



Rationale for Science planning

EYFS planning is based on the Early Years Foundation Stage curriculum and is repeated yearly with small modifications to how it is taught based upon children's interests.

Golden threads running through science are linked to the cultural capital- why am I learning this? What could this learning be used for in the future? How is science used in different jobs?

Scientific Enquiry

As set out in the National Curriculum, each Key Stage has investigation skills that are taught throughout all topic areas. These are detailed in the Medium-Term Plan but are outlined below.

Key Stage 1	Key Stage 2
Asking simple questions and recognising that they can be answered in different ways Observing closely, using simple equipment Performing simple tests Identifying and classifying Using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions.	Asking relevant questions and using different types of scientific enquiries to answer them Setting up simple practical enquiries, comparative and fair tests Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Identifying differences, similarities or changes related to simple scientific ideas and processes

	Using straightforward scientific evidence to answer questions or to support their findings.
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Whole School Science Overview

Year	Autumn	Spring	Summer
Nursery	<ul style="list-style-type: none"> • Explore how things work (Light, Forces, Electricity, Sound) • Lights at different times of the year-Bonfire, Diwali-links to how do we get light in the class/house. How do the lights work? • Use all their senses in hands-on exploration of natural materials (Animals including humans.) • Seasonal walk-Autumn. Looking for changes in the environment (Autumn leaves changing colour and falling from the trees.) • What animals do in Autumn to prepare for the cold Winter ahead, gathering food, hibernating (squirrels, hedgehogs.) • Harvest time in the UK-Dingle Dangle Scarecrow song. Exploring Harvest foods using our senses (pumpkins, carrots.) • Using our senses to explore during messy play, making playdough and cooking activities. Describing the feel, different textures, how things have changed. • Continuous provision (throughout the year)-exploring magnets, colour change/mixing in paint, water play, using colour paddles. 	<ul style="list-style-type: none"> • Use all their senses in hands-on exploration of natural materials (Animals including humans.) • Seasonal changes in Winter. What is different outside? (Bare trees, colder weather, darker/shorter days, fewer animals etc.) • Begin to understand the need to respect and care for the natural environment and all living things. (Plants) • Making bird feeders. • Explore how things work (Light, Forces, Electricity.) • Traditional tales-Which little Pig built the strongest house? Investigating forces on the houses. • Talk about the differences in materials and changes they notice (Light, forces) • Explore and talk about differences they can feel (forces) • Use all their senses in hands-on exploration of natural materials (Materials, including changing materials.) 	<ul style="list-style-type: none"> • Talk about the differences between materials and changes they notice (Materials, including changing materials.) • Understand the key features of a life cycle of a plant and an animal (Plants, Seasonal change.) Learning about lifecycles (Butterfly, hen, frog, seed/plant) through books, songs and rhymes. Using fiction and non-fiction books (The Hungry caterpillar, A seed in need, Jasper’s beanstalk, Tadpoles Promise.) of a butterfly. Observing and looking after Tadpoles and caterpillars. • Begin to understand the need to respect and care for the natural environment and all living things. (Plants) Plants seeds and care for growing plants (Plants.) • Planting a seed and caring for it. Discussing what is needs, how to look after it and looking at the changes over time. • Regular cooking to explore how things change as they are mixed or cooked.

	<p>Floating and sinking in the water tray. Using magnifying glasses to explore.</p> <ul style="list-style-type: none"> • Through continuous provision-how does the computer/whiteboard work? 	<ul style="list-style-type: none"> • Explore collections of materials with similar and/or different properties (Materials, including changing materials.) • Investigating different materials and describing them (soft, hard, fluffy etc.) Grouping the materials according to whether they feel the same/different. • Finding a waterproof material for the Postman's bag. What happens when the bag got wet? Which material is best for the bag when it is raining? • Making a new bed/chair for Goldilocks or Baby Bear-which material would be best? • Regular cooking to explore how things change as they are mixed or cooked. • Healthy routines 	
<p>Reception</p>	<ul style="list-style-type: none"> • Name and describe people who are familiar to them. Using the book 'Here we are' to learn that we live on planet Earth and some of the features of Earth (such as it is made of land and sea and also that it has hot places and cold places on it.) • Explore the natural world around them. Describe what they see, feel and hear whilst outside. Understand the effect of changing seasons on the natural world around them. • Learning that we have four seasons in a year. Exploring seasonal changes that happen in Autumn such as the weather, leaves changing colour and falling from the trees. We use the book 'Leaf man' to explore this further and 'The leaf thief'. Autumn walk to collect Autumn treasure (leaves that have changed colour, conkers, acorns etc.) and to look for signs of Autumn. Weekly Forest 	<ul style="list-style-type: none"> • Exploring seasonal changes further – looking at Winter and Spring, including changes in weather. Deeper understanding of the months of the year and the four seasons. • Explore the natural world around them. Describe what they see, feel and hear whilst outside. Understand the effect of changing seasons on the natural world around them. • Spring walk to look for seasonal changes (such as buds on trees and Spring flowers beginning to grow, birds creating nests, frogs creating frogspawn etc.). • Exploring the life cycles of sunflowers, frogs and butterflies. Exploring the life cycle of humans. • Video calls with Farmer Will to find out what is happening on his farm. • Observing, discussing and drawing Spring flowers. Gaining first-hand experience of 	<ul style="list-style-type: none"> • Video calls with Farmer Will to find out what is happening on his farm. • Explore the natural world around them. Describe what they see, feel and hear whilst outside. Understand the effect of changing seasons on the natural world around them. • Explore the impact of litter in the environment and the importance of recycling. Participate in a litter pick in the local area and create posters to encourage people to recycle and to discourage people from littering. Exploring the impact of pollution in the seas. • The importance of bees for the environment! • Caring for the plants in our environment. • Recycling – materials. • Recognise some environments that are different to the ones in which they live.

	<p>School sessions to support their understanding of the natural world around them.</p> <ul style="list-style-type: none"> • Harvest time in the UK and what farmers are doing – Video calls with Farmer Will to find out what is happening on his farm. • Planting bulbs in the outdoor area to grow in the Spring and discussing how to care for them. • Investigating waterproof materials. • Exploring magnetism – sorting materials depending on which ones are attracted to a magnet and which ones are not. 	<p>planting seeds. Observing time lapses of seed germination and other lifecycles. Exploring the basic parts of a plant and their functions (roots, stem, leaves, flower) and the process of germination.</p> <ul style="list-style-type: none"> • Learning how to care for plants. • Investigating pushes and pulls. • Exploring floating and sinking – designing and creating a boat suitable for the gingerbread man to cross the river – then testing it out! • Exploring freezing and melting. 	
1	<p>Animals Including Humans 1 Pt 1: Humans</p> <ul style="list-style-type: none"> • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <p>Animals Including Humans Pt 2: Animals</p> <ul style="list-style-type: none"> • Focus: 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). 	<p>Everyday Materials</p> <ul style="list-style-type: none"> • 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. <p>Plants Pt 1</p> <ul style="list-style-type: none"> • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. 	<p>Plants Pt 2</p> <ul style="list-style-type: none"> • Identify and describe the basic structure of a variety of common flowering plants, including trees. <p>Seasonal Changes</p> <ul style="list-style-type: none"> • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.
2	<p>Animals Including Humans</p> <ul style="list-style-type: none"> • Notice that animals, including humans, have offspring which grow into adults. 	<p>Uses of Everyday Materials Pt 1</p> <ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. 	<p>Plants</p> <ul style="list-style-type: none"> • Observe and describe how seeds and bulbs grow into mature plants.

	<ul style="list-style-type: none"> 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. <p>Living Things and their Habitats Pt 1</p> <ul style="list-style-type: none"> 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 	<p>Uses of Everyday Materials Pt 2</p> <ul style="list-style-type: none"> Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<ul style="list-style-type: none"> Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. <p>Living Things and their Habitats Pt 2</p> <ul style="list-style-type: none"> 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.
<p>3</p>	<p>Plants Pt 1</p> <ul style="list-style-type: none"> Identify and describe the functions of different parts of flowering plants: roots; stem/trunk; leaves; and flowers. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. <p>Animals Including Humans</p> <ul style="list-style-type: none"> Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their 	<p>Rocks</p> <ul style="list-style-type: none"> 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. <p>Light</p> <ul style="list-style-type: none"> Recognise that they need light in order to see things, and that dark is the absence of light. 	<p>Forces and Magnets</p> <ul style="list-style-type: none"> 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.

	<p>own food – they get nutrition from what they eat.</p> <ul style="list-style-type: none"> Identify that humans and some other animals have skeletons and muscles for support, protection and movement. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Predict whether two magnets will attract or repel each other, depending on which poles are facing <p>Plants Pt 2</p> <ul style="list-style-type: none"> 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.
4	<p>Living Things and their Habitats Pt 1</p> <ul style="list-style-type: none"> 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. <p>Electricity</p> <ul style="list-style-type: none"> 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. 	<p>Animals Including Humans</p> <ul style="list-style-type: none"> 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. <p>Sound</p> <ul style="list-style-type: none"> 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. 	<p>States of Matter</p> <ul style="list-style-type: none"> 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 <p>Living Things and their Habitats Pt 2</p> <ul style="list-style-type: none"> 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.

<p>5</p>	<p>Earth and Space</p> <ul style="list-style-type: none"> 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. <p>Living Things and their Habitats Pt 1</p> <ul style="list-style-type: none"> 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. 	<p>Properties and Changes of Material</p> <ul style="list-style-type: none"> 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. <p>Animals Including Humans</p> <ul style="list-style-type: none"> Describe the changes as humans develop to old age. 	<p>Forces</p> <ul style="list-style-type: none"> 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. <p>Living Things and their Habitat Pt 2</p> <ul style="list-style-type: none"> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
<p>6</p>	<p>Electricity</p> <ul style="list-style-type: none"> Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. 	<p>Animals Including Humans</p> <ul style="list-style-type: none"> Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. 	<p>Evolution and Inheritance Pt 1</p> <ul style="list-style-type: none"> Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.

	<ul style="list-style-type: none"> • 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. <p>Light</p> <ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. <p>Living Things and their Habitats</p> <ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution <p>Evolution and Inheritance Pt 2</p> <ul style="list-style-type: none"> • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
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Science Long Term Plan

Year 1	Prior Knowledge	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
		<p>In EYFS: Use all their senses in hands-on exploration of natural materials. (Nursery - Humans) Name and describe people who are familiar to them. (Reception - Humans)</p>	<p>In EYFS: Use all their senses in hands-on exploration of natural materials. (Nursery - Humans) Name and describe people who are familiar to them. (Reception - Humans)</p>	<p>In EYFS: Use all their senses in hands-on exploration of natural materials. (Nursery - Materials, including changing materials) Explore collections of materials with similar and/or different properties. (Nursery - Materials, including changing materials) Talk about the differences between materials and changes they notice. (Nursery - Materials, including changing materials)</p>	<p>In EYFS: Plant seeds and care for growing plants. (Nursery – Plants) Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants) Begin to understand the need to respect and care for the natural environment and all living things. (Nursery – Plants) Explore the natural world around them. (Reception – Living things and their habitats) Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats)</p>	<p>In EYFS: Plant seeds and care for growing plants. (Nursery – Plants) Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants) Begin to understand the need to respect and care for the natural environment and all living things. (Nursery – Plants) Explore the natural world around them. (Reception – Living things and their habitats) Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats)</p>	<p>In EYFS: Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants & Animals, excluding humans) Explore the natural world around them. (Reception – Seasonal changes) Describe what they see, hear and feel whilst outside. (Reception – Seasonal changes) Understand the effect of changing seasons on the natural world around them. (Reception – Seasonal changes)</p>

	Topic	Animals Including Humans	Animals Including Humans	Everyday Materials	Plants	Plants	Seasonal Change
	Key Vocabulary	Common animals Common insects Common fish Human Parts of a body Parts of a head Sense Parts of common animals Herbivore Carnivore Omnivore Habitats	Common animals Common insects Common fish Human Parts of a body Parts of a head Sense Parts of common animals Herbivore Carnivore Omnivore Habitats	Common materials including Rubber Foil Properties of materials including: Dull Transparent Non-transparent Waterproof Tough Absorption	Common garden flowers Basic parts of a flower Common trees Parts of a tree	Common garden flowers Basic parts of a flower Common trees Parts of a tree	Observe changes across the 4 seasons Observe and describe weather associated with the seasons and how day length varies
	Key knowledge and Skills	Humans have key parts in common, but these vary from person to person Humans (and other animals) find out about the world using their senses. Humans have key parts in common, but these vary from person to person Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body.	Animals can be found in different microhabitats including leaf litter, under logs and grass. The features of animals can be used to identify them. The features of animals can be used to identify them. Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair The key features of animals can be used to identify them. Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.	All objects are made of one or more materials Some objects can be made from different materials e.g. plastic, metal or wooden spoons. Materials can be described by their properties e.g. shiny, stretchy, rough etc Some materials e.g. plastic can be in different forms with very different properties. Materials can be carefully matched to different purposes.	Growing locally, there will be a vast array of plants which all have specific names. The local vast array of plants can be identified by looking at the key characteristics of the plant.	Plants have common parts, but they vary between the different types of plants Some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring. Plants need water, sunlight and warmth to grow. Plants need water, sunlight and warmth to grow.	In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer. The weather changes with the seasons. The change in weather causes many other changes. In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. The lower the sun is, the longer the shadow length. At midday there should be little shadow during summer.
	What will children remember?	Know different parts of the body and what it is.	Know vertebrates are animals that have a backbone.	Know objects are things that you can touch or see.	Name some common garden plants	Know that deciduous trees lose their leaves in the autumn every year.	Know there are four seasons.

		<p>-Hair - this grows on our head & helps to protect our skull.</p> <p>-The skull is the bone that protects our brain.</p> <p>-Eyebrows-these protect our eyes.</p> <p>-Nose - helps us smell.</p> <p>-Neck - connects the head to the rest of the body.</p> <p>-Eyes - these help us see.</p> <p>-Ears - these help us hear.</p> <p>-Mouth - we use our mouth to eat & talk.</p> <p>-Inside our mouths are tongues which help us taste & teeth.</p> <p>-Hands - these help us grab things & write.</p> <p>-Knees - these help us bend our leg.</p> <p>- Feet help us stay balanced & upright.</p> <p>Name the 5 senses – smell, taste, touch, hear, see</p>	<p>Name five groups of vertebrates: mammals, fish, birds, reptiles, amphibians.</p> <p>Know mammals: give birth to live young, usually have hair or fur, warm-blooded, cannot breathe underwater. Say some common mammals.</p> <p>Know fish: have fins & scales, breathe underwater using gills, lay eggs in water, cold-blooded. Some common fish.</p> <p>Know birds: warm-blooded, have wings & beaks, have feathers, lay eggs. Some common birds.</p> <p>Reptiles: cold-blooded, lay eggs, have scales, cannot breathe underwater. Some common reptiles.</p> <p>Amphibians: cold-blooded, lay eggs, live on l& & water - can breathe underwater through gills. Some common amphibians.</p> <p>Invertebrates are animals that do not have a backbone. They include: insects such as flies, ladybirds & bees, arachnids such as spiders, molluscs such as snails.</p> <p>Know animals that only eat meat (other animals) are called carnivores (lions & eagles.) Animals that only eat plants are</p>	<p>Know objects are made from materials.</p> <p>Say the material some objects are made of.</p> <p>Say objects that are transparent and opaque.</p> <p>Know some materials are natural while others are man -made.</p> <p>Know natural materials are materials which are found in nature.</p> <p>Know man-made materials are materials which have been produced by humans.</p>	<p>Know people may grow plants in their gardens & care for them.</p> <p>Know people may grow flowering plants which are beautiful to look at or beans & seeds to grow plants for food.</p> <p>Know plants are grown for food, this may be called a herb garden or vegetable patch.</p> <p>Names some common wild plants</p> <p>Know a wild plant will grow by itself. It does not need to be cared for. If it grows somewhere unwanted, it may be a weed.</p>	<p>Know their leaves are generally broad, flat & have veins running through them.</p> <p>Know evergreen trees have green leaves all year round. Know their leaves are generally thick, waxy & narrow like needles.</p> <p>Name the parts of common trees & plants.</p> <p>Say what plants need to grow.</p>	<p>Name the seasons and when they are.</p> <p>Know in autumn: the temperature begins to fall, which means it gets colder. The leaves on deciduous trees change colour & begin to fall to the ground. The days get shorter & the nights get longer. The weather may be slightly sunny, windy or rainy.</p> <p>Know in winter: it gets colder still - this is because the temperature has fallen. Sometimes, it can freeze overnight & in the mornings, there may be ice & frost. Deciduous trees have completely lost their leaves & the branches are bare.</p> <p>Winter has the shortest days & the longest nights of all the seasons. The weather might be cold or snowy.</p> <p>Know in spring: it gets warmer & the temperature begins to rise. Some things that happen in spring are: leaves begin to appear on deciduous trees. some trees begin to blossom. many plants begin to grow. lambs are born & chicks begin to hatch. The days become longer & the nights become shorter. The weather may be slightly sunny but still a little windy & rainy on some days.</p>
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			called herbivores (cows & giraffes) Animals that eat plants & meat are called omnivores (humans & squirrels)				Know in summer: it gets warmer still - this is because the temperature has risen. The days get longer & the nights get shorter. Summer has the longest days & the shortest nights of all the seasons. The weather may be hot & sunny.
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Year 2		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Prior Knowledge	In previous years: 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 is associated with each sense. (Y1 - Animals, including humans)	In previous years: 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	In previous years: 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)	In previous years: 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)	In previous years: 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)	In previous years: 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)				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)
Topic	Animals Including Humans	Living Things and their Habitats	Uses of Everyday Materials	Uses of Everyday Materials	Plants	Living Things and their Habitats	
Key Vocabulary	Common animals Common insects Common amphibians Basic life stages of humans Life stages of an insect e.g. butterfly Height Weight Basic life needs Healthy and non-healthy foods Hygiene	Woodland animals Woodland plants Different habitats Alive Dead Never been alive Food chain	Common materials Properties of materials including Flexible	Common materials Properties of materials including Flexible	Common plants that come from seeds Environments for growing Conditions needed for growing including nutrients	Woodland animals Woodland plants Different habitats Alive Dead Never been alive Food chain	
Key knowledge and Skills	Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages	. All objects are either living, dead or have never been alive 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,	All objects are made of one or more materials. Materials 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	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. Objects made of some materials can be changed in shape by bending, stretching, squashing and	Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc Seeds and bulbs need to be planted outside at	Know that animals are carnivores, herbivores or omnivores and eat things that can be found in their habitat. The way that animals obtain their food from plants and other animals can be shown in a food chain.	

		<p>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 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</p>	<p>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). 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. 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.</p>		<p>twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness</p>	<p>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. Plants will germinate and grow at different rates.</p>	
	<p>What will children remember?</p>	<p>Know that animals have young. Name the offspring of different animals (cats, dogs, frogs) Know to grow healthy animals, need food, drink and to breathe. Know humans also need the right amount of</p>	<p>Know all things are dead, alive or never been alive Know a habitat is a place where living things, such as animals & plants, can find all of the things they need to survive. Name the things needed to survive food, water, air, space to move / grow & find some shelter.</p>	<p>Know materials are used for different purposes based on their properties. -Wood is used to make furniture & floors. -Metal can be used to make coins, cans, cars & cutlery. -Glass can be used to make windows. Glass can be used</p>	<p>Know the shape of some materials can be changed when they are stretched, twisted, bent & squashed.</p>	<p>Know many plants provide us with food by bearing fruits which carry their seeds. Know when farmers grow plants to provide us with food, these are called crops. Know eat many fruits that contain seeds.</p>	<p>Know animals & plants depend on each other to survive. For example, worms depend on plants because they feed on dead leaves, but plants depend on worms who make the soil healthy by digging holes & allowing air in.</p>

		<p>different foods and exercise. Name basic hygiene (washing, brushing teeth)</p>	<p>Know some habitats are large, like the ocean, & some are very small, such as under a log. Know some habitats in our local area include the river & woodlands. Other habitats include the coast & the forest. Know microhabitats are very small habitats where minibeasts may live. Say examples of microhabitats: under stones, in grass, under fallen leaves & in the soil. Name minibeasts that can be found there: worms, snails, ants, centipedes, millipedes, & butterflies & they help to keep the microhabitat healthy. Know minibeasts are able to survive in their habitats because they can find the things they need to survive there, such as food & water. For example, caterpillars can survive on leaves as they give them food.</p>	<p>to make windows because it is transparent. Know rulers can be made from wood, plastic or rubber because these materials are smooth & can be cut straight. Know spoons are made from metal, because it is waterproof & can be cleaned easily. They can also be made from plastic for children because plastic is light & it cannot hurt children's growing teeth.</p>		<p>Know we also eat different parts of vegetable plants: root vegetables (carrots, potatoes), stem vegetables (celery, spring onion), leafy vegetables (cabbage, lettuce), flowering vegetables (cauliflower, broccoli). Know we eat grains & cereals from plants too (wheat, oats). Know nuts & seeds are also sometimes edible (sesame seeds, pumpkin seeds, peanuts). Know many herbs are also grown to add flavour to foods. Know plants flower to produce seeds Know plants should be planted in the spring.</p>	<p>Know birds also need worms because they eat them. Know worms are a source of food for birds. This called a food chain. Know if there were no worms, there would be less birds as there would be more competition for food. The soil would not be as healthy without worms. Know all living things (or things that were once living) have a part to play in food chains. Know without them, other animals & plants may not be able to survive Say some food chains (e.g. sun, grass, rabbit, fox)</p>
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Year 3

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Prior Knowledge	<p>In previous years: 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)</p>	<p>In previous years: 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</p>	<p>In previous years: 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,</p>	<p>In previous years: Explore how things work. (Nursery – Light) Talk about the differences in materials and changes they notice. (Nursery – Light) Describe what they see, hear and feel whilst outside. (Reception – Light) 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</p>	<p>In previous years: Explore how things work. (Nursery – Forces) Explore and talk about different forces they can feel. (Nursery – Forces) Talk about the differences between materials and changes they notice. (Nursery – Forces) Explore the natural world around them. (Reception – Forces) Describe what they see, hear and feel whilst outside. (Reception – Forces)</p>	<p>In previous years: 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)</p>

			<p>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)</p>	<p>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)</p>	<p>physical properties of a variety of everyday materials. (Y1 - Materials)</p>	<p>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)</p>	
Topic	Plants	Rocks	Animals Including Humans	Light	Forces and Magnets	Plants	
Key Vocabulary	<p>Parts of a flower Water transport Pollination Seed formation and dispersal</p>	<p>Different types of rock Properties of rock including Permeable Erode Organic matter</p>	<p>Food groups Diets of different animals Muscles including Thigh Abdomen Calf Skeletons of humans and some common animals Bones including Skull Spine Humorous Femur</p>	<p>Reflection Opaque</p>	<p>Repel Attract North pole South pole</p>	<p>Parts of a flower Water transport Pollination Seed formation and dispersal</p>	
Key knowledge and Skills	<p>Many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. Some plants produce flowers which enable the plant to reproduce. Pollen, which is produced by the male part of the flower, is transferred to</p>	<p>Rock is a naturally occurring material There are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Rocks may absorb water</p>	<p>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 – carbohydrates (including sugars), protein, vitamins, minerals, fats,</p>	<p>We see objects because our eyes can sense light. Some objects, for example, the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light We cannot see anything in complete darkness.</p>	<p>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. It may help the object to move better or it may hinder its movement e.g. ice skater</p>	<p>Different plants require different conditions for germination and growth. The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis,</p>	

		<p>the female part of other flowers (pollination). Pollination forms seeds, sometimes contained in berries or fruits. Seeds are dispersed in different ways.</p>	<p>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. 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.</p>	<p>sugars, water – and fibre that are needed by the body to stay healthy. A piece of food will often provide a range of nutrients. Animals get their nutrition from a range of different food sources. Humans have skeletons and muscles which help them move and provide protection and support. Some animals, have skeletons and muscles which help them move and provide protection and support. Muscles work together with bones to help humans move.</p>	<p>Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective. Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light. The size of the shadow depends on the position of the source, object and surface.</p>	<p>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.</p>	<p>pollination and seed dispersal. The roots absorb water and nutrients from the soil and anchor the plant in place. I. The leaves use sunlight and water to produce the plant's food.</p>
<p>What will children remember?</p>	<p>Know petals on a flower are usually bright - this is to attract bees & other insects so that they can collect pollen to make seeds. Know seeds are then able to grow to make new plants. This is called germination. Know leaves use carbon dioxide & sunlight to make food for the plant. Name things needs to help a plant to grow: Air;</p>	<p>Know there are three types of rocks that are formed naturally. -Igneous: When molten magma cools, igneous rocks are formed. This either cools & forms rocks under the earth's surface, or flows out of erupting volcanoes as lava & may mix with other minerals. Examples include granite & basalt. This type of rock is</p>	<p>Know humans cannot make their own food like plants do - we need to eat plants & animals to get our energy. Name different food types of food, including: Fruit & vegetables, Bread, rice, potatoes, pasta & other starchy foods, Milk & dairy, Oils & spreads, Meat, fish, eggs, beans & other non-dairy sources of protein.</p>	<p>Know eyes sense light. Know a light source is something that emits light by burning, electricity or chemical reactions. Burning light sources include the Sun, flames from a fire & stars. Know we must never look directly at the Sun as the light produced is very bright & can be harmful to our eyes. This is why we wear sunglasses.</p>	<p>Know forces are pushes & pulls. Know these forces change the motion of an object. They will make it start to move or speed up, slow it down or even make it stop. For example, when a cyclist pushes down on the pedals of a bike, it begins to move. The harder the cyclist pedals, the faster the bike moves. When the cyclist pulls the</p>	<p>Name the conditions for germination and growth (warmth, light, water, soil) Know the stem carries water & other nutrients from the roots to the rest of the plant. Know leaves use this water to make food. Know the stem also helps to keep the plant upright so that the sunlight can reach it easier.</p>	

		<p>water; sunlight; nutrients from the soil; room to grow; suitable temperature; Know the amount of each of these may vary depending on the type of plant. For example, cacti need less water than other plants. Know water is absorbed from the soil by the roots. It is then transported from the roots to the stem & then to the rest of the plant. Know the flower's job is to create seeds so that new plants can grow. Know pollination occurs when pollen from the anther is transferred to the stigma by bees & other insects. The pollen then travels down & meets the ovule.</p>	<p>strong, hardwearing & non-porous. -Sedimentary: Sometimes, little pieces of rocks that have been weathered can be found at the bottom of lakes, seas & rivers This is called sediment. Over millions of years, layers of this sediment build up forming sedimentary rocks. Examples include limestone & chalk. Sedimentary rocks are porous & can easily be worn down. -Metamorphic: When some igneous & sedimentary rocks are heated & squeezed (pressured), they form metamorphic rocks. Examples include slate & marble. Metamorphic rocks are strong Know bricks & concrete are not rock because they are man-made. Know fossils are the remains of prehistoric life. They are usually formed when a living thing (plant or animal) dies & the body is covered up or buried by sediment over tens of thousands of years. Know some fossils are formed when the tough bones & teeth in animals, & the woody part of plants are preserved. Know other fossils are made from imprints in surrounding sedimentary</p>	<p>Know that protein helps your body to grow & repair itself. Examples. Know that carbohydrates give you energy. Examples. Know that fats give you energy Examples. Know that vitamins keep your body healthy. Examples. Know that minerals keep your body healthy. Examples. Know that fibre helps you to digest the food that you have eaten. Examples. Know that water helps to move nutrients in your body & get rid of waste that you don't need. Examples. Know that vertebrates are animals that have a backbone. These skeletons are called endoskeletons - this means that the skeletons are on the inside of the bodies. These skeletons grow with the bodies. Know when the skeleton exists outside the body, it is called an exoskeleton. Know that an exoskeleton is a covering that supports & protects animals. These have to be shed & a new skeleton is grown. Know what an endoskeleton does - the three most important things a skeleton does are: - provide support &</p>	<p>Name electric lights including lamps, car headlights & street-light. Know lights that are caused by chemical reactions are much less common. This happens when different chemicals react & light is a product of that reaction. Name examples including glow sticks & fire-flies. Know we need light so that we are able to see in the dark. This is because the dark is the absence of light. Know shiny things are not light sources - they appear to be sources of light as they are bright. Know light travels in straight lines. Know when light is blocked by an opaque object, a dark shadow is formed. Know an opaque material blocks light so we can't see through it & shine a light through it. Know when light is shone onto a transparent object, the light travels through it, we can see through it & it makes a very faint shadow. Know when light is shone onto a translucent object, some of the light travels through it, we can see bright light sources through it & it makes a fairly dark shadow.</p>	<p>brakes, the bike slows down & eventually stops. Know forces act in opposite directions to each other. Know when an object moves across a surface, friction acts as an opposite force. Friction is a force that holds back the motion of an object. Know some surfaces create more friction than others which means that objects move across them slower. Know on a ramp, the force that causes the object to move downwards is gravity. Know objects move differently depending on the surface of the object itself & the surface of the ramp. Know magnets produce an area of force around them called a magnetic field. Know when objects enter this magnetic field, they will be attracted to or repelled from the magnet if they are magnetic. Know when magnets repel, the push each other away When magnets attract, they pull together. Know objects that are magnetic, are attracted to magnets. Know iron & steel are magnetic. Aluminium &</p>	<p>Know the roots help to 'anchor' the plant in the soil. They also absorb water & nutrients from the soil for the stem to carry to the rest of the plant.</p>
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			<p>rock such as footprints or imprints from shells. Know fossils tell us about the Earth & about life that existed hundreds of thousands & millions of years ago.</p> <p>Know the role of Mary Anning in palaeontology & the discovery of fossils. Know soil is made from pieces of rock, minerals, decaying plants & water. Know when rock is broken down into small grains, soil is formed. Name the layers of soil. Know above the soil is leaf litter & recently decaying plants, as the soil becomes deeper, the rock grains become larger until bedrock is reached.</p>	<p>shape to an animal's body - allow movement through the joints - protect organs (e.g. the skull protects the brain) Know how we move- joints are where bones meet - they allow our bodies to move. Muscles contract & relax. Know if you place an elbow on a desk & lift your arm up, muscles in your upper arm (biceps) contract while muscles behind the upper arm (triceps) relax. The muscles work together & in opposition to allow your arm to move. Know muscles are connected to bones by tendons. Name human bones: clavicle, skull, spine, femur, pelvis, ribs.</p>	<p>Know the size of a shadow changes as the light source moves. Know the further away the light source is, the smaller the shadow is. Know the closer the source of the light, the bigger the shadow is.</p>	<p>copper are non-magnetic. Know the ends of a magnet are called poles. Know one end is called the north pole & the other end is called the south pole. Know opposite poles attract, similar poles repel. Know if you place two magnets so the south pole of one faces the north pole of the other, the magnets will move towards each other. This is called attraction. Know if you place the magnets so that two of the same poles face each other, the magnets will move away from each other. They are repelling each other.</p>	
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Year 4		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Prior Knowledge	<p>In previous years: Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants)</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants)</p>	<p>In previous years: Explore how things work. (Nursery - Electricity)</p>	<p>In previous years: Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans)</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Animals, including</p>	<p>In previous years: Explore how things work. (Nursery – Sound) Describe what they see, hear and feel whilst outside. (Reception – Sound)</p> <p>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)</p>	<p>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</p>	<p>In previous years: Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants)</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants)</p> <p>Identify and name a</p>

	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans)</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans)</p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)</p>		<p>humans)</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans)</p> <p>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)</p>		<p>materials)</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)</p> <p>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)</p> <p>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)</p>	<p>variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans)</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans)</p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)</p>
Topic	Living Things and their Habitats	Electricity	Animals Including Humans	Sound	States of Matter	Living Things and their Habitats
Key Vocabulary	<p>Seasonal garden flowers</p> <p>Common trees in local area</p> <p>Common birds</p> <p>Vertebrate</p> <p>Invertebrate</p> <p>Habitat</p> <p>Classification key</p> <p>Habitats including</p>	<p>Mains</p> <p>Series circuit</p> <p>Components of a circuit</p> <p>Conductors</p> <p>Insulators</p>	<p>Molar</p> <p>Incisor</p> <p>Canine</p> <p>Teeth in a domestic animal</p> <p>Herbivore</p> <p>Carnivore</p> <p>Parts of digestive system</p> <p>Predator</p> <p>Prey</p> <p>Producer</p> <p>Consumer</p>	<p>Common insulating and conducting materials for sound</p> <p>Pitch</p> <p>Parts of the ear</p>	<p>Solid</p> <p>Liquid</p> <p>Gas</p> <p>Vapour</p> <p>Celsius</p> <p>Changing of state terms including evaporating</p> <p>Particles</p> <p>Water cycle terms</p>	<p>Seasonal garden flowers</p> <p>Common trees in local area</p> <p>Common birds</p> <p>Vertebrate</p> <p>Invertebrate</p> <p>Habitat</p> <p>Classification key</p> <p>Habitats including</p>
Key knowledge and Skills	<p>Living things live in a habitat which provides an environment to which they are suited (Year 2 learning)</p> <p>Living things can be grouped (classified) in</p>	<p>Many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries.</p> <p>An electrical circuit consists of a cell or</p>	<p>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. The food is swallowed</p>	<p>A sound produces vibrations which travel through a medium from the source to our ears. The vibrations cause parts of our body inside our ears to vibrate,</p>	<p>A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all</p>	<p>Environments also change with the seasons; different living things can be found in a habitat at different times of the year.</p>

		<p>different ways according to their features. Living things can be grouped (classified) in different ways according to their features. Classification keys can be used to identify and name living things.</p>	<p>battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the component will not work. A switch can be added to the circuit to turn the component on and off. 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.</p>	<p>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. Humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing). Carnivores have long, pointed canines, sharp incisors and very few molars. Herbivores have sharp incisors, no canines and wide, flat molars. Living things can be classified as producers, predators and prey according to their place in the food chain.</p>	<p>allowing us to hear (sense) the sound. Sounds decrease in volume as you move away from the source. 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. The loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. A sound insulator is a material which blocks sound effectively.</p>	<p>available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid. There are very few gases that can be seen. Water boils when it is heated to 100oC. 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. The freezing point of water is 0oC. 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. Freezing is a state change from liquid to solid. Melting is a state change from solid to liquid. Water at the surface of seas, rivers etc.</p>	<p>Classification keys can be used to identify and name living things. Environments may change naturally e.g. through flooding, fire, earthquakes etc. Humans also cause the environment to change. Humans can affect the environment in a good way (i.e. positive human impact, such as setting up nature reserves) or in a bad way (i.e. negative human impact, such as littering). Greenhouse gases are trapping the heat in causing Earth to get warmer.</p>
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						<p>evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle.</p>	
What will children remember?	<p>All living things, which can also be called organisms, have to do certain things to stay alive. These are the life processes: movement, respiration, sensitivity, growth, reproduction, excretion, nutrition. Living things can be grouped according to different criteria (where they live, what type of organism they are, what features they have).</p>	<p>Electricity is generated using energy from natural sources such as the sun, oil, water & wind. Name common appliances that use electricity. Some appliances use batteries & some use mains electricity. Batteries come in different sizes depending on how much & how long they are used. A complete circuit is a loop which allows electrical current to flow through wires. A circuit contains a battery (cell), wires & an appliance that requires electricity to work (such as a bulb, motor or buzzer). The electrical current flows through the wires from the battery (cell) to the bulb, motor or buzzer). A switch can break or reconnect a circuit & controls the flow of the electrical current around the circuit. When the</p>	<p>Organs involved in the digestion process. Teeth are used for cutting & chewing food. They start the digestive process which gives us the energy we need to live. Humans look after their teeth by brushing & flossing & ensuring that they do not eat foods high in sugar. Not looking after teeth can lead to an increase in plaque & tooth decay. Canines are pointed for tearing & ripping food - these are usually used when chewing meat. Incisors are shovel shaped & help bite lumps out of & cutting food. Premolars & molars are flat & they grind & crush food. Specific teeth herbivores and carnivores have Basic food chains (predator and prey)</p>	<p>The object that makes the sound is called the source. When objects vibrate, a sound is made. The vibration makes the air around the object vibrate & the air vibrations enter your ear. These are called sound waves. If an object is making a sound, a part of it is vibrating, even if you cannot see the vibrations. Sound waves travel through a medium. When an object vibrates, the air around it vibrates too. This vibrating air can also be known as sound waves. The sound waves travel to the ear & make the eardrums vibrate. Messages are sent to the brain which recognises the vibrations as sounds. Pitch: The pitch of a sound is how high or low it is. A squeak of mouse has a high pitch. A roar of a lion has a low pitch. Volume: The volume of a sound is how loud or</p>	<p>Solid – A solid has a definite shape that remains the same unless a force is acting upon it. The particles in a solid are rotating, vibrating or moving about a fixed point, close to each other. Liquid – A liquid has no fixed shape but a volume & takes on the shape of its container. The molecules in a liquid move more & have more energy than particles in a solid but remain in close contact with each other Gas – A gas no fixed shape or volume & will always spread out to fill the container that it is in. The particles have a lot of energy, moving around in a random way, hitting other particles & the walls of the container. Definition of heating, melting, evaporation, condensation, solidification and freezing.</p>	<p>A classification key is a tool that is used to group living things to help us identify them. Habitats can change throughout the year & this can have an effect on the plants & animals that live there. Humans can have positive & negative effects on the environment: positive effects: nature reserves, ecological parks, negative effects: litter, urban development. Basics of global warming</p>	

			<p>switch is off, the current cannot flow. This is not the same as an incomplete circuit.</p> <p>When objects are placed in the circuits, they may or may not allow electricity to pass through.</p> <p>Objects that are made from materials that allow electricity to pass through a create a complete circuit are called electrical conductors.</p> <p>Objects that are made from materials that do not allow electricity to pass through & do not complete a circuit are called electrical insulators</p> <p>Water conducts electricity</p>		<p>quiet it is. When a sound is created by a little amount of energy, a weak sound wave is created which doesn't travel far. This makes a quiet sound. A vibration with lots of energy makes a powerful sound wave & therefore a loud sound. Amplitude measures how strong a sound wave is. Decibels measure how loud a sound is. Frequency measures the number of times per second that the sound wave cycles.</p>	<p>Steam - Steam is the name given to the gaseous state of water at or above 100 degrees Celsius & is not visible.</p> <p>Water vapour - Water vapour is the gaseous state of water below 100 degrees Celsius & is visible as tiny water droplets.</p> <p>Water Cycle – The water cycle depends upon the processes of evaporation, condensation & precipitation.</p> <p>Precipitation is water falling from the air as rain, snow, sleet or hail.</p> <p>Evaporation occurs on the oceans, lakes & rivers. Some of the cooled water vapour condenses on small particles of dust or soot present in the atmosphere & clouds containing water droplets or ice are formed. The water droplets need to reach a certain size before they begin to fall.</p>	
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Year 5		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Prior Knowledge	In previous years: Explore the natural world around them. (Reception – Earth and space) Describe what they see, hear and feel whilst outside. (Reception – Earth and space) Observe changes across the four seasons. (Y1 - Seasonal changes) Observe and describe	In previous years: 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)	In previous years: 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	In previous years: Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)	In previous years: 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	In previous years: 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)

		weather associated with the seasons and how day length varies. (Y1 - Seasonal changes)		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)		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)	
	Topic	Earth and Space	Living Things and their Habitats	Properties and Changes of Materials	Animals Including Humans	Forces	Living Things and their Habitats
	Key Vocabulary	Planet names Phases of the moon Spherical Heliocentric Geocentric	Parts of a flower including stamen Reproduction Sexual Asexual Marsupial Monotreme Placental	Reversible and irreversible Insulating Common materials Properties including solubility Terms for separating	Gestation lengths	Newtons Resistance Friction	Parts of a flower including stamen Reproduction Sexual Asexual Marsupial Monotreme Placental

	<p>Key knowledge and Skills</p>	<p>The Sun is a star. It is at the centre of our solar system. There are 8 planets (can choose to name them, but not essential). These travel around the Sun in fixed orbits. Earth takes 365¼ days to complete its orbit around the Sun. The Earth rotates (spins) on its axis every 24 hours. The Sun, Earth and Moon are approximately spherical. As Earth rotates half faces the Sun (day) and half is facing away from the Sun (night). The Moon orbits the Earth. It takes about 28 days to complete its orbit. As the Earth rotates, the Sun appears to move across the sky. The apparent position of the sun in the sky and so solar time, varies by location due to the spherical shape of the Earth.</p>	<p>Lifecycle</p> <p>In general, all plants and animals go through 3 life stages: fertilised egg or seed, immature juvenile then adult. As part of their life cycle, plants and animals reproduce. Sexual reproduction occurs through pollination, usually involving wind or insects Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. Plants reproduce both sexually and asexually Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent. Gardeners may force plants to reproduce asexually by taking cuttings. 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.</p>	<p>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 changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible. 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.</p>	<p>When babies are young, they grow rapidly. They are very dependent on their parents. As humans develop, they learn many skills. At puberty, a child's body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce Gestational periods vary in mammals. Many factors influence life expectancy and all animals start to age when they reach sexual maturity.</p>	<p>A force causes an object to start moving, stop moving, speed up, slow down or change direction. 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 is a contact forces that acts between moving surfaces Water resistance is a contact forces that acts between moving surfaces Friction is a contact forces that acts between moving surfaces A mechanism is a device that allows a small force to be increased to a larger force. The pay back is that it requires a greater movement. The small force moves a long distance and the resulting large force moves a small distance, e.g. a crowbar or bottle top remover. Pulleys, levers and gears are all mechanisms, also known as simple machines.</p>	<p>Lifecycle</p> <p>In general, all plants and animals go through 3 life stages: fertilised egg or seed, immature juvenile then adult. Mammal lifecycle egg-young-adolescent, adult Amphibian lifecycle (frog) egg-tadpole-froglet-frog Bird lifecycle egg, nestling, young bird, adult bird Insect lifecycle egg-larva, pupa, adult Not all mammals have the same lifecycle. Jane Goodall- work with Chimpanzees on shared behavioural traits with humans. David Attenborough- work on conservation of species.</p>
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			This is called a metamorphosis.				
What will children remember?	<p>8 planet names</p> <p>Year length & the season</p> <p>- The Earth rotates on its axis anti-clockwise & makes a complete rotation over 24 hours (a day). This makes it appear as the Sun moves through the sky but the Earth's rotation causes day & night.</p> <p>Different parts of the Earth experience daylight at different times - this means that it is morning, afternoon & night in different places. This is also the reason why we have time zones. Because of the Earth's tilt, the poles experience 24 hours of sunlight in the summer, & very few hours of sunlight in the winter.</p> <p>As the Earth rotates, shadows that are formed change in size & orientation.</p> <p>The Earth takes 365 & a quarter days to orbit the Sun. Because of the extra quarter day, it takes to orbit the Sun, every four years on Earth is a leap year! It is the Earth's tilt that causes the seasons.</p> <p>The Moon - orbits the Earth anticlockwise & takes approximately 28 days. The Moon spins once on its axis every time it orbits Earth. This</p>	<p>Reproduction is when an animal or plant produces one or more individuals similar to itself.</p> <p>Sexual reproduction requires two parents with male & female gametes (cells) will produce offspring that is similar to but not identical to the parent.</p> <p>Asexual reproduction will produce offspring that is identical to the parent; requires only one parent.</p> <p>Plant reproduction: Male gametes can be found in the pollen. Female gametes can be found in the ovary (they are called ovules). Pollination occurs when pollen from the anther is transferred to the stigma by bees & other insects. The pollen then travels down & meets the ovule. When this happens, seeds are formed - this is called fertilisation. Seeds are then dispersed so that germination can begin again. Some plants, such as daffodils & potatoes, can also produce offspring using asexual reproduction.</p>	<p>How to group materials based on their properties using more complex vocabulary.</p> <p>Materials which are good thermal conductors allow heat to move through them easily. Thermal conductors are used to make items that require heat to travel through them easily. Thermal insulators do not let heat travel through them easily.</p> <p>Electrical conductors allow electricity to pass through them easily while electrical insulators do not. Electrical insulators have a high resistance which means that it is hard for electricity to pass through these objects.</p> <p>When the particles of a solid mix with the particles of a liquid, this is called dissolving. The result is a solution.</p> <p>Materials that dissolve are soluble. Materials that do not dissolve are insoluble.</p> <p>Some materials can be separated after they have been mixed based on their properties - this is called a reversible change. Some methods of separation include the use of a magnet, a filter (for insoluble materials),</p>	<p>Human life cycle:</p> <p>Foetus - an unborn animal or human being in the very early stages of development</p> <p>Newborn - this is a baby that has just been born.</p> <p>Infancy - this is a period of rapid change. Many toddlers learn to walk & talk at this stage.</p> <p>Childhood - children learn new things as they grow. They become more independent.</p> <p>Adolescence - this is when the body starts to change & prepare itself for adulthood. Hormonal changes take place over a few years. This is also known as puberty.</p> <p>Early adulthood - this is when humans are usually at their fittest & strongest.</p> <p>Middle adulthood - changes such as hair loss may happen. There are also some hormonal changes again & the ability to reproduce decreases.</p> <p>Late adulthood - there is a decline in fitness & strength.</p>	<p>Forces are pushes & pulls. These forces change the motion of an object. They will make it start to move or speed up, slow it down or even make it stop. For example, when a cyclist pushes down on the pedals of a bike, it begins to move. The harder the cyclist pedals, the faster the bike moves. When the cyclist pulls the brakes, the bike slows down & eventually stops.</p> <p>Friction is a force - it is the resistance of motion when one object rubs against another.</p> <p>Gravity is the force that pulls objects to the centre of the Earth. Air resistance pushes up on the parachute, opposing the force of gravity. This makes the parachute land more slowly.</p> <p>Water resistance is the friction that is created between water & an object that is moving through it. Some objects can move through water with less resistance if they are streamlined.</p> <p>Levers allow us to do heavy work with less effort. For example, trying to pick up a large heavy box is difficult, however if a lever is used</p>	<p>Examples of life cycles: The life cycles of mammals, birds, amphibians & insects have similarities & differences. One difference is that amphibians & insects go through the process of metamorphosis. This is when the structure of their bodies changes significantly as they grow (for example, from tadpole to frog or caterpillar to butterfly).</p>	

		means that we only see one side of the Moon. The Moon has different phases depending on where it is in its orbit. The Moon's gravity causes high & low tides		a sieve (based on the size of the solids) & evaporation. When a mixture cannot be separated back into the original components, this is called an irreversible change. Examples of this include when materials burn or mixing bicarbonate of soda with vinegar.		it becomes much easier to move it. Pulleys also allow us to do heavy work - objects are attached to ropes and pulley wheels, and so instead of lifting heavy object upwards, we can pull on the pulley rope downwards. Gears are toothed wheels. Their 'teeth' can fit into each other so that when the first wheel turns, so does the next one. This allows forces to move across a surface. Springs can be stretched by pulling them or squashed by pushing them. The greater the force pulling or pushing the spring, the greater the force the spring uses to move back to its normal shape.	
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Year 6		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Prior Knowledge	In previous years: 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	In previous years: 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	In previous years: 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	In previous years: 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)	In previous years: 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,	In previous years: 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,

	<p>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)</p> <p>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)</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors. (Y4 - Electricity)</p>	<p>- Light)</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object. (Y3 - Light)</p> <p>Find patterns in the way that the size of shadows change. (Y3 - Light)</p> <p>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)</p>	<p>their own food; they get nutrition from what they eat. (Y3 - Animals, including humans)</p> <p>Describe the simple functions of the basic parts of the digestive system in humans. (Y4 - Animals, including humans)</p> <p>Identify the different types of teeth in humans and their simple functions. (Y4 - Animals, including humans)</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats)</p> <p>Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)</p>	<p>including humans, have offspring which grow into adults. (Y2 - Animals, including humans)</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks)</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)</p> <p>Describe the life process of reproduction in some plants and animals. (Living things and their habitats - Y5)</p>	<p>including humans, have offspring which grow into adults. (Y2 - Animals, including humans)</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks)</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)</p> <p>Describe the life process of reproduction in some plants and animals. (Living things and their habitats - Y5)</p>
Topic	Electricity	Light	Animals Including Humans	Living Things and their Habitats	Evolution and Inheritance	Evolution and Inheritance
Key Vocabulary	<p>Components in a circuit</p> <p>Resistance</p> <p>Voltage</p> <p>Current</p>	<p>Parts of the eye</p> <p>Torch</p> <p>Periscope</p> <p>Angles of incidence and reflection</p> <p>Prism</p>	<p>Parts of circulatory system</p> <p>Nutrients</p> <p>Lipase</p> <p>Carbohydrase</p> <p>Protease</p> <p>Villi</p> <p>Common drugs</p>	<p>Microbes</p> <p>Decay</p> <p>Microornagism</p> <p>Linnaeus</p>	<p>Vertebrates</p> <p>Predators</p> <p>Evolved</p> <p>Adapted</p> <p>Breeding</p> <p>Traits</p>	<p>Vertebrates</p> <p>Predators</p> <p>Evolved</p> <p>Adapted</p> <p>Breeding</p> <p>Traits</p>
Key knowledge and Skills	<p>Turning a switch off (open) breaks a circuit so the circuit is not complete, and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well.</p>	<p>Light appears to travel in straight lines</p> <p>We see objects when light from them goes into our eyes. The light may come directly from light sources, but for other</p>	<p>The heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and is</p>	<p>Living things can be formally grouped according to characteristics. Plants and animals are two main groups but there are other livings things</p>	<p>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</p>	<p>Fossils give us evidence of what lived on the Earth millions of year ago and provide evidence to support the theory of evolution.</p>

		<p>You can use recognised circuit symbols to draw simple circuit diagrams. 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.</p> <p>Adding more bulbs to a circuit will make each bulb less bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter.</p>	<p>objects some light must be reflected from the object into our eyes for the object to be seen. White light is spilt up after passing from water to air or glass to air so that the individual colours become visible. Because light travels in straight lines the shape of the shadow will be the same as the outline shape of the object. Objects that block light (are not fully transparent) will cause shadows.</p>	<p>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 is the human circulatory system. Nutrients transports around the body include carbohydrates, proteins fats, minerals, vitamins, fibre and water. Diet, exercise, drugs and lifestyle have an impact on the way our bodies function. They can affect how well our heart and lungs work, how likely we are to suffer from conditions such as diabetes, how clearly we think, and generally how fit and well we feel. Some conditions are caused by deficiencies in our diet e.g. lack of vitamins. During exercise, your heart beats faster. Average pulse rate 55-85 beats per minute resting heart rate. It takes 1-7 minutes for a heart to reach resting rate after exercise. The</p>	<p>that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. Plants can make their own food whereas animals cannot. 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 of the 5 groups have 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.</p>	<p>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 slowly, animals and plants with variations that are best suited survive in greater numbers to reproduce and pass their characteristics on to their young. If the environment changes rapidly, some variations of a species may not suit the new environment and will die. Selective breeding is where 2 breeds are mixed for desirable traits e.g. not moulting.</p>	<p>Over time, 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. Beside humans, no other mammals walk on 2 legs all of the time. Dawin found about 18 different species of chaffinch, all of whom had differently adapted beaks to each different food sources. More recently, scientists such as Darwin and Wallace observed how living things adapt to different environments to become distinct varieties with their own characteristics.</p>
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				quicker this happens, the fitter they are.			
What will children remember?	<p>A switch either completes or breaks a circuit</p> <p>Circuit diagram symbols</p> <ul style="list-style-type: none"> -motor -lamp -cell -wire -buzzer <p>Effect of adding more cells to a circuit</p> <p>Effect of adding more lamps to a circuit</p>	<p>Light travels in a straight line.</p> <p>When you place a torch on a table in a dark room, the beam travels in a straight line. Reflection is when light bounces off a surface - this changes the direction in which the light travels</p> <p>Because light travels in straight lines, when there is an opaque object blocking the light, a shadow is formed. These shadows have the same shape as the objects that cast them. The size of a shadow changes as the light source moves. How we see.</p>	<p>The circulatory system is made of the heart, lungs & the blood vessels. - Arteries carry oxygenated blood from the heart to the rest of the body. - Veins carry deoxygenated blood from the body to the heart. - Nutrients, oxygen & carbon dioxide are exchanged via the capillaries. Some choices, such as smoking & drinking alcohol can be harmful to our health. Tobacco can cause short-term effects such as shortness of breath, difficulty sleeping & loss of taste & long-term effects such as lung disease, cancer & death. Alcohol can cause short-term effects such as addiction & loss of control & long-term effects such as organ damage, cancer & death</p> <p>Exercise can: tone our muscles & reduce fat, increase fitness, make you feel physically & mentally healthier, strengthens the heart, improves lung function, improves skin. 1. Deoxygenated blood is sent to the heart from the rest of the body. 2. This is then sent from the heart to the lungs. Here, the blood picks up</p>	<p>Living things can be grouped according to different criteria (where they live, what type of organism they are, what features they have). For example, a camel can belong in a group of vertebrates & a group of animals that have four legs.</p> <p>A classification key is a tool that is used to group living things to help us identify them using recognisable characteristics.</p> <p>The Linnaean system, named after Carl Linnaeus, has different levels where the number of living things in each group gets smaller & smaller, until there will just be one type of animal in the species group.</p> <p>Microorganisms are very tiny organisms where a microscope has to be used to see them.</p> <p>Examples of microorganisms include dust mites, bacteria & fungi, such as mould.</p> <p>Some microorganisms can be helpful in certain situations. Others can be harmful, & their spread needs to be controlled or contained.</p>	<p>Evolution is a process of change that takes place over many generations, during which species of animals, plants, or insects slowly change some of their physical characteristics.</p> <p>This is because offspring are not identical to their parents.</p> <p>It occurs when there is competition to survive. This is called natural selection.</p> <p>Difference within a species (for example between parents & offspring) can be caused by inheritance & mutations.</p> <p>Inheritance is when characteristics are passed on from generation to the next.</p> <p>Mutations in characteristics are not inherited from the parents & appear as new characteristics.</p> <p>Adaptation is when animals & plants have evolved so that they have adapted to survive in their environments.</p> <p>For example, polar bears have a thick layer of blubber under their fur to survive the cold, harsh environment of the Arctic while giraffes have long necks to reach the leaves on trees.</p> <p>Environments provide</p>	<p>Evidence of evolution comes from fossils - when these are compared to living creatures from today, palaeontologists can compare similarities & differences.</p> <p>Other evidence comes from living things - comparisons of some species may reveal common ancestors.</p> <p>The work of Charles Darwin.</p>	

				<p>oxygen & disposes of carbon dioxide. 3. Oxygenated blood is then sent back to the heart. 4. The heart sends the oxygenated blood back to the rest of the body. How often your heart pumps is called your pulse.</p>		<p>challenges yet some animals & plants have adapted to survive there. Sometimes adaptations can be disadvantageous. One example of this can be the dodo, which became extinct as it lost its ability to fly through evolution. Flying was unnecessary for the dodo as it had lived for so many years without predators, until its native island became inhabited. When adaptations are more harmful than helpful, these are called maladaptation.</p>	
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