

Science Long Term Plan - 2021/2022

This is the Long term plan for science which includes scientific knowledge, skills and key vocabulary.
Highlighted in black is the National Curriculum statutory scientific content which must be covered
and below is the small steps of how to achieve this.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Themed weeks				Science Week	SATs Moderation to follow	Healthy Living Week
<p style="text-align: center;">Nursery</p> <p>Development Matters Objectives</p> <p style="color: red; font-size: small;">It is important that the scientific knowledge, vocabulary and skills for EYFS are taught throughout the year for the needs and interest of your children and can be moved or repeated in any order</p>	<p>Understanding the World</p> <p>Birth to 3 years old</p> <ul style="list-style-type: none"> Repeat actions that have an effect. Explore materials with different properties. Explore natural materials, indoors and outside. Explore and respond to different natural phenomena in their setting and on trips. Make connections between the features of their family and other families. Notice differences between people <p>3 years to 4 years</p> <ul style="list-style-type: none"> Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Begin to make sense of their own life-story and family's history. Show interest in different occupations. Explore how things work. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things. Explore and talk about different forces they can feel. Talk about the differences between materials and changes they notice. Continue to develop positive attitudes about the differences between people. Know that there are different countries in the world and talk about the differences they have experienced or seen in photos. 					
Nursery Topics	Nursery Rhymes	Autumn Leaves and Food	Wild Animals	Journeys	Growing	Marvellous Me
	<p>Sound</p> <p>1) Explore how to make different sounds through tapping, shaking & blowing.</p>	<p>Materials</p> <p>1) To observe how materials can change when they are mixed, cooled and heated.</p> <p>2) To discover that materials have different textures.</p>	<p>Animals</p> <p>1) Name different animals and their features.</p> <p>2) Compare animals and say how they are the same and different.</p>	<p>Forces</p> <p>1) To talk about how things move – push, pull, lift, fall, turn.</p>	<p>Plants & Animals</p> <p>1) To learn that plants can grow from seeds.</p> <p>2) Know that living things grow and change.</p>	<p>Humans</p> <p>1) Identify basic body parts.</p> <p>2) Use different senses to explore objects and describe their observations.</p>

Key Vocabulary	loud quiet fast slow silence	hot cold dry wet change	care needs same different home	stop go push pull turn	observe grow plant seed flower	see hear touch taste smell
Year R Objectives - Development Matters	Reception The World <ul style="list-style-type: none"> • Talk about members of their immediate family and community. • Name and describe people who are familiar to them. • Comment on images of familiar situations in the past. • Compare and contrast characters from stories, including figures from the past. • Draw information from a simple map. • Understand that some places are special to members of their community. • Recognise that people have different beliefs and celebrate special times in different ways. • Recognise some similarities and differences between life in this country and life in other countries. • Explore the natural world around them. • Describe what they see, hear and feel whilst outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them. 					
*ELG The Natural World <ul style="list-style-type: none"> • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter Creating with materials <ul style="list-style-type: none"> • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used. • Make use of props and materials when role playing characters in narratives and stories. People Culture and Communities <ul style="list-style-type: none"> • Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps. • Know some similarities and differences between different religious and cultural communities in this country, drawing on their experiences and what has been read in class. 						

- Explain some similarities and differences between life in this country and life in other countries, drawing on knowledge from stories, nonfiction texts and (when appropriate) maps.

**Year R Science
Understand the World**

It is important that the scientific knowledge, vocabulary and skills for EYFS are taught throughout the year for the needs and interest of your children and can be moved or repeated in any order but must be covered.

Forces & Magnets

1). Explore that materials behave differently when using magnets.

To explore the notion of push and pull

To investigate different objects and how they push or pull

2). Explore that some things float and sink.

To investigate how objects can behave differently in water

To observe and compare how materials behave in water

Plants

1). Show care and concern towards living things by planting.

To handle plants carefully

To know how to plant

To know that you need to dig a hole in soil, to know that part of the plant goes underground and part stays above ground.

2). Observing growth, patterns in change and decay over time.

To know that plants can grow from seeds.

To know that decay happens when a living thing dies.

To observe and sequence the life cycle of a plant.

Materials

1). Know that there are different materials and they have different textures.

To explore a range of different objects and their textures.

To notice similarities and differences between textures of different materials.

2). Knowing that materials are used for different purposes.

To explore suitability of materials with different textures.

Sound

1). Explore how sounds can be changed (e.g. volume).

To explore the sounds that can be made with different materials

To explore the sounds I can make with my body

To investigate how changing an object/material can change the sound it makes

Electricity

1). Know that some objects only work with electricity.

- To explore a variety of electrical toys and resources
- To know that electrical resources have chargers or batteries to make them work
- To know that appliances can be turned on to work and off to stop working
- To understand that electricity can be dangerous

Living things & their habitats

1). Recognise that living things have different features and need different things to survive.

- To know that plants need water and sunlight to survive (understand the seasons)
- To know that living things (animals and insects) eat to survive.
- To compare what living things eat.

- To know that living things live in different habitats (explore local environments)
- To compare habitats and how they change in different seasons.

2). Know basic structure of their own body and use 5 senses.

- To know that their bodies are made up of different parts
- To explore using their senses (1 at a time).

3). Know that living things have a life cycle

Why does a baby butterfly

- To know that a living thing has a life cycle.
- To know that a living thing grows and changes; it doesn't always look the same.

Light

1). Opportunities to observe natural and artificial light.

- To have access to resources that produce artificial light (torches, sensory resources etc.)
- To use every day experiences (about night and day) to observe changes in natural light

2). Explore how shadows are made and can be changed.

- To have opportunities to observe the shadows created by their bodies and objects in natural light
- To have opportunities to explore how different materials can change shadows with artificial light

Key Vocabulary

push
pull
float
sink
object

roots
leaf
seeds
stem
petal

material
texture
wood
plastic
hard

sound
volume
electricity
battery
dangerous

skeleton
scales
hair
gills
feathers

light
natural
artificial
shadow
torch

<p>Year 1</p>	<p style="text-align: center;"><u>Plants</u></p> <p>1). Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen To know that there are many types of garden plants To know that there are many types of wild plants.</p> <p style="text-align: center;"><u>Plants</u></p> <p>2) Identify and describe the basic structure of a variety of common plants including roots, stem/trunk, leaves and flowers. To know that plants are alive. To know that the shoot is above ground. To know that the root is below ground. To know that the leaves produced food. To know that the stem supports the plant. To know that flowers start as buds.</p> <p style="text-align: center;">Seasonal Change 1). Observe changes across the four seasons</p>	<p style="text-align: center;"><u>Plants</u></p> <p>1). Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen To know that there are many types of trees. To know that there are many types of garden plants To know that there are many types of wild plants. To know that these plants and trees can be classified into deciduous and evergreen. To know deciduous is a tree that sheds its leaves annually – record changes over the year. To know that evergreen means that the plants keeps its green leaves all year</p> <p style="text-align: center;">Seasonal Change 2). Observe and describe weather associated with the seasons and how day length varies To know how the length of day varies across a year.</p>	<p style="text-align: center;"><u>Animals including humans</u></p> <p>1). Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals To know that birds are warm-blooded animals that lay eggs. To know that birds are in possession of feathers and typically can fly. To know that fish swim in water and breath using gills. To know that amphibians are cold-blooded animals. To know that reptiles have dry scaly skin and can lay eggs on land. To know that mammals are warm-blooded animals that have fur. To know that we are mammals.</p>	<p style="text-align: center;"><u>Animals including humans</u></p> <p>1). Identify and name a variety of common animals that are carnivores, herbivores and omnivores. To know that we can group animals based on what they eat. To know that carnivores eat mainly meat and feeds of other animals. To know that herbivores feed off plants. To know that omnivores feed off both plants and other animals (meat). 2). Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles and mammals, and including pets). To know that birds have beaks, feathers, wings and claws. To know that fish have gills, scales and live underwater.</p>	<p style="text-align: center;"><u>Materials</u></p> <p>1). Distinguish between an object and the material from which it is made. To know that a material is a substance (thing) that an object is made from. To know that an object can be made of different materials together. 2). Identify and name a variety of everyday materials, including wood, plastic, glass, water and rock. To know that materials can be used to make a range of objects.</p>	<p style="text-align: center;"><u>Materials</u></p> <p>1). Describe the simple physical properties of a variety of everyday materials. To know that we can use our senses to describe a range of materials. 2). Compare and group together a variety of everyday materials based on their physical properties. To know that the feel of an object is its texture. To know that a soft object is easier to scratch than a hard object and we describe this as hardness. To know that a strong object is hard to break and we describe this as strength.</p>
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	To know how sunlight affects the growth of plants over a year.	To know that night and day are caused due to the Earth rotating.		To know that mammals have fur and are warm blooded. To know that mammals have live young and produce milk. To know that most reptiles can live in water but are born on land. To know that some reptiles live on land. To know that some animals are kept as pets. To know that animals that are not kept as pets are wild animals.		
Key Vocabulary	deciduous evergreen trunk branch buds	seasons weather wild annual rotation	mammal reptile amphibians warm blooded cold blooded	carnivore herbivore omnivore beaks claws	substance solid gas liquid rigid	dull shiny strong properties fabric
Year 2	<p><u>Plants</u></p> <p>1). Observe and describe how seeds and bulbs grow into mature plants.</p> <p>To know that germination occurs when a seed or bulb begins to grow into a plant. To know that bulbs and seeds need the correct</p>	<p><u>Animals including humans</u></p> <p>1).Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). To know that there are 6 processes of living things.</p>	<p><u>Animals including humans</u></p> <p>3).Notice that animals, including humans, have offspring, which grow into adults. To know that we can classify animals into reptiles, birds, fish, mammals and amphibians.</p>	<p><u>Living things and their habitats</u></p> <p>1). Explore and compare the differences between things that are living, dead, and things that have never been alive. To know that an organism is an</p>	<p><u>Living things and their habitats</u></p> <p>1). Identify and name a variety of plants and animals in their habitats, including microhabitats. To know what makes animals suited to their chosen habitats. To know that animals are suited to their environment.</p>	<p><u>Uses of Everyday Materials</u></p> <p>1). 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>

	<p>temperature and water to grow. To know that the shoot is mainly above ground and the root is below ground. To know a variety of trees such as evergreen, ash, oak chestnut. To know a variety of wild flowering plants such as daises, dandelion, spear thistle.</p> <p>To know a variety of garden plants such as bluebells, daffodils.</p> <p>2).Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p> <p>To know the parts of a plant - bulb, roots, trunk, stem, petal, leaves, twigs and stalks.</p> <p>To know the conditions plants need water, heat, light and temperature.</p> <p>Seasonal Change To know that temperature affects plants in their habitats over time.</p>	<p>To understand the terms Movement, respiration, sensitivity, nutrition, excretion, reproduction and growth.</p> <p>To know that all animals have 3 basic needs for survival (food, water and air).</p> <p>To know that shelter and health are important for the survival of animals.</p> <p>2).Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p>To know that we can classify animals based on what they eat (herbivores, carnivores, omnivores).</p> <p>To know that we need food to survive.</p> <p>To know that food can be sorted into different food groups.</p> <p>To know that we need different amounts of food types to be healthy.</p> <p>To know that we need exercise to be healthy.</p> <p>To know that exercise makes you muscles and bones stronger.</p>	<p>To know understand the stages of life in different animals.</p> <p>To know that all animals grow into adults during their lifecycle.</p> <p>To know that animals have different lifecycles and may go through different stages.</p> <p>To know that an adult is an animal that is fully grown or developed.</p> <p>To know that offspring is an animals child or young.</p>	<p>individual animal, plant or single celled life form.</p> <p>To know that trees and plants are living things. To know that humans, dogs, cats etc are living things.</p> <p>To know that leaves on the ground are dead, but were once alive.</p> <p>To know that bones are dead, but were once part of a living thing.</p> <p>To know that materials such as metal, plastic or stone have never been alive.</p> <p>To know that living things move, feed, grow, reproduce and use their senses.</p> <p>2). 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.</p> <p>To know that the non-living area is called the habitat, the place where organisms live.</p>	<p>To know that there are many habitats in their local area.</p> <p>2). 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> <p>To know that the animals and plants living in this ecosystem are mutually interdependent.</p> <p>To know that animal and plants are also in competition for survival and the opportunity to reproduce.</p> <p>To know that plants are the primary producers in the food chain.</p> <p>To know that a primary consumer gets its energy from primary producers.</p> <p>To know that secondary consumers get their energy from primary consumers.</p>	<p>To know that materials have different properties.</p> <p>To know that properties are words we use to describe things.</p> <p>To know that a physical property does not depend on the amount of material.</p> <p>To know that properties we might use are hard/soft, stretchy/not stretchy, shiny/dull, rough/smooth, bendy/not bendy, transparent/not transparent, sticky /not sticky.</p> <p>To know that some materials are more suited than others.</p> <p>To know how to use scientific vocabulary to explain why a material is more suited.</p> <p>2). Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p>To know that a solid object holds its own shape.</p>
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				To know that different living things need different habitats. To know that animal and plants require space, shelter, food and water.		To know that we can use verbs to describe how materials can be changed such as, crumble, squash, bend, stretch, twist.
Key Vocabulary	stalk shoot germination bulb twig	transparent bendy stretch cardboard squashing	respiration excretion exercise healthy hygiene	nutrients habitat temperature living / non-living organism	life cycle larva adult off spring human	ecosystem producer consumer survival energy
Year 3	<p>Plants</p> <p>1). Identify and describe the functions of different parts of plants; roots, stem, leaves and flowers.</p> <p>To know that the root anchors the plant in the soil.</p> <p>To know that the roots absorb nutrients from the soil for the plant to grow.</p> <p>To know that the stem transports the nutrients to the leaves.</p> <p>To know that the stem supports the plant.</p> <p>To know that the leaves make food for the plant from sunlight and carbon dioxide from the air.</p> <p>To know that flowers are brightly coloured to attract bees for pollination.</p>	<p>Plants</p> <p>1). Investigate the ways in which water is transported within plants.</p> <p>To know that water transportation is the way water moves through a plant.</p> <p>To know that the roots absorb water from the soil.</p> <p>To know that the stem transports water to the leaves.</p> <p>To know that water evaporates from the leaves.</p> <p>To know that evaporation causes more water to be sucked up the stem.</p> <p>2). Explore the role of flowers in the life cycle of flowering plants, including pollination,</p>	<p>Rocks</p> <p>1). Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>To know that there are different types of rocks, such as chalk, limestone, granite, basalt, sandstone, flint, slate, shale, marble.</p> <p>To know that we can group rocks based on their physical properties.</p> <p>To know that rocks can be categorised into sedimentary, metamorphic and igneous.</p> <p>To know that sedimentary rock is formed from the broken remains of other rocks</p>	<p>Animals including humans</p> <p>1). 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.</p> <p>To know that we can classify food into the food groups carbohydrates, dairy, protein, fruit, veg, and fats.</p> <p>To know that a healthy balanced diet comes from eating the right amount of food groups and regular exercise.</p> <p>To know that diet is the food a person or animal consumes.</p>	<p>Forces and Magnets</p> <p>1). Compare how things move on different surfaces.</p> <p>To know different types of materials.</p> <p>To know that a force is what causes an object to move.</p> <p>To know the effects of two surfaces rubbing together.</p> <p>To know that Friction is the force that acts to slow an object down.</p> <p>2). Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</p> <p>To know that a Force is a push or a pull of an object that causes the object to speed up, slow down, or stay in one place</p> <p>To know that a push is a force that moves an object away from something.</p>	<p>Light</p> <p>1). Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>To know that light is a form of energy that travels in a wave.</p> <p>To know that a light source is an object that makes its own light.</p> <p>To know that dark is the absence of light.</p> <p>To know that light travels in a straight line.</p> <p>2). Notice that light is reflected from surfaces.</p> <p>To know that reflection is the process where light hits the surface of an object and bounces back into our eyes.</p>

	<p>2). 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.</p> <p>To know that the conditions for successful growth in plants are air, water, light, nutrients from the soil, room to grow and the appropriate temperature.</p> <p>To know that plants need air to make food and breathe.</p> <p>To know that plants need light to produce energy.</p> <p>To know that plants need water to transport nutrients through the stem and to stand strong.</p> <p>To know that without water plants will wilt and droop.</p> <p>To know that nutrients is found within the soil.</p> <p>To know that all plants need suitable space to grow and conditions to grow.</p> <p>To know that all plants need different amounts of air, water, light, nutrients and room to grow for successful growth.</p> <p>Seasonal Change</p>	<p>seed formation and seed dispersal.</p> <p>To know that pollination is essential for plant reproduction.</p> <p>To know that pollination is the act of transferring pollen grains from one plant to another.</p> <p>To know that when a plant produces a new seed, we call this seed formation.</p> <p>To know that seeds need to be dispersed by wind or insects to allow for new plant growth.</p>	<p>that become joined together.</p> <p>To know that sedimentary rocks are formed by sediment that is deposited over time, usually as layers at the bottom of lakes and oceans.</p> <p>To know that metamorphic rock is</p> <p>To know that igneous rock is</p> <p>2). Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>To know that fossils are the remains or traces of plants and animals that lived long ago.</p> <p>To know that fossils give scientists clues about the past.</p> <p>To know that fossils are important to palaeontology, or the study of prehistoric life.</p> <p>To know how fossils are formed.</p> <p>3). Recognise that soils are made from rocks and organic matter.</p> <p>To know that a particle is matter, which is a material, that is so tiny we cannot see it.</p>	<p>To know that nutrition is the process of providing food right for health and growth.</p> <p>To know that humans cannot produce their own food, unlike plants.</p> <p>2). Identify that humans and some animals have skeletons and muscles for support, protection and movement.</p> <p>To know that the skeleton have several functions.</p> <p>To know that the skeleton provided structure for movement.</p> <p>To know that the skeleton protects the vital organs.</p> <p>To know that the skeleton provides support for the whole body.</p>	<p>To know that a push is a force that brings an object closer to something.</p> <p>To know that the forces 'push and pull' are opposite.</p> <p>3). Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>To know that a magnet is an object that is made up of materials that create a magnetic field.</p> <p>To know that a magnetic field is the area around a magnet where the force can be detected.</p> <p>To know that magnetism is the invisible force of attraction and repulsion.</p> <p>To know that when a magnet attracts it is pulling.</p> <p>To know that when a magnet is repelling it is pushing.</p> <p>To know that observing is a primary source and is the act of requiring knowledge through the use of our senses.</p> <p>4). 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.</p> <p>To know that not all metals are attracted to magnets; only those containing iron, steel and nickel.</p>	<p>To know that reflective is the name for a surface that reflects light well.</p> <p>To know that reflect means to bounce off.</p> <p>3). Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>To know that the retina in the eye take the light that we see.</p> <p>To know that the pupil is the black part of the eye that lets light in.</p> <p>4). Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>To know that a shadow is an area of darkness where light has been blocked.</p> <p>To know the terms opaque, translucent and transparent.</p> <p>5). Find patterns in the way that the sizes of shadows change.</p> <p>To know that an object closer to a light source creates a bigger shadow.</p>
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	To know that different types of soil can affect plant growth over time.		To know that organic matter is material that have come from a recently living organism. To know that soil is made up of very thin particles of rock that have with air, water and particles from dead plant and animal matter. Seasonal Change To know that different combination of particles can affect plant growth		5).Describe magnets as having two poles. To know that magnets have a North and South pole. To know that a compass contains a magnet that can spin freely and so the pointer is always attracted by the Earth's magnetic field to point to the North Pole. 6). Predict whether two magnets will attract or repel each other, depending on which poles are facing. To know that opposite poles attract (N,S) To know that like poles repel (S,S or N,N)	To know that an object further away from a light source creates a smaller shadow.
Key Vocabulary	pollination carbon dioxide anchor soil growth	pollen pollination evaporation seed dispersal absorption	sedimentary metamorphic igneous permeable organic matter	balanced diet carbohydrates protein organs protection	magnet friction North and south pole attract repel	opaque translucent reflection light source shadow
Year 4	<u>Living things and their habitats</u> 1). Recognise that living things can be grouped in a variety of ways. To know the seven characteristics of living things. To know that habitats satisfy their basic needs for survival.	<u>Animals Including Humans</u> 1). Describe the simple functions of the basic parts of the digestive system in humans. To know that the digestive system is a group of organs working together to convert food into energy.	<u>States of Matter</u> 1). Compare and group materials together, according to whether they are solids, liquids or gases. To know that a solid, liquid or gases is how we describe a state of matter.	<u>States of Matter</u> 1). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. To know that condensations refers to water which collects as droplets on a cold	<u>Electricity</u> 1). Identify common appliances that run on electricity To know that the term appliances refers to electrical items, such as freezers, fridges, TVs, iron, kettles etc. To know that electricity is a form of energy. To know that energy is needed to make things happen.	<u>Sound</u> 1). Identify how sounds are made, associating some of them with something vibrating. To know that sounds are vibrations which travel through air To know that a vibration is a sound wave that travels back

<p>To know that there are many habitats in their local area.</p> <p>To know that species is the name given to a group of living things of similar individuals.</p> <p>2).Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>To know that there are over 9 million different living things, so it is important that we classify them to aid identification.</p> <p>To know that living things are divided into groups.</p> <p>To know that classification keys are a set of questions about the characteristics of a living thing, that help to sort them.</p> <p>To know that plants can be sorted into deciduous, evergreen trees, Flowering plants (including grasses) and non-flowering plants (ferns and mosses).</p> <p>To know that animals can be sorted into fish, mammals, birds, amphibians, reptiles and invertebrates.</p> <p>3). Recognise that environments can change and that this can</p>	<p>To know that digestive system contains the oesophagus, stomach, acid, the small intestine and the large intestine.</p> <p>To know that food travels through the digestive system.</p> <p>2). Identify the different types of teeth in humans and their simple functions.</p> <p>To know that Incisors, canines, premolars and molars are types of teeth.</p> <p>To know there are 20 primary teeth and 32 permanent teeth.</p> <p>To know that incisors are used for cutting food into smaller pieces.</p> <p>To know that premolars are used for tearing and crushing food.</p> <p>To know that molars are used for crushing and grinding food.</p> <p>To know that canines are used for gripping and tearing food.</p> <p>3). Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>To know that in a food chain there are producer, consumer, predator and prey.</p>	<p>To know that all matter exists as a solid, liquid or a gas.</p> <p>2). 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)</p> <p>To know that melting refers to the process of liquefying due to heat.</p> <p>To know that solidifying refers to making something a solid.</p> <p>To know that freezing refers to something become a solid- the opposite of melting.</p>	<p>surface when humid air is in contact with it</p> <p>To know that evaporation refers to the process of turning from liquid into vapour.</p> <p>To know the stages of the water cycle.</p> <p>Seasonal change</p> <p>To know that a disruption to the water cycle can cause extreme weather conditions.</p> <p>To know that we can observe the water cycle in our local environment over time.</p>	<p>2).Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>To know that bulbs, batteries, bulb holders, crocodile clips and wires are components in a circuit.</p> <p>To know that a circuit must contain a cell or battery.</p> <p>To know that an electrical current is made up of a flow of electrons, which can only flow when the circuit is complete.</p> <p>To know that a single cell produces electricity and more than one cell is called a battery</p> <p>3).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.</p> <p>To know that a simple series circuit is circuit with the components arrange so all of the current flows in turn.</p> <p>4). Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>To know that a closed switch completes a circuit.</p> <p>To know that an open switch breaks a circuit.</p> <p>5). Recognise some common conductors and insulators,</p>	<p>and forth quickly through air.</p> <p>To know that the sound caused by a vibration is called a sound wave.</p> <p>2). Recognise that vibrations from a sound travel through a medium to the ear.</p> <p>To know that there are many parts to the ear: outer ear, eardrum, ear canal, hammer, anvil, stirrup, cochlea, auditory nerve.</p> <p>To know that the hammer, anvil and stirrup are the smallest bones in the body.</p> <p>To know that the cochlea changes a vibration to an electrical signal.</p> <p>To know that the auditory nerve sends electrical signals to the brain.</p> <p>3). Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>To know how high or low a note sounds.</p> <p>To know that different material make a variety of high or low pitches.</p>
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	<p>sometimes pose dangers to living things. To know that habitats exist as part of a larger environment. To know that changes in the environment could increase chances of survival or decrease chances.</p> <p>Seasonal Change To know that water can affect plant growth over time. To know there are extreme weather conditions that affect living things and their habitats.</p>	<p>To know that a producer is an animal that makes its own food. To know that a predator is an animal that naturally preys on other animals. To know that a consumer is an animal that eats others to obtain energy. To know that prey is an animal that is hunted by a predator.</p>			<p>and associate metals with being good conductors. To know that a conductor is a material that allows energy (current or heat) to pass through. To know that an insulator is a material that does not allow energy to pass through.</p>	<p>4). Find patterns between the volume of a sound and the strength of the vibrations that produced it. To know that the volume is how loud or quiet a sound is. To know that a weak vibration produces a quieter sound. To know that a strong vibration produces a loud sound. 5). Recognise that sounds get fainter as the distance from the sound source increases. To know that distance affects sound waves. To know that a strong sound wave travels further than a weak sound waves.</p>
Key Vocabulary	<p>species vertebrates invertebrates classification environment</p>	<p>digestion incisor molar canine predator</p>	<p>cooling heating solidifying freezing condensation</p>	<p>droplet melting vapour humid pressure</p>	<p>energy circuit – series / parallel electrons insulator conductor</p>	<p>vibration pitch compression sound wave amplitude</p>
Year 5	<p><u>Earth and Space</u></p> <p>1). Describe the movement of the Earth, and other planets,</p>	<p><u>Forces</u></p> <p>1). Explain that unsupported objects fall towards the Earth because of the force of</p>	<p><u>Properties and changes of materials</u></p> <p>1). Compare and group materials on the basis</p>	<p><u>Properties and changes of materials</u></p> <p>1). Give reasons, based on evidence from comparative and</p>	<p><u>Living things and their habitats</u></p> <p>1). Describe the differences in the life cycles of a mammal,</p>	<p><u>Animals Including Humans</u></p> <p>1). Describe the changes as humans</p>

	<p>relative to the Sun in the solar system. To know the solar system is a collection of 8 planets and their moons in orbit around the sun. To know the order of the planets from the sun is Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. To know that Earth rotates on an axis at a tilt at the same time orbiting around the sun. To know that the sun is in the centre of our solar centre. To know that orbit is a path an object takes in space when it goes around a star, planet or a moon. 2). Describe the movement of the Moon relative to the Earth. To know that the moon orbits around the Earth and rotates. 3).Describe the Sun, Earth and Moon as approximately spherical bodies. To know the sun is a huge spinning glowing sphere of hot gas. To know the sun is a star. To know the Earth is a planet.</p>	<p>gravity acting between the Earth and the falling object. To know that Friction and gravity are two types of forces that influence how an object moves. To know that Gravity is the pulling of an object towards Earth's centre To know that everything on Earth is influenced by Gravity. 2). Identify the effects of air resistance, water resistance and friction that act between moving surfaces. To know that air resistance is the force that passes through the air to slow falling objects down. To know that water resistance is the force that slows objects down with moving through water. To know that air and water resistance are types of friction and are sometimes referred to as <i>drag</i>. 3).Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	<p>of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. To know how to apply comparing and grouping of materials and their response to magnets. 2).Understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution To know that a solvent is a material that can dissolve in other substances. To know that a solution is a type of mixture where one substance is dissolved into another. To know that a substance that is able to be dissolved into water is a soluble substance. To know that a substance that is unable to be dissolved into water is insoluble. 3). Use knowledge of solids, liquids and gases to decide how mixtures might be</p>	<p>fair tests, for the particular uses of everyday materials, including metals, wood and plastic. To know how to compare everyday materials using a fair test. 2). Demonstrate that dissolving, mixing and changes of state are reversible changes To know that a reversible change is a change that can be undone or reversed. The opposite of a reversible change is an irreversible change. To know that a reversible change is a physical change that changes how a substances looks or feels, that can be undone. To know that a reversible changes does not produce new substances. 2). Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes</p>	<p>an amphibian, an insect and a bird. To know that most animals including mammals, fish, reptiles and birds go through a simple life cycle. To know that some living things undergo incomplete metamorphosis. To know that some living things undergo complete metamorphosis. To know the life cycle of a bird. To know the life cycle of an amphibian. To know the life cycle of a mammal. To know the life cycle of an insect. 2).Describe the life process of reproduction in some plants and animals. To know that for reproduction to occur, female and male cells must combine. To know the structure of a plant (sepals, petals, stamen, stigma, ovary and fruit). To know that female plant cells are found in the ovules and male cells are found in the pollen. To know that the stigma, at the centre of the flower, is sticky so that pollen remains attached. To know that after fertilisation of a plant you are left with a fruit.</p>	<p>develop from birth to old age. To know the stages of human development – baby, toddler, child, adolescence, middle age and old age. To know that gestation is the foetal to birth. To know that different animals have a different gestation period. To know how to compare gestation periods of different animals. To know that puberty is when a child's body begins to develop and change, as they become an adult.</p>
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	<p>To know the moon is a natural satellite.</p> <p>4).Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the Sun across the sky.</p> <p>To know one rotation of the Earth is 24 hours.</p> <p>To know that one orbit of the Earth around the sun is 365 days.</p> <p>To know that the side of the Earth facing the sun is bathed in light and heat-daytime.</p> <p>To know that the side of the Earth facing away from the sun is cooler and darker- night time.</p> <p>Seasonal Change To know how the Earth's rotation affects the length of day and night. To know how length of day affects plant growth.</p>	<p>To know that a pulley is a wheel around which a cord passes which acts to change direction of a force applied to the cord.</p> <p>To know that a lever is a rigid bar resting on a pivot, which pressure is applied to, to move a heavy load.</p> <p>To know that a gear is a wheel with teeth that slots together.</p> <p>To know that when one gear is turned the other one turns as well.</p> <p>To know that a big gear will create a bigger force but turn slowly.</p> <p>To know that a small gear will create a smaller force but turn quickly.</p>	<p>separated, including through filtering, sieving and evaporating.</p> <p>To know that separation can take place through the use of filtering, sieving or evaporation.</p> <p>To know that filtering is when two substances, normally a solid and a liquid, are separated through filtered paper.</p> <p>To know that sieving is when two solids are separated.</p>	<p>associated with burning and the action of acid on bicarbonate of soda.</p> <p>To know that changes in state effect what happens to a material</p> <p>To know that fire and acids change state of matter in a material</p>		
Key Vocabulary	<p>orbit axis planets Solar system rotate</p>	<p>Newtons air resistance gravity weight upthrust</p>	<p>thermal insulator thermal conductor electrical insulator electrical conductor solution</p>	<p>solvent soluble dissolving reversible / irreversible substance</p>	<p>stigma fertilisation life cycle metamorphosis reproduction</p>	<p>gestation foetal puberty adult birth</p>

Year 6	<u>Electricity</u>	<u>Light</u>	<u>Living things and their habitats</u>	<u>Animals Including Humans</u>	<u>Evolution & Inheritance</u>	<u>Scientific Investigation</u>
	<p>1). Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. To know how to make a simple circuit. To know that a simple circuit is made of components. To know that the more bulbs added, the slower the flow/current. To know that the slower the flow, that dimmer/quieter the bulb or buzzer may be. To know that increasing the voltage with batteries will increase the flow/current.</p> <p>2). Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. To know that a bulb slows down the current, forcing it to become dimmer. To know that the current of electricity is measured in volts and that more cells increase the flow.</p>	<p>1).Recognise that light appears to travel in straight lines. To know that light sources are places light can be emitted from. To know that light behaves like a wave. To know the term ray model of light. To know that light can be absorbed, pass through an object or reflected.</p> <p>2). 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. To know that they need light in order to see things and that dark is the absence of light To notice that light is reflected from surfaces To know that non light sources are seen because light bounces off of them and into our eyes. To know that light can be scattered in different directions.</p>	<p>1). 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. There are billions of different kinds of living things (or organisms) on earth. To know that biologists have devised ways of naming and classifying living things according to their similarities and differences. To know that a species consists of all the animals of the same type, who are able to breed and produce young of the same kind.</p> <p>2).Give reasons for classifying plants and animals based on specific characteristics. To know that plants are able to use energy in sunlight to make their</p>	<p>1). Identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. To know the circulatory system is made up of the heart, blood and blood vessels. To know the heart is a muscle that circulates the blood around the body. To know that the blood delivers water, nutrients and oxygen around the body. To know that the blood carries away waste. To know that blood vessels are tubes in the body. To know that arteries and veins are blood vessels. To know arteries take oxygenated blood and nutrients to the organs from the heart. To know the veins take the deoxygenated blood back to the heart.</p> <p>2).Recognise the impact of diet,</p>	<p>1). Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. To know that fossils are evidence of natural selection over time. To know that organisms better adapted to their environment tend to survive and produce more offspring.</p> <p>2).Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. To know that inheritance that is when living things reproduce they give to their offspring. To know we inherit key characteristics from our parents.</p> <p>3).Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. To know that evolution is a development over time. To know the adaption is a physical or behaviour trait, which changes to make an organism better adapted to their environment.</p>	<p>Design an investigation over this term and prove the statement below to be true or false using data to analyse and draw on a conclusion using evidence collected.</p> <p>Example given below</p> <p>“Higher the acidic content, quicker the rate of reaction on an ice cube.”</p> <p>Please use previous knowledge on states of matter. Children must; 1). Design and plan 2). Choose own equipment 3). Carry out experiment 4). Collect data to analyse 5). Present findings and draw to a conclusion.</p>

	<p>3). Use recognised symbols when representing a simple circuit in a diagram. To know that each component has its own symbol. To know that we use these symbols to represent components in a circuit.</p>	<p>To know that light colours reflect more light than dark colours. 3). 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. To know that light enters our eyes. To know that light from the sun can be dangerous and that there are ways to protect their eyes To know that our pupils get larger in the dark due to the need to allow more light in to see things. To know that pupils get smaller when the light is brighter to reduce the light entering the eyes and protect them. To know that refraction occurs when an object slows the light beam. 4). Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. To know that shadows are formed when the light from a light source is</p>	<p>own food (photosynthesis). To know that all animals must eat food for energy and nutrients. Some animals eat plants directly; others eat animals that have eaten plants. To know that vertebrate have key features which distinguish them between the main groups of vertebrates (animals with backbones). They are their skin coverings and the place where they live. To know that invertebrates are animals without backbones.</p>	<p>exercise, drugs and lifestyle on the way their bodies function * To know the impact of a healthy and unhealthy diet on your body. To know that you need to eat a varied and balanced diet. To know that regular exercise keeps your heart, lungs and muscles strong and healthy. To know you need plenty of sleep to recover and recharge. To know that a drug is a chemical that you take into your body which changes the way you feel or act. To know illegal drugs can harm your body. To know that medicines are drugs which help pain, disease and mental health. 3). Describe the ways in which nutrients and water are transported within animals, including humans. To know that the blood is made up of red and white blood cells and platelets.</p>		
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		<p>blocked by an opaque object</p> <p>To know that light passes through some objects but not others.</p> <p>To know the terms transparent, translucent and opaque.</p> <p>To know that when light is unable to reach an area it forms a shadow.</p> <p>To understand that white light is made up of colourful light.</p> <p>To know that colourful shadows can occur when only certain colours are being let through an object, whilst blocking other colours.</p>		<p>To know the immune system protects our body.</p> <p>To know that red blood cells transport oxygen.</p> <p>To know that white blood cells are part of the immune system.</p> <p>To know that platelets form clots to stop bleeding.</p> <p>To know how nutrients, water, vitamins and minerals are absorbed by the villi in the digestive system and into the blood.</p>		
Key Vocabulary	<p>volts</p> <p>voltage</p> <p>component</p> <p>resistance</p> <p>cell</p>	<p>refraction</p> <p>Wavelength</p> <p>frequency</p> <p>electromagnetic spectrum</p>	<p>circulatory</p> <p>artery</p> <p>oxygenated blood</p> <p>heart</p> <p>immune</p>	<p>photosynthesis</p> <p>breed</p> <p>digestion</p> <p>characteristic</p> <p>micro-organisms</p>	<p>survival</p> <p>variation</p> <p>evolution</p> <p>natural selection</p> <p>inheritance</p>	<p>hypothesis</p> <p>fair test</p> <p>conclusion</p> <p>investigation</p> <p>analyse</p>