



<b>F2</b>	
<b>AUTUMN 1</b>	
Children will learn about pushing and pulling and changes in materials through stories such as The Enormous Turnip and The Little Red Hen.	<b>Vocab: change, push, pull, soft, hard, hot, cold</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>• New learning</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>• able to talk about changes both in the environment and in materials</li> <li>• able to talk about forces such as pulling and pushing</li> </ul>
<b>AUTUMN 2</b>	
Children will learn about melting and temperature by exploring ice in the water tray and environment. They will also investigate how to get superheroes or Frozen characters out of a block of ice. Children will also look at floating and sinking linked to Stickman story.	<b>Vocab: float, sink, bottom, top, surface, melt, hot, cold, frozen, warm, slippy</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>• objects do different things when placed in water</li> <li>• some objects are cold and some are hot and things may change</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>• able to talk about why ice changes and predict what might happen next and explain why</li> <li>• able to understand and predict why some things float and some things sink</li> <li>• able to use vocabulary involved in these processes</li> </ul>
<b>SPRING 1</b>	
Children will use torches and dark tent to look at patterns and shadows made by different objects and their own bodies.	<b>Vocab: dark, light, shadow, sun</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>• light changes during the day and night and that it goes dark at night</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>• be aware that objects can block out light and it creates a shadow</li> </ul>

	<ul style="list-style-type: none"> <li>light can come from another source for example a lamp or torch</li> </ul>	
<b>SPRING 2</b>		
Children will learn about planting and growing through stories such as Frans Flower. They will also plant their own beans and watch them grow. Children will learn what worms look like, where worms live and what they eat. This will be learnt using the book Yucky worms.		<b>Vocab: soil, seed, water, leaves, roots, underground, worm, bristles</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>plants grow</li> <li>small creatures live outside</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>able to say what a plant needs to grow</li> <li>able to say what a worm looks like , where it lives and what it eats</li> </ul>	
<b>SUMMER 1</b>		
Children will explore what magnets do and which materials attract best to magnets. Children will also learn about the planets and space through books and stories. They will make planets using papier mache to enhance their experience.		<b>Vocab: Sun, Moon, Mercury, Venus, Earth, Mars, Jupiter, Uranus, Neptune, Pluto, space, astronaut, rocket, attract, push</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>there is a sun and moon</li> <li>objects are made of different materials and they behave differently</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>able to talk about what amagnet does and which materials they attract best</li> <li>able to name some planets and say where we live</li> </ul>	
<b>SUMMER 2</b>		
Children will learn about life cycles by experiencing watching chicks hatch and looking at other simple life cycles. They will also look at how they have grown and changed.		<b>Vocab: egg, hatch, grow, change, shell, feathers, beak, egg, tooth, incubator</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>things grow and change</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>able to talk about how some animals including humans grow and change over time</li> <li>able to talk about a chicken's life cycle naming parts of a chicken and egg</li> </ul>	
<b>Y1</b>	<b>AUTUMN 1</b>	
<u>Senses</u> In this unit children will learn about their senses and how they		<b>Vocab: touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue</b>

use them to describe the world.	
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>• Use all their senses in hands-on exploration of natural materials. (Nursery - Humans)</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>• name and locate parts of their bodies, including the sense organs</li> <li>• understand the functions of the sense organs, identifying familiar scents, textures, tastes and sounds</li> </ul>
<b>AUTUMN 2</b>	
<u>Identifying Materials</u> In this unit children will have identified and named common types of materials including wood, metal, plastic, rubber, fur, towelling, nylon, wool, sponge, cotton wool, paper, card, brick, ceramics, rock and some liquids and powdered solids.	<b>Vocab: wood, plastic, metal, glass, cardboard, fabric, water, object, material, suitable</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>• Use all their senses in hands-on exploration of natural materials. (Nursery - Materials, including changing materials)</li> <li>• Explore collections of materials with similar and/or different properties. (Nursery - Materials, including changing materials)</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>• identify and name common types of materials including some liquids and powdered solids</li> <li>• distinguish between an object and the material from which it is made</li> </ul>
<b>SPRING 1</b>	
<u>Comparing Materials</u> In this unit children will describe the physical properties of a variety of everyday materials. They will compare and group together a variety of everyday materials on the basis of their simple properties. They will describe the properties of different materials, for example wood, metal, plastic, rubber, fur, towelling, nylon, wool, sponge, cotton wool, paper, card, brick, ceramics and rock.	<b>Vocab: opaque, transparent, translucent, waterproof, float, sink, flexible</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>• Use all their senses in hands-on exploration of natural materials. (Nursery - Materials, including changing materials)</li> <li>• Talk about the differences between materials and</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>• describe some of the physical properties of everyday materials, such as whether an object is rough/smooth, hard/soft, waterproof/not waterproof, transparent/opaque etc</li> <li>• be able to make simple comparisons between these different materials</li> </ul>

changes they notice. (Nursery - Materials, including changing materials)	
<b>SPRING 2</b>	
<u>Parts of Animals</u> Children will identify and name the basic external parts of the human body and recognise the functions of some body parts.	<b>Vocab: head, body, eyes, ears, mouth, teeth</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>This unit builds on any work they have done in the Foundation stage where they have made observations about animals.</li> <li>Humans have key parts in common, but these vary from person to person.</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>able to name parts of the bodies of other animals including those of fish, amphibians, reptiles, birds and other mammals</li> <li>able to use species specific vocabulary, e.g. fin, wing, paw</li> <li>be able to describe, compare and contrast two different animals</li> </ul>
<b>SUMMER 1</b>	
<u>Types of Animals</u> In this unit children will observe and recognise some simple characteristics of animals. They will learn that animals are similar to each other in some ways and different in other ways. They will begin to start grouping animals by the key features of their appearance.	<b>Vocab: herbivores, carnivores, omnivores, birds, fish, mammals, amphibians, reptiles</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>Animals vary in many ways by having different structures.</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>recognise that different animals live in the local environment and can name some of them</li> <li>recognise similarities and differences within and between animals, classifying familiar animals according to their characteristics</li> </ul>
<b>SUMMER 2</b>	
<u>Plants</u> This unit will introduce children to the idea of plants as living things which grow and change over time. Children will work towards answering the Quest question, 'How can we make a plant identification kit?' The unit will encourage children to recognise the common features, similarities and differences between plants. Children will learn about the basic structure of a variety of	<b>Vocab: leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud</b>  <b>Names of trees in the local area.</b>  <b>Names of garden and wild flowering plants in the</b>

<p>common flowering plants, including trees. They will identify, name and describe the main parts of plants, including trees. They will learn that trees are plants and will learn the meaning of 'evergreen' and 'deciduous' when describing and comparing trees. Children will describe and compare common plants and trees in their local environment and will learn specific vocabulary relating to trees, e.g. trunk, bark etc. They will have the opportunity to plant, grow and observe their own plants throughout the unit. Children will consider how to treat plants as living things with care. At the end of the unit, children will create a model plant, a record of local plants and an identification kit for plants in their local area.</p>	<p><b>local area.</b></p>
<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>• Plant seeds and care for growing plants. (Nursery – Plants)</li> <li>• Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants)</li> <li>• Begin to understand the need to respect and care for the natural environment and all living things. (Nursery – Plants)</li> <li>• Explore the natural world around them. (Reception – Living things and their habitats)</li> <li>• Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats)</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>• name some common plants and trees and have been able to identify and name the main parts of a plant as being the root, stem, leaf and flower</li> <li>• be able to compare and contrast different plants</li> <li>• name and describe examples of deciduous and evergreen trees</li> <li>• grow some bedding plants and describe and record changes in the plants as they grow</li> </ul>
<p><b>ONGOING</b></p>	
<p><u>Seasons</u> 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 weather also changes with the seasons. In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer. The change in weather causes many other changes. Some examples are: numbers of minibeasts found outside; seed and plant growth; leaves on trees; and type of clothes worn by people.</p>	<p><b>Vocab:</b> weather (sunny, rainy, windy, snowy etc.) <b>Seasons (winter, summer, spring, autumn)</b> <b>Sun, sunrise, sunset, day length</b></p>
<p><u>Required prior knowledge</u></p>	<p><u>End point</u></p>

	<p>Children should know:</p> <ul style="list-style-type: none"> <li>• Observe changes across the four seasons</li> <li>• Observe and describe weather associated with the seasons and how day length varies</li> </ul>	<ul style="list-style-type: none"> <li>• name the four seasons, and describe the common differences between them</li> <li>• identify and design weather symbols for the different types of weather they are likely to experience across the seasons</li> <li>• take and record observations and measurements over time throughout the seasons including day length, temperature, rain/snow fall, wind strength, cloud conditions and the accompanying changes to plants and animals in their local environment</li> <li>• compare the seasons outlining similarities and differences</li> </ul>
<b>Y2 AUTUMN 1</b>		
	<p><u>Uses of Materials</u>          In this unit children will name, identify and hunt for everyday materials including wood, metal, plastic, glass, rubber, brick, rock, paper, fabric and card. They will list properties of different materials such as hardness, strength, flexibility and shininess. They will learn that the properties of materials are important to the object they are made from. They will identify suitable and unsuitable materials for different objects and will be able to explain why.</p>	<p><b>Vocab: opaque, translucent, transparent, waterproof, reflective, non-reflective, rigid, flexible</b></p>
	<p><u>Required prior knowledge</u>          Children should know:</p> <ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made. (Y1 Everyday materials)</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials)</li> <li>• Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials)</li> <li>• Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>• name and identify everyday materials including wood, metal, plastic, glass, rubber, brick, rock, paper, fabric and card</li> <li>• understand different properties such as hardness, strength, flexibility and shininess</li> <li>• compare the properties of different materials</li> <li>• identify suitable and unsuitable materials for different objects and explain why they are unsuitable</li> </ul>
<b>AUTUMN 2</b>		
	<p><u>Changing Shape</u>          In this unit children will work towards answering the Quest</p>	<p><b>Vocab: shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending,</b></p>

<p>question 'How can we make art from changing the shape of materials?' They will create a piece of artwork that applies the skills and knowledge developed in the unit. Children will learn that the shape of materials can be changed by squashing, bending, twisting and stretching. They will also explore how twisting can be used to make threads stronger and identify which materials bend or squash most easily.</p>	<p><b>stretch/stretching</b></p>
<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made. (Y1 Everyday materials)</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials)</li> <li>• Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials)</li> <li>• Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>• explain that the shape of some materials can be changed by squashing, bending, twisting and stretching</li> <li>• compare the properties of different materials and classify them according to how their shape can be changed</li> <li>• observe and comment on how silly putty changes over time</li> <li>• carry out a simple comparative test to find out which material is the stretchiest</li> </ul>
<p><b>SPRING 1</b></p>	
<p><u>Living Things</u> In this unit children will make comparisons between things that are alive, things that are not alive, and things that were once alive. They will sort and compare animals, plants and non-living things and will create a list of features of living things. Children will notice that living things have offspring which resemble their parents and that they themselves grow into adults which reproduce. Children will order the stages of growth of humans from birth to old age. They will complete their Quest by imagining they are curators of a museum where they will curate an exhibition on living things, and design an information board for an exhibit comparing living, not living and never living things</p>	<p><b>Vocab: living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed</b></p>
<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>• In order to teach this unit, children will need to have</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>• know that observable changes take place as animals get older</li> <li>• use their observations to recognise differences between</li> </ul>



<p>studied Types of Animals and Plants in Year 1. They will also need to have a basic understanding of the needs of plants and animals and understand that plants and animals grow.</p>	<p>humans and other animals and between animals, plants and non-living things</p> <ul style="list-style-type: none"> <li>• communicate their observations</li> <li>• be able to group and sort living and non-living things and give reasons for their choices</li> </ul>
<h2 style="margin: 0;">SPRING 2</h2>	
<p><u>Feeding and Exercise</u></p> <p>In this unit children will have described the importance of exercise, eating the right amounts of different types of food and hygiene. They will have found out about and described the basic needs of animals, including humans, for survival (water, food and air) and will have considered what humans need to live. Children will have identified different foods and have classified some of the foods that humans eat by plant or animal origins. Children will have described 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. They will have identified and created a simple food chain. Children will have been able to use ideas about feeding and exercise to learn about ways we need to look after ourselves to stay healthy. They will demonstrate understanding by making a diet and exercise plan and will have considered food safety and hygiene guidelines. Children will also have opportunities to consider ways in which science is relevant to their personal health and to relate science to aspects of their everyday life (food, exercise, hygiene), and to recognise and control hazards and risks to themselves.</p>	<p><b>Vocab:</b> herbivore, carnivore, omnivore, food chains, protein, carbohydrate, keeping healthy</p>
<p><u>Required prior knowledge</u></p> <p>Children should know:</p> <ul style="list-style-type: none"> <li>• Children will need to have studied Types of Animals and Plants in Year 1 and have a basic understanding of the needs of plants and animals and that plants and animals grow.</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>• know the basic needs of animals for survival (air, water and food)</li> <li>• know that some animals eat plants, others eat animals, and some eat both</li> <li>• be able to identify and construct a simple food chain</li> <li>• be able to group and sort foods into those of plant and animal origins and give reasons for their choices</li> <li>• know that eating a variety of different foods in moderation, exercise and good personal hygiene are</li> </ul>



**SUMMER 1**Habitats

In this unit children will have been introduced to the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'micro-habitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter). They will have identified that most living things live in habitats to which they are suited and have described how different habitats provide for the basic needs of different kinds of animals and plants. Children will have explored their immediate local environments. They will have identified local and global habitats and recognised, in simple terms, those which are similar in scale or diversity. They will have recognised how differences between places close to each other result in a different range of plants and animals being found. They will have identified and named a variety of plants and animals in their habitats including micro-habitats and have described habitats in terms of their physical conditions.

**Vocab:** habitat, basic needs, climate, vegetation, environment, micro-habitat

Required prior knowledge

Children should know:

- This unit builds on the work children have completed in the Year 1 Identifying Plants, Types of Animals and Changing Seasons units.

End point

- recognise that different plants and animals live in the local environment and name an increasing number of them
- describe and make a record of the different species found in different habitats and predict which species will live in which habitat
- consider how to treat living things and the environment with care and sensitivity
- recognise hazards to themselves and take action to control the risks from these hazards

**SUMMER 2**Growing Plants

In this unit children will explore how seeds and bulbs grow into mature plants. They will investigate what plants need to grow and will find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

**Vocab:** germinate, seed, bulb, temperature, light, shade

	<p>Children will discover where seeds come from by investigating fruits and seeds in their local environment. They will carefully observe and sort seeds and will also recognise how some plants are able to grow from bulbs. They will plant a variety of seeds, describing how they grow. Children will have the opportunity to plant seeds and to observe growth.</p>	
	<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>• This unit builds on the work children have completed in Year 1 Plants.</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>• understand that plants need water, light and warmth to grow</li> <li>• describe changes in the appearance and height of plants as they grow</li> <li>• recognise that most plants grow from seeds and that some plants can grow from bulbs</li> <li>• realise that seeds can be found in the fruit of the plant</li> <li>• be able to compare seeds and describe how they differ in size and shape</li> </ul>
<b>Y3</b>	<b>AUTUMN 1</b>	
	<p><u>Plants</u> Children learn the parts of a flowering plant and what plants need to survive. Children investigate and compare the growth of a flowering plant and a cactus plant when grown in different conditions.</p>	<p><b>Vocab: nutrient, life cycle, absorbs, transport, photosynthesis, air, pollination, seed dispersal</b></p>
	<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>• that plants are living things and come in different shapes and sizes</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>• know the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</li> <li>• identify and describe the functions of different parts of flowering plants</li> </ul>
	<b>AUTUMN 2</b>	
	<p><u>Animals, including humans</u> Children learn that animals, including humans, need the right amount and types of nutrition. They investigate healthy diets including the amount of sugar in fizzy drinks. Children learn about the types of skeleton that animals, including humans, have and their function as well as the role of muscles in our bodies.</p>	<p><b>Vocab: nutrition, food groups, balanced diet, skeleton, muscles, protection, movement, producer, consumer, diet</b></p>

<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>• common animals (Y1)</li> <li>• carnivores, omnivores, herbivores (Y1)</li> <li>• food chains (Y2)</li> <li>• an understanding eating the right types of food (Y2)</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>• identify the different food groups and what makes a balanced diet</li> <li>• explain how animals, including humans cannot make their own food.</li> <li>• identify that humans and some other animals have skeletons and muscles for support, protection and movement</li> </ul>
<b>SPRING 1</b>	
<p><u>Light</u> Children identify types of light sources and recognise that the moon is not a source. They learn that darkness is the absence of light and how light enables us to see. Children learn about reflective materials and recognise that light from the sun can be dangerous. They recognise shadows are formed when the light is blocked and investigate how shadows change during the day.</p>	<p><b>Vocab: light, light source, dark, shadow, reflective surface, opaque, translucent, transparent</b></p>
<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>• transparency (Y1)</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>• recall how we need light to see and darkness is an absence of light</li> <li>• notice that light is reflected from surfaces</li> <li>• know that light from the sun can be dangerous</li> <li>• describe that shadows are formed when the light is blocked</li> </ul>
<b>SPRING 2</b>	
<p><u>Forces and magnets</u> Children identify what a force is and compare how objects move on different surfaces. They investigate how magnets repel and attract and how the magnetic force can act at a distance even though we can not see it. Children predict where the poles of magnets will repel or attract each other. They group materials into magnetic and non-magnetic.</p>	<p><b>Vocab: magnet, attract, repel, force, friction</b></p>
<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>• types of materials (metal) (Y1)</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>• know how things move on different surfaces</li> <li>• explain how magnets can repel and attract and when this happens</li> </ul>

		<ul style="list-style-type: none"> <li>describe how magnets have 2 poles</li> <li>know magnetic forces act at a distance</li> </ul>
<b>SUMMER 1</b>		
<u>Rocks</u> Children compare and group types of rocks on the basis of their appearance and physical properties. They identify the rock cycle and how different rocks are formed. Children describe how fossils are formed and recognise that soil is made from organic matter.		<b>Vocab: rock, texture, soil, organic matter, fossil, sedimentary, metamorphic, igneous, permeable, impermeable</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>terminology such as: smooth, rough (Y1/2)</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>know different kinds of rocks based on their appearance and simple physical properties.</li> <li>describe how fossils are formed</li> <li>know that soils are made from rocks and matter</li> </ul>	
<b>SUMMER 2</b>		
Re-cap previously taught topics (Y3)		<b>Vocab: re-cap previously taught vocab (Y3)</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>Y3 science content</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>greater retention of taught concepts</li> </ul>	
<b>Y4</b>	<b>AUTUMN 1</b>	
<u>Living things and their habitats</u> Children learn about how living things can be classified and sorted. They learn that environments change all the time and how this, along with human behaviour, can impact on the habitats of living things. Children investigate the effects of global warming (melting ice).		<b>Vocab: classify, classification key, environment, habitat, vertebrate, invertebrate</b>
<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>know the difference between living/dead/never lived</li> <li>know the different groups of animals - fish, amphibian etc.</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>recognise that living things can be grouped in different ways</li> <li>explore a famous scientist and their impact</li> <li>recognise that environments can change and that this can sometimes pose dangers to living things</li> <li>know that human activity can endanger the environment for many living things</li> </ul>	

## AUTUMN 2

### Animals, including humans

Children learn about the human digestive system, including teeth and how to care for them. Children investigate the effect of different solutions on tooth enamel (eggshell).

**Vocab:** enamel, tooth decay, digestive system, oesophagus, intestines, food chain, producer, consumer

### Required prior knowledge

Children should know:

- have an understanding of how we need food to sustain us and know herbivores, carnivores and omnivores

### End point

- know the main parts of the human digestive system - teeth, oesophagus, stomach and intestines - and how it works
- know that different teeth do different jobs
- know what a food chain is

## SPRING 1

### States of matter

Children learn about and compare - solid, liquid, gas and how these can change state. They learn about the water cycle. Children make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.

**Vocab:** matter, particle, solid, liquid, gas, temperature, evaporation, condensation

### Required prior knowledge

Children should know:

- that different material have different properties

### End point

- be able to name the states of matter and discuss changes
- identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

## SPRING 2

### Sound

Children learn that sound is made when something vibrates and that these vibrations (sound waves) travel to the ear, causing the eardrum to vibrate. They learn about pitch and volume. Children investigate how sound waves decrease over distance.

**Vocab:** vibration, sound wave, pitch, medium, volume, source, ear canal, ear drum

	<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>this is completely new but children should associate the ear with hearing sound</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>identify how sounds are made, associating some of them with something vibrating</li> <li>recognise that vibrations from sounds travel through a medium to the ear</li> <li>recognise that sounds get fainter as the distance from the sound source increases</li> </ul>
<b>SUMMER 1</b>		
	<u>Electricity</u> Children learn how to construct a simple series electrical circuit using a range of components. They learn about keeping safe when using electricity. Children sort electrical appliances - battery/mains. Children investigate circuits to see why they won't work and fix them.	<b>Vocab: circuit, component, appliance, cell, motor, current, conductor, insulator, voltage, socket</b>
	<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>this is completely new but children should have an understanding of some electrical appliances</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>be able to identify why a circuit will not work</li> <li>know which materials are good conductors</li> </ul>
<b>SUMMER 2</b>		
	Re-cap previously taught topics (Y4)	<b>Vocab: re-cap previously taught vocab (Y4)</b>
	<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>Y4 science content</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>greater retention of taught concepts</li> </ul>
<b>Y5</b>	<b>AUTUMN 1</b>	
	<u>Life Cycles</u> In this unit children will learn that plants and animals have life cycles and that reproduction is a part of this cycle. They will recognise that each life cycle has distinct stages but that these can vary between species, for example they may describe and contrast the stages of the human life cycle with three and four stage metamorphosis in insects and amphibians. They will understand the importance of	<b>Vocab: life cycle, metamorphosis, organism, reproduction</b>

reproduction for the survival of a species.	
<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>This unit builds on children's existing understanding of how plants grow and the basic structures and diversity of plants and animals in Y3 Parts of Plants and Y2 Living Things. Children will need a basic understanding that adult plants and animals reproduce to produce offspring that are similar to themselves.</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>describe the life cycles of some plants and animals including mammals, birds and some flowering plants</li> <li>observe and record the different stages in the life cycle of living things, and describe and name the stages of metamorphosis in an animal</li> <li>plan an outdoor investigation in the local environment and describe methods of pollination and seed dispersal in a flowering plant</li> </ul>
<b>AUTUMN 2</b>	
<p><u>Earth and Space</u> In this unit pupils will describe the movement of Earth, and other planets, relative to the Sun in our Solar System. They will describe the movement of the Moon relative to Earth and describe the Sun, Earth and the Moon as approximately spherical bodies. Pupils will use the idea of Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. They will also have the opportunity to find out about how ideas about the solar system have developed and changed over time.</p>	<p><b>Vocab:</b> orbit, planet, rotation, star, axis, solar system, sun, axis</p>
<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>day and night</li> <li>the Earth as the planet we inhabit</li> <li>the moon as Earth's satellite</li> <li>that other planets exist in our solar system.</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>explain in terms of the rotation of Earth why shadows change and the Sun appears to move during the course of the day</li> <li>use the idea of Earth's rotation to explain day and night, and state that the Moon orbits Earth</li> <li>describe the movement of Earth and other planets, relative to the Sun in the Solar System</li> </ul>
<b>SPRING 1</b>	
<p><u>Separating Mixtures</u> In this unit children will learn about the separation techniques of filtering, sieving and evaporation. They will use sieves to separate materials of different sizes. They will learn that some substances (such as candyfloss) dissolve in water whilst others (such as dried herbs) do not. They will learn that they can separate a dissolved solid from a solution through</p>	<p><b>Vocab:</b> solid, liquid, gas, particle, process</p>



<p>evaporation of the liquid. They will consolidate and apply their knowledge of the properties of solids, liquids and gases by separating different mixtures.</p>	
<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>This unit builds on Year 4 Changes of State.</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>use different techniques to separate mixtures including filtering, sieving and evaporation</li> <li>explain what is meant by the term dissolving and will be able to name some substances that are soluble in water and others that are not</li> <li>become familiar with the terms solvent and solute</li> </ul>
<h2>SPRING 2</h2>	
<p><u>Types of Change</u> In this unit children will work towards answering the Quest question, 'How can you make a meal from a mixture?' Children will design a recipe and identify the types of change used throughout the menu. They will explore dissolving by seeing how many drops of water it takes to dissolve the same amount of different substances and will use the terms solute and solvent. They will use evaporation to recover dissolved solutes and will recognise that these are reversible changes. They will also recognise that mixing and changes of state are reversible changes. Children will be introduced to examples of irreversible changes such as burning candles and other fuels, heating some materials and mixing bicarbonate with acid. They will learn that in these changes new materials are made and that these new materials are often in the form of gases.</p>	<p><b>Vocab: soluble, insoluble, solute, solvent, reversible change, irreversible change</b></p>
<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>This unit builds on Year 4 Changes of State. It should be taught after Year 5 Separating Mixtures</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>understand that dissolving, mixing and changes of state are reversible changes and that burning and heating some materials and mixing bicarbonate with acid are examples of irreversible changes</li> <li>recognise that different substances have different solubility rates</li> <li>demonstrate how evaporation can be used to reverse changes and recover dissolved solutes</li> </ul>
<h2>SUMMER 1</h2>	

<p><u>Materials</u> In this unit children will have compared and grouped together everyday materials on the basis of their properties, including their hardness, solubility, transparency, response to magnets and electrical and thermal conductivity. They will have given reasons, based on evidence from comparative and fair tests, for the particular use of everyday materials, including metals, wood and plastic.</p>	<p><b>Vocab:</b> conductor, insulator, transparency, durable, permeable, flammable, reflective</p>
<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>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)</li> <li>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)</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>demonstrate knowledge of different properties of materials and classified materials according to these properties</li> <li>state why an object is made from a certain material</li> <li>suggest other materials that would also be suitable</li> </ul>
<h2>SUMMER 2</h2>	
<p><u>Forces</u> In this unit children will have learnt about a variety of forces including gravity, air resistance, water resistance and friction. They will have explored how simple mechanisms can be used to make work easier. They will have observed and explained how gravity causes an unsupported object to fall towards the Earth. They will have researched the relative effects of the gravitational pull on other planets. Children will have carried out a range of activities to identify the effects of friction, air resistance, and water resistance and will consider ways of reducing water resistance through streamlining.</p>	<p><b>Vocab:</b> gravity, force, weight, mass, friction, air resistance, water resistance</p>
<p><u>Required prior knowledge</u> Children should know:</p> <ul style="list-style-type: none"> <li>This unit builds on the work children did in Year 3 Magnets and Forces.</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>can explain that unsupported objects fall towards the Earth because of the force of gravity</li> <li>understand friction as a force</li> <li>describe how air resistance slows objects down as they fall back to the Earth</li> <li>recognise that levers can be used to reduce the force</li> </ul>

		needed to lift a load
<b>Y6</b>	<b>AUTUMN 1</b>	
	<u>Light and Sight</u> In this unit children will learn about how light travels and that we see things because light travels from light sources to our eyes, or from light sources to objects and then to our eyes. They will learn that shiny or reflective surfaces alter the direction in which light travels. Children will have the opportunity to solve problems related to everyday life about how light travels and how we see. Children will also investigate and explain the shapes of shadows, and relate this to light travelling in straight lines.	<b>Vocab: light, light source, periscope, spectrum, reflection, refraction, shadow</b>
	<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"> <li>• Recognise that they need light in order to see things and that dark is the absence of light. (Y3 - Light)</li> <li>• Notice that light is reflected from surfaces. (Y3 - Light)</li> <li>• Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light)</li> <li>• Recognise that shadows are formed when the light from a light source is blocked by an opaque object. (Y3 - Light)</li> <li>• Find patterns in the way that the size of shadows change. (Y3 - Light)</li> </ul>	<u>End point</u> <ul style="list-style-type: none"> <li>• explain that light travels in straight lines from a source where it enters the eye causing images to be seen</li> <li>• describe and explain how objects and shiny surfaces reflect light</li> <li>• be able to plan and carry out an investigation into which material reflects most light and report on their findings</li> <li>• use the idea that light travels in straight lines to explain the shapes of shadows</li> </ul>
	<b>AUTUMN 2</b>	
<u>Our Bodies</u> In this unit children will work towards answering the Quest question, 'How can we stay healthy?' They will have recognised the impact of diet, exercise and lifestyle choices on the way their bodies function. Children will learn that there are many different but related aspects to keeping healthy. They will investigate the functions of the heart and circulatory system and will describe how nutrients and water are transported in human and animal bodies.	<b>Vocab: nutrients, organs, veins, blood, blood vessel, arteries, capillaries</b>	
<u>Required prior knowledge</u>	<u>End point</u>	

<p>Children should know:</p> <ul style="list-style-type: none"> <li>• The importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans)</li> <li>• 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)</li> <li>• Describe the simple functions of the basic parts of the digestive system in humans. (Y4 - Animals, including humans)</li> <li>• Identify the different types of teeth in humans and their simple functions. (Y4 - Animals, including humans)</li> </ul>	<ul style="list-style-type: none"> <li>• identify the main parts of the human circulatory system</li> <li>• describe the functions of the heart, blood vessels and blood</li> <li>• describe how water and nutrients are transported throughout the body</li> <li>• investigate the effect of exercise on pulse rates</li> <li>• recognise the impact of diet, exercise and drugs on the way their bodies function and communicate this information in a number of different ways</li> </ul>
<h2>SPRING 1</h2>	
<p><u>Classifying Living Things</u></p> <p>In this unit children will learn how to classify living things using the major classification kingdoms defined by Carl Linnaeus. They will identify and describe the observable characteristics of a range of classification groups including micro-organisms, plants and animals. They will compare the similarities and differences between different species of buttercup and earthworm. Children will make careful observations to identify the characteristics that help scientists classify all living things, such as whether a living thing has a backbone and how they reproduce. Children will also be able to use their observations to construct classification keys of increasing complexity. They will use evidence from their investigation to predict and investigate how to accelerate the rate of decay in a mini-composter.</p>	<p><b>Vocab:</b> mammal, amphibian, reptile, bird, fish, characteristics, vertebrate/invertebrate, organism, species, key</p>
<p><u>Required prior knowledge</u></p> <p>Children should know:</p> <ul style="list-style-type: none"> <li>• Recognise that living things can be grouped in a variety of ways. (Y4 - Living things and their habitats)</li> <li>• 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)</li> <li>• Describe the differences in the life cycles of a mammal,</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>• recognise that living things are classified into broad groups according to common observable characteristics</li> <li>• identify similarities and differences between a wide range of different living things including micro-organisms, plants and animals</li> <li>• offer reasons for classifying plants and animals based on their characteristics</li> </ul>

<p>an amphibian, an insect and a bird. (Y5 - Living things and their habitats)</p> <ul style="list-style-type: none"> <li>Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)</li> </ul>	
<h2 style="margin: 0;">SPRING 2</h2>	
<p><u>Changing Circuits</u></p> <p>In this unit children will work towards answering the Quest question, 'How can we fix a broken score board?' They will recognise and use accepted scientific symbols in circuit diagrams. They will learn that altering the brightness of bulbs and the volume of a buzzer can be achieved in different ways, including changing the number of components, battery voltage, or the properties of the wires in the circuits. They will apply their knowledge of complete circuits to make quiz cards and provide a solution to the score board Quest question.</p>	<p><b>Vocab:</b> voltage, switch, current, cell, conductor, circuit, buzzer, bulb</p>
<p><u>Required prior knowledge</u></p> <p>Children should know:</p> <ul style="list-style-type: none"> <li>Identify common appliances that run on electricity. (Y4 - Electricity)</li> <li>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (Y4 - Electricity)</li> <li>Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. (Y4 - Electricity)</li> <li>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)</li> <li>Recognise some common conductors and insulators, and associate metals with being good conductors. (Y4 - Electricity)</li> </ul>	<p><u>End point</u></p> <ul style="list-style-type: none"> <li>provide a solution to the Quest question, 'How can we fix a broken score board?'</li> <li>use recognised symbols in circuit diagrams correctly</li> <li>discuss analogies and offer their own explanations for the results of their investigations about altering brightness of bulbs and volume of buzzers</li> </ul>
<h2 style="margin: 0;">SUMMER 1</h2>	
<p><u>Evolution and Inheritance</u></p> <p>In this unit children will have worked towards answering the Quest question 'How do living things evolve?' They will have</p>	<p><b>Vocab:</b> evolution, adaptation, environment, inherit, fossil, inherit, reproduction, variation</p>

investigated how living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. They will have had the opportunity to make a visit (real or virtual) to a Natural History museum and they will have constructed a geological timeline. Children will have identified how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. They will have explored the principle of inheritance, recognising that living things produce offspring of the same kind, but that normally such offspring vary and are not identical to their parents. Children will have researched how plants and animals are adapted to suit their environment in different ways and they will have identified some beneficial adaptations that may lead to evolution. They will have explored natural selection and designed their own species.

### Required prior knowledge

Children should know:

- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. (Y2 - Living things and their habitats)
- Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks)
- Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)
- Describe the life process of reproduction in some plants and animals. (Living things and their habitats - Y5)

### End point

- be able to describe how evolution by means of natural selection occurs over time
- be able to relate this to more modern examples of inheritance and selective breeding in, for example, dogs
- describe the life stories and discoveries of key scientists in the field of evolutionary biology

**SUMMER 2**

	<u>Review and Celebration</u> Retrieval practice of previously taught Y6 units.	<b>Vocab:</b> (varied)
	<u>Required prior knowledge</u> Children should know: <ul style="list-style-type: none"><li>•</li></ul>	<u>End point</u> <ul style="list-style-type: none"><li>• reinforced knowledge of previously taught units</li></ul>