made. (Y1 - Everyday materials)

• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials)

• Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials)

• Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)

• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)

• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)

Y4 Science - Sound

Key Vocabulary	Definition
Vibration	A movement backwards and forwards
Sound waves	Vibrations travelling from a sound source.
Source	The beginning: where something comes from.
Volume	The loudness of a sound.
Amplitude	The size of a vibration. A larger amplitude= a louder sound.
Pitch	How high or low a sound is.
Ear	An organ used for hearing.
Soundproof	To prevent sound from passing.
Absorb sound	To take in sound energy. Absorbent materials have the effect of muffling sound.
Eardrum	Part of the ear, which is thick, tough layer of tissue that is stretched like a drum skin. Sound waves make the eardrum vibrate.
Sound	A type of energy. Sounds are made when objects vibrate.

What I need to know?

• A sound produces vibrations which travel through a medium from the source to our ears.

• Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter).

• The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound.

• The loudness (volume) of the sound depends on the strength (size) of vibrations, which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source.

• A sound insulator is a material which blocks sound effectively.

• Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.

• Objects of different shape, size and material make different sounds when struck or shaken.

• Instruments can be made to make use of different material properties.

By the end of this unit, I will be able to:

• 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.

I can ask relevant questions.
I can set up simple practical enquiries, comparative and fair tests.
I can make accurate measurements using standard units, using a range of equipment.
I can gather, record, classify and present data in a variety of ways to help with answering questions.
I can record findings using scientific language, drawings, labelled diagrams, bar charts and tables.
I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions.
I can use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.
I can identify differences, similarities or changes related to simple scientific ideas and processes and consider patterns.
I can use straightforward scientific evidence to answer questions or to support my findings.

Links to prior learning:

• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)

Y4 Science - Electricity

Key Vocabulary	Definition
Electricity	Form of energy formed by charged particles.
Circuit	A complete flow of electricity and the way it affects objects.
Bulb	Provides light when powered.
Mains	Domestic or wall powered.
Plug	A device for making an electrical connection
Buzzer	An electrical device that makes a buzzing sound.
Wire	A long piece of metal that carries an electrical current often covered in plastic for safety.
Motor	A device that changes electrical energy into movement.
Cell	A device used to generate electricity.
Battery	More than one cell
Conductor	Any material that electricity can pass through or along.
Insulator	Any material that electricity cannot pass through or along.
Symbol	Representation of the components.
Electrons	Move around a circuit.
Current	Stream of charged particles moving though an electrical conductor.
Voltage	An electrical force that makes electricity move through a wire, measured in volts (V)

What I need to know?

• Many household devices and appliances run on electricity.

• Some devices plug in to the mains and others use batteries as a power source.

• An electrical circuit consists of a cell or battery connected to a component using wires.

• There are many different components that can be used in an electrical circuit.

• Components utilise electrical power to perform a function.

• A switch can be added to the circuit to turn the component on and off.

• If there is a break in the circuit, a loose connection or a short circuit, the component will not work.

• Conductors allow electricity to pass through and insulators do not allow electricity to pass through.

• Metals are good conductors so they can be used as wires in a circuit.

• Non-metallic solids are insulators except for graphite (pencil lead).

• Water, if not completely pure, also conducts electricity.

By the end of this unit, I will be able to:

• 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.

I can ask relevant questions.
I can set up simple practical enquiries, comparative and fair tests.
I can make accurate measurements using standard units, using a range of equipment.
I can gather, record, classify and present data in a variety of ways to help with answering questions.
I can record findings using scientific language, drawings, labelled diagrams, bar charts and tables.
I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions.
I can use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.
I can identify differences, similarities or changes related to simple scientific ideas and processes and consider patterns.
I can use straightforward scientific evidence to answer questions or to support my findings.

Links to prior learning:

• Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)

Y4 Science - Animals, including humans

Key Vocabulary	Definition
Oesophagus	A muscular tube which moves food from the mouth to the stomach.
Stomach	An organ where food is broken down with stomach acid.
Small intestine	Nutrients are absorbed and used by the rest of the body.
Large intestine	Responsible for absorption of water. Faeces are formed here.
Rectum	Faeces are stored before leaving the body through the anus.

What I need to know?

• Several named biological organs and structures are involved in the human digestion process.

• Each of these organs and structures carries out a specific function in the human digestive system.

• Food enters the body through the mouth.

• Digestion starts when the teeth start to break the food down. Saliva is added and the tongue rolls the food into a ball.

• Humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing).

• The food is swallowed and passes down the oesophagus to the stomach. Here the food is broken down further by being churned around and other chemicals are added.

• The food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body. #

• The rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body.

• What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet.

• Living organisms can be classified according to their diet and manner of obtaining nutrition (food).

• Food Chains can be constructed to represent the nutritional links and interdependence between different life forms.

By the end of this unit, I will be able to:

• 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.

I can ask relevant questions.
I can set up simple practical enquiries, comparative and fair tests.
I can make accurate measurements using standard units, using a range of equipment.
I can gather, record, classify and present data in a variety of ways to help with answering questions.
I can record findings using scientific language, drawings, labelled diagrams, bar charts and tables.
I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions.
I can use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.
I can identify differences, similarities or changes related to simple scientific ideas and processes and consider patterns.
I can use straightforward scientific evidence to answer questions or to support my findings.

Links to prior learning:

• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans)

• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Animals, including humans)

• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans)

• 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. (Y3 - Animals, including humans)

Y5 Science - Earth and Space

Key Vocabulary	Definition
Planets	Celestial body moving in an elliptical orbit round a star
Celestial	Positioned in the sky, or outer space as observed in astronomy.
Spherical	Shaped like a sphere.
Solar System	A collection of eight planets and their moons in orbit around the sun, together with smaller bodies in the form of asteroids, meteoroids, and comets.
Rotates	Move or cause to move in a circle round an axis or centre.
Galaxy	A system of millions or billions of stars, together with gas and dust, held together by gravitational attraction.
Hemisphere	Half of the Earth, usually divided into Northern and Southern.
Orbit	Curved path of celestial object or spacecraft round a star, planet or moon.
Lunar	Determined by or resembling the moon.
Revolve	Move in a circle on a central axis.

What I need to know?

• The Sun is a star. It is at the centre of our solar system.

• The Sun, Earth and Moon are approximately spherical.

• There are 8 planets (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune). Naming desirable, but not essential.

• The 8 planets in the solar system travel around the Sun in fixed orbits.

• An orbit is the curved path followed by a planet or an object as it moves around another planet, star, moon, etc.

• Earth takes 365¼ days to complete its orbit around the Sun.

• The Earth rotates (spins) on its axis every 24 hours.

• As the Earth rotates, half faces the Sun (day) and half is facing away from the Sun (night).

• As the Earth rotates and parts of the planet experience day or night at different times, a system of time zones is used around the world.

• As the Earth rotates, the Sun appears to move across the sky.

• The Moon orbits the Earth. It takes about 28 days to complete its orbit.

• Due to the position of each planet relative to the sun, the length of a ‘day’ differs for each planet.

By the end of this unit, I will be able to:

• 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.

I can plan enquiries, including recognising and controlling variables where necessary.
I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.
I can record data and results using scientific diagrams and labels, classification keys, tables, bar and line graphs and models.
I can report findings from enquiries, including oral and written explanations of results and conclusions.
I can present findings in written form, displays and other presentations.
I can use test results to make predictions to set up further comparative and fair tests.
I can use simple models to describe scientific ideas.
I can identify scientific evidence that has been used to support or refute ideas or arguments.

Links to prior learning:

• Observe changes across the four seasons. (Y1 - Seasonal changes)

• Observe and describe weather associated with the seasons and how day length varies. (Y1 - Seasonal changes)

Y5 Science - Forces

Key Vocabulary	Definition
Forces	Changes the motion of an object. Pushes and pulls in a particular direction.
Gravity	A force which pulls things towards the centre of the Earth. Discovered by Sir Isaac Newton.
Earth's gravitational pull	A pull that Earth exerts on an object pulling it towards the Earth's centre.
Weight	The measure of the force of gravity on an object.
Mass	A measure of how much matter (stuff) is inside an object.
Air resistance	Resistance or drag, acts against gravity on falling objects.
Water resistance	A type of force that uses friction to slow things down that are moving through water.
Resistance	A force between surfaces that are touching.

What I need to know?

• There are several different types of force.

• In simple terms, a force is a push or a pull.

• Some forces are 'contact' forces, where objects touch each other.

• Some forces are 'non-contact' forces where there is no contact between objects.

• A force causes an object to start moving, stop moving, speed up, slow down or change direction.

• Friction is a force between two surfaces that are sliding, or trying to slide, across each other.

• Gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity. This causes unsupported objects to fall.

• Air resistance, water resistance and friction are contact forces that act between moving surfaces. The object may be moving through the air or water, or the air and water may be moving over a stationary object.

• A mechanism is a device that allows a small force to be increased to a larger force. A greater movement is required to exert the force.

• Pulleys, levers and gears are all mechanisms, also known as simple machines.

By the end of this unit, I will be able to:

• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.

• 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.

I can plan enquiries, including recognising and controlling variables where necessary.
I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.
I can record data and results using scientific diagrams and labels, classification keys, tables, bar and line graphs and models.
I can report findings from enquiries, including oral and written explanations of results and conclusions.
I can present findings in written form, displays and other presentations.
I can use test results to make predictions to set up further comparative and fair tests.
I can use simple models to describe scientific ideas.
I can identify scientific evidence that has been used to support or refute ideas or arguments.

Links to prior learning:

• Compare how things move on different surfaces. (Y3 - Forces and magnets)

• Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets)

• Observe how magnets attract or repel each other and attract some materials and not others. (Y3 - Forces and magnets)

• 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. (Y3 - Forces and magnets)

• Describe magnets as having two poles. (Y3 - Forces and magnets)

• Predict whether two magnets will attract or repel each other, depending on which poles are facing. (Y3 - Forces and magnets)

Y5 Science - Properties and changes of materials

Key Vocabulary	Definition
Solid	Firm shape or form that can be measured in length, width, and height not like a liquid of gas. Tightly packed molecules.
Liquid	No defined shape, takes the shape of its container. Particles free to move over each other.
Gas	Easy to compress, expand to fill containers and occupy more space than liquids or solids.
Transparent	You can see through it
Soluble	Able to be dissolved
Insoluble	Cannot be dissolved.
Conductor	A substance that heat or electricity can pass along or through.
Filtering	A device used to remove dirt or other solids from liquids or gasses.
Evaporation	To turn liquid into a gas; pass away in the form of vapour.
Condensation	Small drops of water which form when water vapour or steam touches a cold surface.
Reversible	Can be changed back e.g. ice to water.

What I need to know?

• Matter can exist in different forms, called 'states' (liquid, solid, gas)

• Temperature usually affects the 'state' of a substance.

• The arrangement and behaviour of particles differs with each 'state'.

• Materials have different uses depending on their properties and state (liquid, solid, gas).

• Properties include hardness, transparency, electrical and thermal conductivity and attraction to magnets.

• Some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment.

• Mixtures can be separated by filtering, sieving and evaporation.

• Some changes to materials are reversible (such as dissolving, mixing and changes of state).

• Some changes to materials are not reversible and result in the formation of new materials (such as burning wood, rusting and mixing vinegar with bicarbonate of soda).

By the end of this unit, I will be able to:

• 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.

I can plan enquiries, including recognising and controlling variables where necessary.
I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.
I can record data and results using scientific diagrams and labels, classification keys, tables, bar and line graphs and models.
I can report findings from enquiries, including oral and written explanations of results and conclusions.
I can present findings in written form, displays and other presentations.
I can use test results to make predictions to set up further comparative and fair tests.
I can use simple models to describe scientific ideas.
I can identify scientific evidence that has been used to support or refute ideas or arguments.

Links to prior learning:

• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)

• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)

• 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. (Y3 - Forces and magnets)

• Compare and group materials together, according to whether they are solids, liquids or gases. (Y4 - States of matter)

• 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). (Y4 - States of matter)

• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (Y4 - States of matter)

Y5 Science - Living things and their habitats

Key Vocabulary	Definition
Life cycle	Course of events that brings a new living thing into existence.
Fertilises	To develop a new individual by introducing the male sperm to the female egg
Reproduce	Produce offspring by a sexual and asexual process
Sexual reproduction	Method of producing plants and animals in which male sperm and a female egg join
Asexual reproduction	Method of producing new offspring with a single parent.
Sperm	Male reproductive cell.
Egg	Female reproductive cell.
Live young	When animals give birth to live offspring (do not lay eggs)
Metamorphosis	To process of transformation from an immature form to an adult
Gestation	The time it takes for a baby to develop inside the mother's body.
Runners	A stem that grows horizontally along the ground to produce clone plants
Bulbs	An underground food storage organ present in some plants which helps it to lie dormant over winter
Cuttings	A piece of plant which is used for vegetative propagation
Plantlets	A young or small plant

What I need to know?

• As part of their life cycle, plants and animals reproduce.

• Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg.

• Animals, including humans, have offspring which grow into adults.

• In humans and some animals, these offspring will be born live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults.

• Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis.

• Plants reproduce both sexually and asexually.

• Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent.

• Sexual reproduction in plants occurs through pollination, usually involving wind or insects.

By the end of this unit, I will be able to:

• 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.2

I can plan enquiries, including recognising and controlling variables where necessary.
I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.
I can record data and results using scientific diagrams and labels, classification keys, tables, bar and line graphs and models.
I can report findings from enquiries, including oral and written explanations of results and conclusions.
I can present findings in written form, displays and other presentations.
I can use test results to make predictions to set up further comparative and fair tests.
I can use simple models to describe scientific ideas.
I can identify scientific evidence that has been used to support or refute ideas or arguments.

Links to prior learning:

• Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)

• Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)

Y5 Science - Animals including humans

Key Vocabulary	Definition
Lifecycle	The different stages of life for a living thing.
Mammal	A warm-blooded vertebrate animal of a class that is distinguished by the possession of hair or fur, females that secrete milk for their young, and typically give birth of live young.
Gestation period	The foetal development period from the time of conception until birth.
Foetus	An unborn or unhatched offspring of a mammal.
Puberty	The time when the body begins to develop and change as you move from a child to an adult.
Reproduction	The production of offspring by a sexual or asexual process.

What I need to know?

• There are several, named stages to the human gestation process.

• Human offspring developing in the womb go through many physical changes and look different to a baby that has been born.

• When babies are young, they grow rapidly.

• Babies are very dependent on their parents.

• As they develop, babies learn many skills.

• The gestation period of other animals is different to humans.

• Humans experience other, recognised stages of life as they grow older.

• At puberty, a child's body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce. (linked with and taught alongside PSHE & SRE)

• Many physical and emotional changes are experienced by humans during puberty. (linked with and taught alongside PSHE & SRE)

By the end of this unit, I will be able to:

• Describe the changes as humans develop to old age.

I can plan enquiries, including recognising and controlling variables where necessary.
I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.
I can record data and results using scientific diagrams and labels, classification keys, tables, bar and line graphs and models.
I can report findings from enquiries, including oral and written explanations of results and conclusions.
I can present findings in written form, displays and other presentations.
I can use test results to make predictions to set up further comparative and fair tests.
I can use simple models to describe scientific ideas.
I can identify scientific evidence that has been used to support or refute ideas or arguments.

Links to prior learning:

• Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)

Science - Living Things and their habitat (Classification)

Key Vocabulary	Definition
Organism	An organic living system composed of cells.
Microorganism	An organism of microscopic size.
Fungus	Part of Fungi kingdom includes yeast, rust, molds and mushrooms.
Bacteria	Small single cell organisms found everywhere on earth.
Virus	Microscopic parasites generally smaller than bacteria.
Fish	Aquatic gill bearing animals
Amphibian	Cold blooded vertebrate animal.
Insect	A small arthropod animal which has 6 legs and generally one or two pairs of wings.
Reptile	A vertebrate animal typically with dry scaly skin and lay soft shelled eggs on land.
Bird	A warm blooded egg laying vertebrate animal with feathers, wings and a beak.
Arachnid	An arthropod e.g. spiders and scorpions.
Mollusc	An invertebrate including snails, slugs, mussels and octopuses.
Vertebrate	An animal with a backbone
Invertebrate	An animal without a backbone.
Classification	To make smaller groups.

What I need to know?

• Living things can be formally grouped according to characteristics.

• Plants can make their own food (photosynthesis) whereas animals cannot.

• There are 5 main groups or 'Kingdoms' of scientific classification – Animals, Plants, Fungi (e.g. toadstools and mushrooms), Protoctista (micro-organisms with cellular nucleus), Monera (micro-organisms with no cellular nucleus)

• In total, there are seven levels of biological classification used in science (Kingdom, Phylum, Class, Order, Family, Genus, and Species)

• Animals can be divided into two main groups: those that have backbones (vertebrates); and those that do not (invertebrates).

• Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. Each group has common characteristics.

• Invertebrates can be divided into a number of groups, including insects, spiders, snails and worms.

• Plants can be divided broadly into two main groups: flowering plants; and non-flowering plants.

• Classification keys can be made and used to sort groups of living things, according to observable characteristics

• The concept of biological classification was developed extensively by Carl Linnaeus in the 18th Century.

By the end of this unit, I will be able to:

• 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.

• use and construct keys to identify animals, plants and microorganisms.

I can plan enquiries, including recognising and controlling variables where necessary.
I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.
I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs and models.
I can report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions and consider patterns.
I can present findings in written form, displays and other presentations.
I can use test results to make predictions to set up further comparative and fair tests.
I can use simple models to describe scientific ideas.
I can identify scientific evidence that has been used to support or refute ideas or arguments.
I can choose what evidence to collect to investigate a question, ensuring the evidence is sufficient.

Links to prior learning:

• Recognise that living things can be grouped in a variety of ways. (Y4 - Living things and their habitats)

• Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 - Living things and their habitats)

• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats)

• Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)

Y6 Science - Electricity

Key Vocabulary	Definition
Circuit	A path that an electrical current can flow around.
Symbol	A visual picture that stands for something else.
Cell	A single unit battery that stores chemical energy.
Battery	A collection of cells which stores chemical energy.
Current	The flow of electrons, measured in amps.
Amps	How electric current is measured.
Voltage	The force that makes the electric current move through the wires. The greater the voltage the more current will flow.
Resistance	The difficulty that the electric current has when flowing around a circuit.
Electrons	Very small particles that travel around an electrical circuit.

What I need to know?

• Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound.

• If you use a battery with a higher voltage, the same thing happens.

• Adding more bulbs to a circuit will make each bulb less bright.

• When using more motors or buzzers in a circuit, each motor will spin more slowly and each buzzer will be quieter.

• Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow.

• A broken circuit causes any bulbs, motors or buzzers to turn off.

• Altering some variables in a circuit affects how the components perform, whilst altering other variables has a lesser or no effect.

• Recognised circuit symbols can be used to draw simple circuit diagrams.

By the end of this unit, I 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.

• 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.

I can plan enquiries, including recognising and controlling variables where necessary.
I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.
I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs and models.
I can report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions and consider patterns.
I can present findings in written form, displays and other presentations.
I can use test results to make predictions to set up further comparative and fair tests.
I can use simple models to describe scientific ideas.
I can identify scientific evidence that has been used to support or refute ideas or arguments.
I can choose what evidence to collect to investigate a question, ensuring the evidence is sufficient.

Links to prior learning:

• Identify common appliances that run on electricity. (Y4 - Electricity)

• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (Y4 - Electricity)

• 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. (Y4 - Electricity)

• Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (Y4 - Electricity)

• Recognise some common conductors and insulators, and associate metals with being good conductors. (Y4 - Electricity)

Y6 Science - Animals, including humans (Circulatory system)

Key Vocabulary	Definition
Heart	Heart- the organ in your chest that pumps the blood around your body.
Blood vessels	Blood vessels- the narrow tubes through which your blood flows include the arteries, veins and capillaries.
Blood	Blood- this is pumped by the heart and supplies the body with nutrients and oxygen.
Veins	Veins- blood vessels that carry blood to the heart.
Arteries	Arteries- blood vessels that carry blood away from the heart.
Capillaries	Capillaries- microscopic blood vessels found in the muscles and lungs.
Oxygen	Oxygen- a colourless gas that exists in large quantities in the air. All plants and animals need oxygen in order to live.
Lungs	Lungs- two spongy organs inside the chest which fill with air when you breathe in.
Carbon dioxide	Carbon dioxide- is a gas produced by animals and people breathing out.

What I need to know?

• The heart pumps blood in the blood vessels around to the lungs.

• In the lungs, Oxygen goes into the blood and carbon dioxide is removed.

• The blood goes back to the heart and is then pumped around the body.

• Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed. As they are used, they produce carbon dioxide and other waste products.

• Carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body.

• This process is called the human circulatory system.

• The main parts of the human circulatory system are: the heart, blood vessels (veins, arteries, capillaries), blood.

• The heart has several named parts, each with a specific function.

• Diagrams can be drawn to show the direction of oxygenated and deoxygenated blood as it moves through the circulatory system.

• Diet, exercise, drugs and lifestyle have an impact on the way human bodies function. (link to PSHE)

• Some medical conditions are caused by deficiencies in our diet e.g. lack of vitamins (link to PSHE)

By the end of this unit, I will be able to:

• identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood (be able to draw a diagram of the circulatory system and label the parts and annotate it to show what the parts do)

• 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.

I can plan enquiries, including recognising and controlling variables where necessary.
I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.
I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs and models.
I can report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions and consider patterns.
I can present findings in written form, displays and other presentations.
I can use test results to make predictions to set up further comparative and fair tests.
I can use simple models to describe scientific ideas.
I can identify scientific evidence that has been used to support or refute ideas or arguments.
I can choose what evidence to collect to investigate a question, ensuring the evidence is sufficient.
I can measure pulse rate.

Links to prior learning:

• describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans)

• 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. (Y3 - Animals, including humans)

• describe the simple functions of the basic parts of the digestive system in humans. (Y4 - Animals, including humans)

• identify the different types of teeth in humans and their simple functions. (Y4 - Animals, including humans)

Y6 Science - Light

Key Vocabulary	Definition
Light	Light is a type of energy that makes it possible for us to see.
Source of light	The sun and other stars, fires, torches and lamps all make light are examples of light sources.
Reflection	Reflection occurs when a light ray hits a surface and bounces off.
Visible spectrum	The range of colours we can see with our eyes.
Prism	A prism is a 3d shape with identical ends, called bases and flat sides called faces. A prism allows us to see the visible spectrum.
Shadow	A dark area of shape produced by an object coming between rays of light and a surface.
Opaque	An opaque material does not let light through. It does not reflect light.
Translucent	A translucent material lets light pass through, but objects on the other side can't be seen clearly.
Transparent	Transparent materials allow you to see clearly through them.
Refraction	Light changes direction when passing through two different mediums.

What I need to know?

• Light appears to travel in straight lines

• We see objects when light from them goes into our eyes.

• There are many structures in the eye, each with a specific function

• Light may come directly from light sources, but for other objects some light must be reflected from the object into our eyes for the object to be seen.

• Objects that block light (are not fully transparent) will cause shadows.

• Shadows vary in shape and size, according to a range of variables.

• Use the idea that light travels in straight lines to explain why the shape of the shadow will be the same as the outline shape of the object.

• When light passes from one medium to another, its speed is altered (refraction).

• When refraction occurs, light changes direction and appears to 'bend'.

By the end of this unit, I will be able to:

• 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.

I can plan enquiries, including recognising and controlling variables where necessary.
I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.
I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs and models.
I can report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions and consider patterns.
I can present findings in written form, displays and other presentations.
I can use test results to make predictions to set up further comparative and fair tests.
I can use simple models to describe scientific ideas.
I can identify scientific evidence that has been used to support or refute ideas or arguments.
I can choose what evidence to collect to investigate a question, ensuring the evidence is sufficient.

Links to prior learning:

• Recognise that they need light in order to see things and that dark is the absence of light. (Y3 - Light)

• Notice that light is reflected from surfaces. (Y3 - Light)

• Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light)

• Recognise that shadows are formed when the light from a light source is blocked by an opaque object. (Y3 - Light)

• Find patterns in the way that the size of shadows change. (Y3 - Light)

• 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. (Y5 - Properties and changes of materials)

Y6 Science - Evolution and Inheritance

Key Vocabulary	Definition
offspring	Children or young of a particular parent
sexual reproduction	Method of producing plants and animals in which male seed and a female egg join
variance	The fact that two or more things are different or the amount by which they are different.
characteristics	A typical feature or quality that something/somebody has.
suited	Right or appropriate for somebody/something.
adapted	To adjust or modify fittingly
environment	The air, water and land in or on which people, animals and plants live.
inherited	Received by transmission of hereditary traits.
species	A set of animals or plants in which members have similar characteristics to each other and can breed with each other.
evolution	The way in which living things change and develop over millions of years.
survival	The act of surviving, especially under adverse or unusual circumstances
genetics	The study of how, in all living things, the characteristics and qualities of parents are given to their children by their genes.

What I need to know?

• All living things have offspring of the same kind, as features in the offspring are inherited from the parents.

• Due to sexual reproduction, the offspring are not identical to their parents and vary from each other.

• Plants and animals have characteristics that make them suited (adapted) to their environment.

• If the environment changes rapidly, some variations of a species may not suit the new environment and will die.

• If the environment changes slowly, animals and plants with variations that are best suited survive in greater numbers to reproduce and pass their characteristics on to their young.

• Over time, these inherited characteristics become more dominant within the population.

• Over a very long period of time, these characteristics may be so different to how they were originally that a new species is created. This is evolution.

• The physical features or behavioural traits of living things can sometimes be explained by / associated with the potential adaptive benefits gained by the life form.

• Fossils give us evidence of what lived on the Earth millions of year ago and provide evidence to support the theory of evolution.

• More recently, scientists such as Darwin and Wallace observed how living things adapt to different environments to become distinct varieties with their own characteristics.

By the end of this unit, I will be able 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.

• 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.

I can plan enquiries, including recognising and controlling variables where necessary.
I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.
I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs and models.
I can report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions and consider patterns.
I can present findings in written form, displays and other presentations.
I can use test results to make predictions to set up further comparative and fair tests.
I can use simple models to describe scientific ideas.
I can identify scientific evidence that has been used to support or refute ideas or arguments.
I can choose what evidence to collect to investigate a question, ensuring the evidence is sufficient.

Links to prior learning:

• 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. (Y2 - Living things and their habitats)

• Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)

• Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)

• Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks)

• Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)

• Describe the life process of reproduction in some plants and animals. (Living things and their habitats - Y5)