

# The Craylands School KS1 Long term subject: Science

<p><b>Aims</b></p> <p>develop <b>scientific knowledge and conceptual understanding</b> through the specific disciplines of biology, chemistry and physics</p> <ul style="list-style-type: none"> <li>develop understanding of the <b>nature, processes and methods of science</b> through different types of science enquiries that help them to answer scientific questions about the world around them</li> <li>are equipped with the scientific knowledge required to understand the <b>uses and implications</b> of science, today and for the future.</li> </ul>	
<p><b>Skills</b></p> <p>asking simple questions and recognising that they can be answered in different ways</p> <ul style="list-style-type: none"> <li>observing closely, using simple equipment</li> <li>performing simple tests</li> <li>identifying and classifying</li> <li>using their observations and ideas to suggest answers to questions</li> <li>gathering and recording data to help in answering questions.</li> </ul>	<p><b>Knowledge</b></p> <p><b>Plants</b></p> <p>identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <ul style="list-style-type: none"> <li>identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul> <p><b>Animals including humans</b></p> <p>identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <ul style="list-style-type: none"> <li>identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> </ul> <p>describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <ul style="list-style-type: none"> <li>identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul> <p><b>Everyday materials</b></p> <p>distinguish between an object and the material from which it is made</p>

	<ul style="list-style-type: none"> <li>▪ identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>▪ describe the simple physical properties of a variety of everyday materials</li> <li>▪ compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul> <p>Seasonal changes</p> <p>observe changes across the four seasons</p> <ul style="list-style-type: none"> <li>▪ observe and describe weather associated with the seasons and how day length varies.</li> </ul>		
<i>Study famous linked Scientists who persevered and overcame challenges and embodied what it means to be a Craylearner.</i>			
	Term 1		
Early Years	Work will be planned around the following 7 areas of learning: Personal Social and Emotional Development, Physical Development, Communication and Language, Literacy, Mathematics, Understanding of the World and Expressive Arts and Design.		
<b>Year 1 Term 1 and ongoing</b>	<b>Seasonal change</b>		
<b>Link to STAR</b>	<b>What is it like where we live? Has where we live always been like this?</b>		
Link to prior learning			
Vocabulary	<table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> <ul style="list-style-type: none"> <li>• Seasons; spring, summer, autumn, winter</li> <li>• Year, months, days</li> <li>• Hot, warm, mild, cold</li> <li>• Sunny</li> <li>• Cloudy</li> </ul> </td> <td style="vertical-align: top; width: 50%;"> <ul style="list-style-type: none"> <li>• Rain, sleet, snow, hail, thunder, lightning, rainbow</li> <li>• Wet, damp, dry</li> <li>• Windy, breezy, gust</li> <li>• Temperature</li> <li>• Degrees Celsius</li> <li>• Thermometer</li> <li>• Weather vane</li> <li>• Anemometer</li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li>• Seasons; spring, summer, autumn, winter</li> <li>• Year, months, days</li> <li>• Hot, warm, mild, cold</li> <li>• Sunny</li> <li>• Cloudy</li> </ul>	<ul style="list-style-type: none"> <li>• Rain, sleet, snow, hail, thunder, lightning, rainbow</li> <li>• Wet, damp, dry</li> <li>• Windy, breezy, gust</li> <li>• Temperature</li> <li>• Degrees Celsius</li> <li>• Thermometer</li> <li>• Weather vane</li> <li>• Anemometer</li> </ul>
<ul style="list-style-type: none"> <li>• Seasons; spring, summer, autumn, winter</li> <li>• Year, months, days</li> <li>• Hot, warm, mild, cold</li> <li>• Sunny</li> <li>• Cloudy</li> </ul>	<ul style="list-style-type: none"> <li>• Rain, sleet, snow, hail, thunder, lightning, rainbow</li> <li>• Wet, damp, dry</li> <li>• Windy, breezy, gust</li> <li>• Temperature</li> <li>• Degrees Celsius</li> <li>• Thermometer</li> <li>• Weather vane</li> <li>• Anemometer</li> </ul>		

Learning objectives	Context	Skills	Knowledge
To be able to observe and describe weather associated with the seasons.	What is the weather like today? What season are we in? How do we measure what the weather is like?	To be able to ask simple questions and recognise that they can be answered in different ways.	Can they describe weather associated with the seasons?
To be able to observe and describe weather associated with the seasons.	How can we measure how much rain falls in different seasons?	To be able to observe closely, using simple equipment.  To be able to gather data to answer a question.	Can they describe weather associated with the seasons?
To be able to observe and describe weather associated with the seasons.	How do we measure how warm it is?	To be able to observe closely, using simple equipment.  To be able to gather data to answer a question.	Can they describe weather associated with the seasons?
To be able to observe and describe weather associated with the seasons.	Is the sun always bright in every season?	To be able to observe closely, using simple equipment.	Can they describe weather associated with the seasons?
To be able to observe and describe how day length varies.	Does it get darker earlier in some seasons than in others?	To be able to gather data to answer a question.	Can they observe and describe weather associated with the seasons and how day length varies?
To be able to observe changes across the four seasons.	What happens to nature in different seasons?	To be able to gather and record data to help answer a question.	Can they observe and describe weather associated with the seasons and how day length varies?

<i>To learn about John Dalton, a British weather Pioneer (b.1766)</i>	<i>What did he invent?</i>	<i>Use homemade instruments, like Dalton, to measure the weather and to make recordings.</i>	<i>John Dalton was the first person in Britain to make and use instruments to record the weather. The earliest weather records of Britain that we have are Daltons.</i>
<b>Year 1 Term 2 &amp; 3</b>	Everyday materials		
<b>Link to STAR</b>	<b>What is it like where we live? Has where we live always been like this?</b>		
Links to prior learning			
Vocabulary	<ul style="list-style-type: none"> <li>• <b>Types of materials:</b> wood, plastic, glass, metal, water, rock, brick, fabric, sand, paper, flour, butter, milk, soil</li> <li>• <b>Properties of materials:</b> hard/soft, stretchy/not stretchy, shiny/dull, rough/smooth, bendy/not bendy, transparent/not transparent, sticky/not sticky</li> <li>• <b>Verbs associated with materials:</b> crumble, squash, bend, stretch, twist</li> <li>• <b>Senses:</b> touch, see, hear, smell and taste</li> </ul>		
Learning objectives	Context	Skills	Knowledge
<p>To be able to distinguish between an object and the material from which it is made.</p> <p>To be able to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p>	What is this object made of? What materials do you know of?	<i>To be able to identify and classify.</i>	<p>Can they distinguish between an object and the material from which it is made?</p> <p>Can they identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock?</p>
<p>To be able to describe the simple physical properties of a variety of everyday materials.</p> <p>To be able to compare and group together a</p>	How would you describe this material? What words can we use to describe what a material is like?	<i>To be able to observe carefully , using simple equipment.</i>	<p>Can they describe the simple physical properties of a variety of everyday materials?</p> <p>Can they compare and group together a variety of everyday materials on the basis of their simple physical properties?</p>

<p>variety of everyday materials on the basis of their physical properties.</p>			
<p>To be able to describe the simple physical properties of a variety of everyday materials.</p> <p>To be able to compare and group together a variety of everyday materials on the basis of their physical properties.</p>	<p>Is this material shiny? Is it smooth? Is it tough?</p>	<p>To be able to ask simple questions. To be able to identify and classify.</p>	<p>Can they describe the simple physical properties of a variety of everyday materials?</p> <p>Can they compare and group together a variety of everyday materials on the basis of their simple physical properties</p> <p>Can they identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock?</p>
<p>To be able to distinguish between an object and the material from which it is made.</p> <p>To be able to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p>	<p>What happens to this material when it is heated and/or cooled?</p>	<p>To be able to perform simple tests.</p>	<p>Can they distinguish between an object and the material from which it is made?</p> <p>Can they identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock?</p>

<p>To able to describe the simple physical properties of a variety of everyday materials.</p> <p>To be able to compare and group together a variety of everyday materials on the basis of their physical properties.</p>	<p>Which fabric is best to use to make a jacket? What does a jacket need to be?</p>	<p>To be able to record simple data in order to answer a question.</p> <p>To be able to make simple measurements with equipment (non-statutory).</p>	<p>Can they describe the simple physical properties of a variety of everyday materials?</p> <p>Can they compare and group together a variety of everyday materials on the basis of their simple physical properties</p>
<p>To be able to compare and group together a variety of everyday materials on the basis of their physical properties.</p>	<p>Which materials would make the best crash mat?</p>	<p>To be able to record simple data in order to answer a question.</p>	<p>Can they describe the simple physical properties of a variety of everyday materials?</p> <p>Can they compare and group together a variety of everyday materials on the basis of their simple physical properties</p>
<p><b>Year 1 Term 4 &amp; 5</b></p>	<p>Plants</p>		
<p><b>Links to STAR</b></p>			
<p>Links to prior learning</p>			
<p>Vocabulary</p>	<ul style="list-style-type: none"> <li>• Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc</li> <li>• Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd’s purse, sorrel, spear thistle, white campion, white deadnettle and yarrow.</li> <li>• Garden plants – crocus, daffodil, bluebells, etc</li> <li>• Parts of plants – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs</li> </ul>		

Learning objectives	Context	Skills	Knowledge
To be able to identify and name a variety of common plants, including garden plants, wild plants and trees.	Are these plants the same as each other? Do you know the names of any plants?	<p>To be able to observe closely.</p> <p>To be able to ask simple questions and recognise that they can be answered in different ways.</p>	Can they identify and name a variety of common wild and garden plants, including deciduous and evergreen trees?
To be able to identify and describe roots.	What is this part of a plant called? Do they all look the same?	To be able to observe carefully using simple equipment.	Can they identify and describe the basic structure of a variety of common flowering plants – the roots?
To be able to identify and describe flowers.	What is this part of a plant called? Do they all look the same?	To be able to use parts of the plant to identify and classify it.	Can they identify and describe the basic structure of a variety of common flowering plants – the flowers?
To be able to identify and describe trunks.	What is this part of a plant called? Do they all look the same?	To be able to use simple features of a plant to sort and group them (non-statutory).	Can they identify and describe the basic structure of a variety of common flowering plants – the trunk?
To be able to describe and identify trees by looking observing their leaves.	What is this part of a plant called? Do they all look the same?		Can they identify and describe the basic structure of a variety of common flowering plants – the leaves?
To be able to identify and describe the basic structure of a variety of common plants including roots,	What is the same about these plants and what is different?	To be able to ask simple questions and recognise the ways in which they can be answered.	Can they identify and describe the basic structure of a variety of common flowering plants, including trees?

stem/trunk, leaves and flowers.			
<b>Year 1 Term 5 &amp; 6</b>	<b>Animals including humans</b>		
<b>Links to STAR</b>	<b>Where do people go on holiday abroad and the UK? What were holidays like in the past?</b>		
Link to prior learning			
Vocabulary	<ul style="list-style-type: none"> <li>• Birds, fish, amphibians, reptiles, mammals and invertebrates</li> <li>• Feathers, scales, gills, fins, hair, land, water, backbone, skeleton</li> <li>• Carnivores, herbivores, omnivores</li> <li>• Meat, plants</li> <li>• (Common parts/structures of animals)</li> <li>• (Names of animals that can be found in the school grounds)</li> <li>• (Names of animals that the children keep as pets)</li> </ul>		
<b>Learning objectives</b>	<b>Context</b>	<b>Skills</b>	<b>Knowledge</b>
To be able to identify, name draw and label the basic parts of the human body.	What is this part of the body called?		Can they identify, name, draw and label the basic parts of the human body?
To know which part of the body is associated with each sense.	How do we see, smell, hear, taste and touch?	To be able to observe closely, using simple equipment.	Can they identify the basic parts of the human body and say which part of the body is associated with each sense?
To describe living things	What do these living things look like? How can we record our observations?	To be able to record data in a table.	Can they describe and compare the structure of a variety of living things?

To be able to identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.	What is the same and what is different about these animals? Can we group them?	To be able to sort and group animals with some help (non-statutory).	Can they identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
To be able identify and name a variety of common animals that are carnivores, herbivores and omnivores.	What do these animals eat?	To be able to record data in simple ways (Venn diagram).	Can they identify and name a variety of common animals that are carnivores, herbivores and omnivores
To be able to describe and compare the structure of a variety of common animals.	How would you describe this animal?		Can they describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)
<i>To learn about Geerat Vermeij, a dutch marine scientist and paleobiologist (b.1946)</i>	<i>What did he discover? What can we learn from him?</i>	<i>Investigate shells and sea creatures purely by touch (close your eyes) like Geerat.</i>	<i>Geerat Vermeij was born with glaucoma and was completely blind by the age of 3. When he was 10 he moved to the USA. He made crucial discoveries about the form and function of shells and how they protect the creatures from their predators.</i>
<b>Year 2 Term 1 &amp; 2</b>	Use of everyday materials		
Links to prior learning	Year 1 . <ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made.</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, water and rock.</li> <li>• Describe the simple physical properties of a variety of everyday materials.</li> <li>• Compare and group together a variety of everyday materials on the basis of their physical properties.</li> </ul>		
Vocabulary	<b>Types of materials:</b> wood, plastic, glass, metal, water, rock, brick, fabric, sand, paper, flour, butter, milk, soil		

	<p><b>Properties of materials:</b> hard/soft, stretchy/not stretchy, shiny/dull, rough/smooth, bendy/not bendy, transparent/not transparent, sticky/not sticky</p> <p><b>Verbs associated with materials:</b> crumble, squash, bend, stretch, twist</p> <p><b>Senses:</b> touch, see, hear, smell and taste</p>		
Learning objectives	Context	Skills	Knowledge
<p>To be able to distinguish between an object and the material from which it is made.</p> <p>To be able to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p>	<p>What is this made out of? Why do you think this?</p>	<p>To be able to ask simple questions and recognise that they can be answered in different ways.</p>	<p>Can they name different materials and explain why they have been chosen to be used in the way that they have?</p>
<p>To be able to identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard.</p>	<p>Can you think of something that is stretchy?</p>		<p>Can they name different materials and explain why they have been chosen to be used in the way that they have?</p>
<p>To be able to identify and compare the uses of a variety of everyday materials, including wood, metal, plastic,</p>	<p>Which material could be used to stop water from leaking out of a hole in a bucket?</p>	<p>To be able to use simple measurements to gather data.</p>	<p>Can they name different materials and explain why they have been chosen to be used in the way that they have?</p>

glass, brick, rock, paper and cardboard.			
To be able to identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	What objects can we see light through?	<p>To be able to use simple secondary sources to find answers (non-statutory).</p> <p>To be able to talk about what they have found out and how they found it out (non-statutory).</p>	Can they name different materials and explain why they have been chosen to be used in the way that they have?
To be able to identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	On which surface would a toy car travel furthest on?	To be able to, with help, notice relationships (non-statutory).	Can they explain the use of different materials and why they have been chosen?
To be able to find out how the shapes of solid objects made from some materials can be changed by squashing,	How can we change the shape of these objects?		Can they understand how the shape of some objects from some materials can be changed by squashing, bending, twisting and stretching?

bending, twisting and stretching.			
<b>Year 2 Term 2 &amp; 3</b>	<b>Animals including humans</b>		
<b>Links to STAR</b>	<b>How did the Victorians change nursing?</b>		
Links to prior learning	<p>Year 1</p> <p>Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals</p> <ul style="list-style-type: none"> <li>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles and mammals, and including pets).</li> <li>Identify, name draw and label the basic parts of the human body and say which parts of the body is associated with each sense.</li> </ul>		
Vocabulary	<ul style="list-style-type: none"> <li>Classification - Birds, fish, amphibians, reptiles, mammals and invertebrates</li> <li>Classification - Carnivores, herbivores, omnivores</li> <li>Stages of growth of many insects – egg, larva, pupa, adult</li> <li>Names of some invertebrates – ladybirds, butterflies, dragonflies, etc</li> <li>Names of some amphibians – smooth newt, common frog, toad</li> <li>Stages of life –baby, toddler, child, teenager, adult</li> <li>Life processes – growth, nutrition (feeding), respiration (breathing is part of this)</li> <li>Hygiene – clean, wash, germs</li> <li>Foods – healthy, grow, strong, energy</li> </ul>		
Learning objectives	Context	Skills	Knowledge
To know that animals have offspring that grow into adults.	How do we start off in this world? What do we grow into?	<p>To be able to use observations to suggest answers to questions.</p> <p>To be able to record data (flow diagram).</p>	Can they explain that animals, including humans, have offspring which grow into adults?
To know that human offspring grow into adults.	How are babies different to adults?	To be able to record data (flow diagram).	

To be able to find out about and describe the basic needs of animals, including humans, for survival (water, food and air).	What do we need to have every day?		Can they describe the basic needs of animals, including humans, for survival (water, food and air)
To know the importance for humans of eating the right amounts of different types of food.	What does it mean to be healthy?		Can they describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene?
To know the importance for humans of exercise.	How much exercise should we have?	To be able to record data (table). To be able to perform a simple test.	Can they describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene?
<i>To learn about Susan Laflesche Picotte, a government doctor (b.1865)</i>	<i>What can we learn from her?</i>	<i>Investigate, like Susan did, why it is important to be hygienic?</i>	<i>Susan was born on the Ohama reservation, she was mixed race and linked to the Native American Omaha tribe. Her father became chief of the tribe in 1855. She was the first ever Native American Doctor. She taught people about how to live healthily, hygiene and cleanliness and reduced disease, particularly among the Native Americans. She broke down huge barriers for women and Native American people.</i>
<b>Year 2 Term 3 &amp; 4</b>	Plants		
Links to prior learning	Year 1		

	Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen Identify and describe the basic structure of a variety of common plants including roots, stem/trunk, leaves and flowers.		
Vocabulary	<p><b>Trees</b> - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc</p> <p><b>Wild flowering plants</b> - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow.</p> <p><b>Garden plants</b> – crocus, daffodil, bluebells, etc</p> <p><b>Parts of plants</b> – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs</p> <p><b>Need of plants</b> – water, light, heat, temperature</p>		
Learning objectives	Context	Skills	Knowledge
To be able to observe closely using simple equipment. To be able to sort objects using observable features (non-statutory).	What does this seed look like?	To be able to observe closely using simple equipment. To be able to sort objects using observable features (non-statutory).	Can they use words to describe different seed?
To be able to observe how bulbs grow into mature plants.	How can we make this bulb grow well?	To be able to recognise that questions can be answered in a range of ways. To be able to perform a simple test.	Can they describe what a bulb needs in order to grow healthily?
To be able to observe and describe how seeds grow into mature plants.	How can we grow seeds?	To be able to gather and record data to help in answering a question.	Can they describe what a seed needs in order to grow healthily?

To be able to observe and describe how seeds grow into mature plants.	Do all seeds begin to grow the same way?	To be able to gather and record data to help in answering a question.  To use their observations and ideas to suggest answers to questions.	Can they use words to describe different describe how seeds and bulbs grow into mature plants?
To be able to find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	How hot does it need to be for plants to grow?	To use their observations and ideas to suggest answers to questions.	Can they describe how plants need water, light and a suitable temperature to grow and stay healthy?
To be able to find out and describe how plants need light to grow and stay healthy.	Can I grow a plant in the dark?		Can they describe how plants need water, light and a suitable temperature to grow and stay healthy?
<b>Year 2 Term 5 &amp; 6</b>	<b>All living things and their habitats</b>		
<b>Links to STAR</b>	Are all parts of the world we live on the same?		
Links to prior learning			
Vocabulary	Habitat, micro habitat Pond, meadow, log pile, woodland, river, lake, beach, cliff Organism – plant, animal <b>Trees</b> - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc <b>Wild flowering plants</b> - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd’s purse, sorrel, spear thistle, white campion, white deadnettle and yarrow. <b>Garden plants</b> – crocus, daffodil, bluebells, etc <b>Parts of plants</b> – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs		

	<b>Invertebrates</b> – snail, slug, woodlouse, spider, beetle, fly, etc <b>Pond animals</b> – pond skater, water slater, ramshorn snail, pond snail, leech, common frog, smooth newt, etc		
Learning objectives	Context	Skills	Knowledge
<p>To be able to explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>To be able to identify and name a variety of plants and animals in their habitats, including micro-habitats.</p>	<p>Are all parts of the planet the same? What living things live near the school?</p>	<p>To be able to ask simple questions and recognise that they can be answered in different ways.</p>	<p>Can they identify and name a variety of plants and animals in their habitats, including micro-habitats</p>
<p>To be able to 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 be able to identify and name a variety of plants and animals in their habitats, including micro-habitats.</p>	<p>Which animals live in the sea? In the desert? In the cold? Why do they live there?</p>		<p>Can they 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?</p>

<p>To be able to 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>Can you see this animal? How has it hidden itself?</p>	<p>To be able to gather and record data to help answer a question.</p>	<p>Can they 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?</p>
<p>To be able to 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 be able to identify and name a variety of plants and animals in their habitats, including micro-habitats.</p>	<p>What do animals do in their habitat?</p>		<p>Can they 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?</p>

<p>To be able to 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>What do animals eat in their habitat?</p>	<p>To be able to observe using a microscope/hand lens.</p>	<p>Can they 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 be able to explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>To be able to 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>Is a plant a living thing? Why?</p>	<p>To be able to use observations to suggest answers to questions.</p>	<p>Can they understand the differences between things that are living, dead, and things that have never been alive?</p>
<p>To be able to identify that most living things live in habitats to which</p>	<p>Do animals need plants? Do plants need animals? How?</p>		<p>Can they describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and</p>

<p>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>identify and name different sources of food.</p>
<p><i>To learn about Temple Grandin (b.1947) an animal psychologist.</i></p>	<p><i>What can we learn about animals from her?</i></p>	<p><i>Investigate how animals in their habitats react to sound, vibration and light? (Through observation, in a humane way).</i></p> <p><i>Handle animals sensitively and humanely.</i></p>	<p><i>As a person with Autism her extreme sensitivity to detail and environmental change has been vital for her insight into the minds of cattle and domesticated animals. As a teenager Temple realised that the distress she felt from heightened sensitivity animals felt too. She designed humane environments and facilities for livestock, such as cattle. She has campaigned for the rights of all animals. She created the humane-handling guidelines for the American Meat Institute which are now widely followed in America.</i></p>

## The Craylands School KS2 Long term subject: Science

Aims			
develop <b>scientific knowledge and conceptual understanding</b> through the specific disciplines of biology, chemistry and physics			
<ul style="list-style-type: none"> <li>▪ develop understanding of the <b>nature, processes and methods of science</b> through different types of science enquiries that help them to answer scientific questions about the world around them</li> <li>▪ are equipped with the scientific knowledge required to understand the <b>uses and implications</b> of science, today and for the future.</li> </ul>			
<b>Year 3 Term 1</b>	<b>Forces and magnets</b>		
Link to prior learning			
Vocabulary	<ul style="list-style-type: none"> <li>• Magnets – bar and horseshoe</li> <li>• Attract, repel</li> <li>• North and south poles</li> <li>• Magnetic</li> <li>• Magnetic field</li> </ul>		
Learning objectives	Context	Skills	Knowledge
To be able to compare how things move on different surfaces.	How can we make this tub move along these surfaces?	<p>To be able to set up a simple fair-test.</p> <p>To be able to record findings in a bar chart.</p> <p>To be able to identify changes related to scientific ideas.</p>	Can they describe how things move on different surfaces?
To be able to compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet,	What is a magnet? What is it used for?	To be able to use results to draw simple conclusions.	Can they name magnetic materials?

and identify some magnetic materials.			
To be able to 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.	Will a magnet work through this material?	To be able to provide an oral explanation of findings.	Can they name magnetic materials?
To be able to notice that some forces need contact between two objects, but magnetic forces can act at a distance.	Which of these magnets are stronger?	To be able to make systematic and careful observations.	Can they explain how magnetic forces act at a distance whilst others need contact between two objects?
To be able to notice that some forces need contact between two objects, but magnetic forces can act at a distance.	How can we make a compass using magnets?		Can they explain how magnetic forces act at a distance whilst others need contact between two objects?
To be able to predict whether two magnets will attract or repel each	What happens when these sides of a magnet touch? What about these sides?		Can they recognise north and south poles on a magnet and explain which will attract and which will repel?

other, depending on which poles are facing.  To be able to describe magnets as having two poles.			
<b>Year 3 Term 2</b>	Light		
Links to prior learning			
Vocabulary	<ul style="list-style-type: none"> <li>• <b>Simple comparisons:</b> dark, dull, bright, very bright</li> <li>• <b>Comparative vocabulary:</b> brighter, duller, and darker</li> <li>• <b>Superlative vocabulary:</b> brightest, dullest, and darkest</li> <li>• Opaque, translucent, transparent</li> <li>• <b>Shadow</b> – block, absence of light</li> <li>• Reflect – bounce, mirror, reflection</li> <li>• See – light source</li> <li>• Sun – sunset, sunrise, position</li> </ul>		
Learning objectives	Context	Skills	Knowledge
To be able to recognise that they need light in order to see things and that dark is the absence of light.	Think of a place where you can not see anything.	To be able to record findings as drawings.	Can they recognise that they need light in order to see things and that dark is the absence of light?
To be able to notice that light is reflected from surfaces.	Where can you see shadows?		<p>Can they identify that light is reflected off of surfaces?</p> <p>Can they explain that shadows are formed when light is blocked?</p>

<p>To be able to recognise that shadows are formed when the light from a light source is blocked by a solid object.</p>			
<p>To be able to find patterns in the way that the size of shadows change.</p>	<p>How can I change the size of this shadow?</p>	<p>To be able to set up a simple fair test.</p> <p>To be able to make systematic and careful observations and measurements.</p> <p>To be able to record findings as a bar chart.</p>	<p>Can they explain how to change the size and shape of a shadow?</p>
<p>To be able to find patterns in the way that the size of shadows change.</p>	<p>How can I change the size of this shadow?</p>	<p>To be able to make systematic and careful observations and measurements.</p> <p>To be able to make predictions for further values.</p>	<p>Can they explain how to change the size and shape of a shadow?</p>
<p>To be able to find patterns in the way that the size of shadows change.</p>	<p>How can I change the length of this shadow?</p>		<p>Can they explain how to change the size and shape of a shadow?</p>
<p>To be able to find patterns in the way that the size of shadows change.</p>	<p>How can we use shadows to tell the time?</p>		<p>Can they explain how to change the size and shape of a shadow?</p>

Year 3 Term 3 & 4	Rocks		
Links to STAR	What was life like in the Stone Age		
Links to prior learning	<p style="text-align: center;">Year 1</p> <ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made.</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, water and rock.</li> <li>• Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their physical properties.</li> </ul> <p style="text-align: center;">Year 2</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</li> </ul> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>		
vocabulary	<ul style="list-style-type: none"> <li>• <b>Names of rocks</b> – Chalk, limestone, granite, basalt, sandstone, flint, slate, shale, marble</li> <li>• <b>Types of rock</b> – Sedimentary, metamorphic, igneous</li> <li>• <b>Types of minerals</b> – Calcite, feldspar, topaz, diamond, talc, corundum</li> <li>• <b>Properties of rocks</b> – Hard/soft, permeable/impermeable</li> <li>• <b>Processes</b> – Heat, pressure, erosion, transportation, deposition, melt, solidify</li> <li>• <b>Size of rocks</b> – Grain, pebbles</li> <li>• <b>Rock describing words</b> – Crystals, layers</li> <li>• <b>Early areas of land</b> – Gondwana, Pangea</li> <li>• <b>Land formations</b> – Plates, volcanoes, mountains, valleys</li> </ul>		
Learning objectives	Context	Learning objectives	Context
To be able to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.	How were these rocks formed?		Can they compare and group together different kinds of rocks on the basis of their appearance and simple physical properties?

<p>To be able to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p>	<p>Which of these rocks will let water travel through it?</p>	<p>To be able to set up simple comparative tests.</p> <p>To be able to measure using beakers and syringes.</p>	<p>Can they recognise and name different rock types based on their properties?</p>
<p>To be able to describe in simple terms how fossils are formed when things that have lived are trapped within rock</p>	<p>What do we call these imprints in the rocks? How were these fossils made?</p>		<p>Can they explain how fossils are formed?</p>
<p>To be able to recognise that soils are made from rocks and organic matter.</p>	<p>What is soil made from?</p>	<p>To be able to set up simple comparative tests.</p> <p>To be able to present information in a branching key.</p>	<p>Can they explain how soil is made?</p>
<p>To be able to recognise that soils are made from rocks and organic matter.</p>	<p>How much water will this soil absorb?</p>	<p>To be able to set up simple comparative tests.</p> <p>To be able to measure using beakers and syringes.</p>	<p>Can they explain how soil is made?</p>
<p>To be able to use presentations to report on findings from enquiries.</p>	<p>If you were a farmer, what type of land would you want to use?</p>	<p>To be able to use presentations to report on findings from enquiries.</p>	

<p><i>To learn about Mary Anning (b. 1799) a nineteenth century fossil collector who developed paleontology.</i></p>	<p><i>How do we know how the Earth has developed over time?</i></p>	<p><i>To investigate fossils. To make a 3D mould from a fossil.</i></p>	<p><i>Mary's geological discoveries are some of the most important ever made in the field. They have provided key information for our understanding of the history of Earth and how the Earth has changed over time. She also played a central role in improving the work of the trained experts working in the field of geology.</i></p>
<p><b>Year 3 Term 5</b></p>	<p><b>Animals including humans</b></p>		
<p>Link to prior learning</p>	<p style="text-align: center;">Year 1</p> <ul style="list-style-type: none"> <li>• Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals</li> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>• Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles and mammals, and including pets).</li> <li>• Identify, name draw and label the basic parts of the human body and say which parts of the body is associated with each sense.</li> </ul> <p style="text-align: center;">Year 2</p> <ul style="list-style-type: none"> <li>• Notice that animals, including humans, have offspring which grow into adults</li> <li>• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>		
<p>Vocabulary</p>	<ul style="list-style-type: none"> <li>• Nutrition</li> <li>• Diet</li> <li>• Vitamins, minerals, fats, proteins and carbohydrates</li> </ul> <p style="text-align: center;">Functions of skeletons – protect, support and aid movement</p>		
<p>Learning objectives</p>	<p style="text-align: center;">Context</p>	<p style="text-align: center;">Skills</p>	<p style="text-align: center;">Knowledge</p>
<p>To know that animals cannot make their own food.</p>	<p>How do these animals get their food?</p>	<p style="color: blue;">To be able to record using drawings.</p>	<p>Can they understand that animals need food to live?</p>

<p>To know that animals, including humans, need the right amounts and types of food.</p>	<p>Why do animals eat different food?</p>	<p>To be able to report on findings from enquiries.</p>	<p>Can they provide examples of the food types needed for humans and animals to live?</p>
<p>To know that humans and some animals have skeletons and muscles for support, protection and movement.</p>	<p>Why do we have a skeleton?</p>	<p>To be able to use evidence to answer questions.</p>	<p>Can they name bones that make up the skeleton? Can they explain the function of muscles?</p>
<p>To know that humans and some animals have skeletons and muscles for support, protection and movement.</p>	<p>Why do we have muscles?</p>	<p>To be able to set up a comparative test.  To be able to record data in a table.</p>	<p>Can they name bones that make up the skeleton? Can they explain the function of muscles?</p>
<p>To be able to identify the correct type of enquiry to answer a question.  To be able to record data in a scatter graph (non-statutory).</p>	<p>Do people with the longest legs jump further?</p>	<p>To be able to identify the correct type of enquiry to answer a question.  To be able to record data in a scatter graph (non-statutory).</p>	

<p><i>To introduce Mary Agnes Chase, a Botanist, and explore what cattle eat.</i></p> <p><i>(See plants for further study of Mary).</i></p>	<p><i>What do animals eat?</i></p>	<p><i>To use a microscope to observe.</i></p>	<p><i>Mary discovered thousands of new species of grasses from around the world and authored many books. She figured out which grasses were best to feed livestock. A lot of today's food has been influenced by Mary's important research.</i></p>
<p><b>Year 3 Term 6</b></p>	<p>Plants</p>		
<p>Links to prior learning</p>	<ul style="list-style-type: none"> <li>• Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen Identify and describe the basic structure of a variety of common plants including roots, stem/trunk, leaves and flowers. Year 2</li> <li>• Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul>		
<p>Vocabulary</p>	<ul style="list-style-type: none"> <li>• <b>Trees</b> - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc</li> <li>• <b>Wild flowering plants</b> - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow.</li> <li>• <b>Garden plants</b> – crocus, daffodil, bluebells, etc</li> <li>• <b>Parts of plants</b> – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs</li> <li>• <b>Parts of a flower</b> – petal, stamen (anther + filament), carpel (stigma + style + ovary + ovule)</li> </ul> <p style="text-align: center;"><b>Processes</b> – pollination, fertilisation, germination</p>		
<p>Learning objectives</p>	<p>Context</p>	<p>Skills</p>	<p>Knowledge</p>
<p>To be able to identify and describe the function of the roots.</p>	<p>What are the different parts of a plant called? What do the roots do?</p>	<p><i>To be able to set up a simple practical enquiry.</i></p> <p><i>To be able to make systematic and careful observations.</i></p>	<p>Can they understand the purpose of roots in a plant?</p>
<p>To be able to investigate the ways in which water is</p>	<p>How can we tell if water travels around a plant?</p>		<p>Can they explain how water is transported throughout a plant?</p>

transported within plants.			
To be able to identify and describe the function of the stem	What does the stem of a plant do?	To be able to use results to draw simple conclusions.	Can they explain the function of the stem in a plant?
To be able to identify and describe the function of the leaves.	What happens to a plant if we take away sunlight from it?	To be able to gather and record data.	Can they explain the function of leaves in a plant?
To be able to explore the requirements of plants for life and growth (air, light, water, nutrients from soil).	What are nutrients and why do plants need them?	To be able to use results to draw simple conclusions.	Can they understand how plants need air, light, water and soil to grow healthily?
To be able to identify and describe the function of the flower.	What do the parts of a flower do?	To be able to use straightforward scientific evidence to answer questions or to support their findings.	
<i>To learn about Mary Agnes Chase (b.1869) a botanist.</i>	How do plants, including grass, support the food chain?	<i>To use a microscope to observe plants.</i> <i>To create technical drawings.</i>	Mary discovered thousands of new species of grasses from around the world and authored many books. She figured out which grasses were best to feed livestock. A lot of today's food has been influenced by Mary's important research.
<b>Year 4 Term 1</b>	States of matter		

Links to STAR	What happened at Pompeii?		
Links to prior learning	<p style="text-align: center;">Year 1</p> <ul style="list-style-type: none"> <li>• . Distinguish between an object and the material from which it is made.</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, water and rock.</li> <li>• Describe the simple physical properties of a variety of everyday materials.</li> </ul> <p style="text-align: center;">Compare and group together a variety of everyday materials on the basis of their physical properties.</p> <p style="text-align: center;">Year 2</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</li> </ul> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>		
Vocabulary	<ul style="list-style-type: none"> <li>• <b>States of matter</b> - Solid, liquid and gas</li> <li>• <b>Examples of gases</b> (at room temperature and pressure) – Oxygen, hydrogen, helium, carbon dioxide, methane</li> <li>• <b>Examples of liquids</b> (at room temperature and pressure) – Water, milk, juice, petrol, oil</li> <li>• <b>Examples of solids</b> (at room temperature and pressure) –Wood, rocks, metal, plastic, glass, wool, leather, etc</li> </ul> <ul style="list-style-type: none"> <li>• <b>Processes</b> – Melting, condensation, evaporation, solidifying, freezing</li> <li>• Water cycle</li> <li>• Water vapour</li> <li>• Steam</li> <li>• Heating</li> <li>• Cooling</li> </ul>		
Learning objectives	Context	Learning objectives	Context
To be able to compare and group materials together, according to whether they are solids, liquids or gases.	Which of these are solids, liquids or gases?		Can they compare and group materials together, according to whether they are solids, liquids or gases?
To be able to compare and group materials together, according to	What can we find out about a gas?	To be able to use results to draw simple conclusions.	Can they compare and group materials together, according to whether they are solids, liquids or gases?

whether they are solids, liquids or gases.			
To be able to 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).	What will happen when we heat this solid?	To be able to use a data logger to take accurate measurements. To be able to use a thermometer to take accurate measurements	Can they explain what happens when some materials are heated and cooled?  Can they understand that temperature is the measure of how hot something is and is measured in degrees Celsius?
To be able to 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).	Can we change the state of this wax? How?	To be able to provide a written explanation.	Can they explain what happens when some materials are heated and cooled?  Can they understand that temperature is the measure of how hot something is and is measured in degrees Celsius?
To be able to observe that some materials change state when they are heated or cooled, and measure or research the temperature at which	What happens to water when it is heated?	To be able to set up a fair test.	Can they explain what happens when some materials are heated and cooled?  Can they understand that temperature is the measure of how hot something is and is measured in degrees Celsius?

<p>this happens in degrees Celsius (°C).</p>			
<p>To be able to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>What happens in the processes of evaporation and condensation?</p>	<p>To be able to use straightforward scientific evidence to answer questions or to support their findings.</p>	<p>Can they explain what happens in the water cycle including evaporation and condensation?</p>
<p><i>To learn about Marie Tharp (b.1920) a famous geologist.</i></p>	<p>How do states of matter contribute to continental drift?</p>	<p><i>Use Google Earth and add the Marie Tharp Historical Map and compare her mapping with photos of the Ocean.</i></p>	<p>Marie-Tharp's work mapping the North Atlantic Ocean floor vastly improved our understanding of the Earth's crust. She provided evidence for seafloor spreading and continental drift- where Magma boils up from inside Earth's mantle and through the crust and is cooled and pushed away.</p>
<p><b>Year 4 Term 2</b></p>	<p><b>Sound</b></p>		
<p>Link to prior learning</p>			
<p>Vocabulary</p>	<ul style="list-style-type: none"> <li>• <b>Ways to create sound</b> – bang, blow, shake, and pluck</li> <li>• <b>Loudness</b> – quiet, quieter, quietest, loud, louder and loudest</li> <li>• <b>Pitch</b> - low, lower, lowest, high, higher, and highest</li> <li>• Vibrations</li> <li>• Source</li> </ul>		
<p>Learning objectives</p>	<p>Context</p>	<p>Skills</p>	<p>Knowledge</p>

<p>To be able to recognise that sounds get fainter as the distance from the sound source increases.</p>	<p>What sounds can you hear?</p>	<p>To be able to use a scientific enquiry to answer a question. To be able to set up a simple practical enquiry.</p>	<p>Can they recognise that sounds get fainter as the distance from the sound source increases?</p>
<p>To be able to recognise that sounds get fainter as the distance from the sound source increases.</p>	<p>Where in the school would be best to place a fire alarm?</p>	<p>To be able to use a scientific enquiry to answer a question.  To be able to set up a simple practical enquiry.  To be able to make systematic and careful measurements with a data logger.</p>	<p>Can they recognise that sounds get fainter as the distance from the sound source increases?</p>
<p>To be able to identify how sounds are made, associating some of them with something vibrating.</p>	<p>How are these sounds made?</p>	<p>To be able to use a scientific enquiry to answer a question.</p>	<p>Can they explain how sounds are made, associating some of them with something vibrating?</p>
<p>To be able to recognise that vibrations from a sound travel through a medium to the ear.  To be able to find patterns between the</p>	<p>How do we hear the sound from what has made it?</p>	<p>To be able to report on findings from an enquiry.  To be able to identify differences, similarities or changes related to simple scientific ideas.</p>	<p>Can they explain how we hear through vibrations from a sound travel through a medium to the ear?</p>

volume of a sound and the strength of the vibrations that produced it.			
To be able to find patterns between the volume of a sound and the strength of the vibrations that produced it.	How can we change how loud a sound is?	<p>To be able to report on findings from an enquiry.</p> <p>To be able to identify differences, similarities or changes related to simple scientific ideas.</p> <p>To be able to make systematic and careful measurements with a data logger.</p>	Can they recognise that the volume of a sound and the strength of the vibrations that produced it are linked?
To be able to find patterns between the pitch of a sound and features of the object that produced it.	How can we change how high a sound is?	To be able to use a scientific enquiry to answer a question.	Can they find patterns between the pitch of a sound and features of the object that produced it?
<b>Year 4 Term 3 &amp; 4</b>	Electricity		
Links to prior learning			
Vocabulary	<ul style="list-style-type: none"> <li>• Electricity</li> <li>• <b>Appliances:</b> fridge, freezer, TV, computer, iron, kettle, etc</li> <li>• Series circuit</li> <li>• <b>Components:</b> battery, bulb (lamp), bulb (lamp) holder, buzzer, crocodile clip, leads, wires, switch</li> <li>• <b>Describing words:</b> brighter, duller, slow, fast, quiet, loud</li> </ul>		

	<ul style="list-style-type: none"> <li>• Conductor, insulator</li> <li>• <b>Effects of electricity:</b> Light, sound, movement, heat</li> <li>• <b>Switches</b> – open, close</li> </ul>		
Learning objectives	Context	Skills	Knowledge
To be able to identify common appliances that run on electricity.	What is powered by electricity?		Can they name common appliances that run on electricity?
<p>To be able to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>To be able to 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>	How can we make a bulb light?	<p>To be able to set up a simple practical enquiry.</p> <p>To be able to use results to make predictions.</p>	<p>Can they construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers?</p> <p>Can they 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>
To be able to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.	What can we find inside a torch?		Can they construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers?

<p>To be able to recognise some common conductors and insulators, and associate metals with being good conductors.</p> <p>To be able to 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 be able to recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p>	<p>What does a switch do in a circuit?</p>	<p>To be able to record findings using drawings.</p>	<p>Can they 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>Can they name some common conductors and insulators, and associate metals with being good conductors?</p>
<p>To be able to recognise some common conductors and insulators, and associate metals with being good conductors.</p>	<p>Which of these materials let electricity run through them? How do you know?</p>		<p>Can they 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 be able to recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p>	<p>What would we need to make a torch?</p>		<p>Can they name some common conductors and insulators, and associate metals with being good conductors?</p>
<p><i>To learn about Hertha Ayrton (b. 1854), an engineer, mathematician and inventor.</i></p>	<p><i>How have electrical lights developed over time?</i></p>	<p><i>Investigate how wind and water can power electricity.</i></p>	<p><i>Hertha invented a better electric arc (used initially to improve street lamps) and furthered our understanding of electrical current. She was ahead of her time and studied the beginnings of renewable energy: wind motion and water vortices.</i></p>
<p><b>Year 4 Term 5</b></p>	<p><b>Living things and their habitats</b></p>		
<p>Links to prior learning</p>	<p style="text-align: center;">Year 2</p> <ul style="list-style-type: none"> <li>• Explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>• 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.</li> <li>• Identify and name a variety of plants and animals in their habitats, including micro-habitats</li> </ul> <p>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>Vocabulary</p>	<ul style="list-style-type: none"> <li>• Habitat, micro habitat</li> <li>• Pond, meadow, log pile, woodland, river, lake, beach, cliff</li> <li>• Organism – plant, animal</li> <li>• <b>Trees</b> - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc</li> <li>• <b>Wild flowering plants</b> - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd’s purse, sorrel, spear thistle, white campion, white deadnettle and yarrow.</li> <li>• <b>Garden plants</b> – crocus, daffodil, bluebells, etc</li> <li>• <b>Parts of plants</b> – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs</li> <li>• <b>Invertebrates</b> – snail, slug, woodlouse, spider, beetle, fly, etc</li> </ul>		

	<ul style="list-style-type: none"> <li>• <b>Pond animals</b> – pond skater, water slater, ramshorn snail, pond snail, leech, common frog, smooth newt, etc</li> </ul>		
Learning objectives	Context	Learning objectives	Context
<p>To be able to recognise that living things can be grouped in a variety of ways.</p> <p>To be able to explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p>	<p>What animals can we find in our local habitats?</p>	<p>To be able to gather, record, classify and present data in a variety of ways to help in answering questions.</p>	<p>Can they recognise that living things can be grouped in a variety of ways?</p>
<p>To be able to recognise that living things can be grouped in a variety of ways.</p> <p>To be able to explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p>	<p>What plants can we find in our local habitats?</p>	<p>To be able to gather, record, classify and present data in a variety of ways to help in answering questions.</p>	<p>Can they recognise that living things can be grouped in a variety of ways?</p> <p>Can they 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 be able to recognise that living things can be grouped in a variety of ways.</p> <p>To be able to explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p>	<p>How can a classification key help us?</p>		<p>Can they recognise that living things can be grouped in a variety of ways?</p> <p>Can they 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 be able to recognise that living things can be grouped in a variety of ways.</p> <p>To be able to explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p>	<p>Can we create a key to help us?</p>	<p>To be able to gather, record, classify and present data in a variety of ways to help in answering questions.</p>	<p>Can they recognise that living things can be grouped in a variety of ways?</p> <p>Can they explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment?</p>

To be able to recognise that environments can change and that this can sometimes pose dangers to living things.	If something changes in a habitat how does it impact on everything else?	To be able to report on findings from enquiries, including oral and written explanations.	Can they recognise that environments can change and that this can sometimes pose dangers to living things?
To be able to recognise that environments can change and that this can sometimes pose dangers to living things.	What has changed environments across the world?	To be able to report on findings from enquiries, including oral and written explanations.	Can they recognise that environments can change and that this can sometimes pose dangers to living things?
<b>Year 4 Term 6</b>	<b>Animals including humans</b>		
Link to prior learning	<ul style="list-style-type: none"> <li>• Year 1 Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals</li> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>• Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles and mammals, and including pets). Identify, name draw and label the basic parts of the human body and say which parts of the body is associated with each</li> </ul> <p style="text-align: center;">Year 2</p> <ul style="list-style-type: none"> <li>• Notice that animals, including humans, have offspring which grow into adults</li> <li>• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul> <p style="text-align: center;">Year 3</p> <ul style="list-style-type: none"> <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 Identify that humans and some animals have skeletons and muscles for support, protection and movement</li> </ul>		
Vocabulary	<ul style="list-style-type: none"> <li>• Digestive system –, oesophagus, stomach, acid, small intestine</li> <li>• Protein, vitamin, mineral, carbohydrate, fats, energy, growth, repair. Saliva</li> </ul>		

	<ul style="list-style-type: none"> <li>• Teeth – Incisors, canines, premolars, molars</li> <li>• Function</li> <li>• Foodchain – producer, consumer, predator, prey</li> </ul>		
Learning objectives	Context	Skills	Knowledge
Identify the different types of teeth in humans and their simple functions.	How many different types of teeth do we have and what are they used for?	<p>To be able to identify the correct type of enquiry to answer a question.</p> <p>To be able to set up a simple test.</p>	Can they name the different types of teeth and their functions?
To be able to describe the simple functions of the basic part of the digestive system in humans.	What happens when we chew our food?		Can they describe the simple functions of the basic parts of the digestive system in humans?
To be able to describe the simple functions of the basic part of the digestive system in humans.	What happens in our stomach?		Can they describe the simple functions of the basic parts of the digestive system in humans?
To be able to describe the simple functions of the basic part of the digestive system in humans.	What is the digestive system?	<p>To be able to record findings using labelled diagrams.</p> <p>To be able to use written explanations to report on findings from an enquiry.</p>	Can they describe the simple functions of the basic parts of the digestive system in humans?

To be able to construct and interpret a variety of food chains, identifying producers, predators and prey.	What do animals eat? Which animals eat other animals? How can we show this?	To be able to use evidence to support findings	Can they identify producers, prey and predators?
<b>Year 5 Term 1</b>	<b>Properties and changes in materials</b>		
Links to prior learning	<p style="text-align: center;">Year 1</p> <ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made.</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, water and rock.</li> <li>• Describe the simple physical properties of a variety of everyday materials.</li> </ul> <p style="text-align: center;">Compare and group together a variety of everyday materials on the basis of their physical properties.</p> <p style="text-align: center;">Year 2</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</li> <li>• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul> <p style="text-align: center;">Year 3</p> <ul style="list-style-type: none"> <li>• Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>• Describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> </ul> <p style="text-align: center;">Recognise that soils are made from rocks and organic matter.</p> <p style="text-align: center;">Year 4</p> <ul style="list-style-type: none"> <li>• Compare and group materials together, according to whether they are solids, liquids or gases</li> <li>• 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)</li> </ul> <p style="text-align: center;">Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>		
Vocabulary	<ul style="list-style-type: none"> <li>• <b>Thermal conductivity</b> – thermal conductor, thermal insulator</li> <li>• <b>Electrical conductivity</b> – electrical conductor, electrical insulator</li> <li>• <b>Dissolving</b> – Solvent, solution, solute, soluble, insoluble, solid, liquid, particles, suspensions</li> <li>• <b>Separating materials</b> – Sieve, filter, evaporate, condense</li> </ul>		

Learning objectives	Context	Skills	Knowledge
<p>To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat.</p> <p>To be able to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p>	<p>Which of these cups let through the most heat?</p>	<p>To take accurate measurements using a data-logger.</p>	<p>Can they compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets?</p>
<p>To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat.</p>	<p><b>What affect will a coat have a person and an ice man?</b></p>	<p>To be able to report and present findings from enquiries, including conclusions, causal relationships and explanations.</p>	

<p>To be able to understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p>	<p>What affects how well sugar dissolves?</p>	<p>To be able to recognise control variables when planning a fair-test. To be able to evaluate an enquiry in terms of the amount of trust one can have in it.</p>	<p>Can they understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution?</p>
<p>To be able to use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>To be able to demonstrate that dissolving, mixing and changes of state are reversible changes.</p>	<p>How can we separate mixtures of different solids?</p>		<p>Can they decide how mixtures might be separated, including through filtering, sieving and evaporating?</p> <p>Can they understand that dissolving, mixing and changes of state are reversible changes?</p>
<p>To be able to use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p>	<p>When would we need to use evaporation to separate?</p>	<p>To be able to report and present findings from enquiries, including conclusions, causal relationships and explanations.</p>	<p>Can they decide how mixtures might be separated, including through filtering, sieving and evaporating?</p> <p>Can they explain that some changes result in the formation of new materials, and that</p>

<p>Understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p>To be able to demonstrate that dissolving, mixing and changes of state are reversible changes.</p>			<p>this kind of change is not usually reversible?</p>
<p>To be able to explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>	<p>Which changes cannot be easily reversed?</p>	<p>To be able to report and present findings from enquiries, including conclusions, causal relationships and explanations.</p>	<p>Can they explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible?</p>
<p><b>Year 5 Term 2</b></p>	<p><b>Earth and Space</b></p>		
<p>Links to prior learning</p>			
<p>Vocabulary</p>	<ul style="list-style-type: none"> <li>• <b>Day and night</b> - Earth, axis, rotate</li> <li>• <b>Solar system</b> – Star = Sun, Planets = Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune (Pluto was classified as Dwarf planet in 2006)</li> <li>• <b>Phases of the Moon</b> - full moon, gibbous moon, half moon, crescent moon, new moon, waxing ,waning</li> <li>• Moon’s orbit: 29.5 days, lunar month</li> <li>• Orbit, planets, revolve, sphere</li> </ul>		

Learning objectives	Context	Learning objectives	Context
To be able to describe the movement of the Earth, and other planets, relative to the Sun in the solar system.	Where is Earth? What is in our Solar System?	To be able to plan a scientific enquiry to answer a question.	Can they name the planets of the solar system and describe the movement of the Earth, and other planets, relative to the Sun in the solar system?
To be able to describe the movement of the Earth, and other planets, relative to the Sun in the solar system.	What are the other planets like in our solar system?		Can they name the planets of the solar system and describe the movement of the Earth, and other planets, relative to the Sun in the solar system?
To be able to describe the Sun, Earth and Moon as approximately spherical bodies.	How do we know the shape of the sun, moon and Earth are spheres?	To be able to plan a scientific enquiry to answer a question.	Can they describe the Sun, Earth and Moon as approximately spherical bodies?
To be able to describe the movement of the Moon relative to the Earth.	What is the moon like?		Can they describe the movement of the Moon relative to the Earth?
To be able to use the idea of the Earth's rotation to explain day and night and the apparent movement	How do we have day and night on Earth?	To be able to plan a scientific enquiry to answer a question.  To be able to report a presentation of an explanation.	Can they explain day and night and the apparent movement of the Sun across the sky?

of the Sun across the sky.			
<i>To learn about Galileo Galilei (b.1564) known as the 'Father of Modern science'.</i>	<i>What is the place of the Sun and earth in our universe?</i>	<i>Create your own telescope and/ or use a telescope to study the night sky.</i>	<i>In 1610, using his invented new telescope he discovered four large moons that were orbiting the planet Jupiter and he discovered many new stars in the Milky Way. He published a short paper called "heliocentrism" which confirmed that the Sun is the central star in the Universe and that Earth is a planet and revolves around the sun.</i>
<b>Year 5 Term 3</b>	<b>Forces</b>		
<b>Vocabulary</b>	<ul style="list-style-type: none"> <li>• <b>Types of forces:</b> gravity, friction, air resistance, upthrust, weight</li> <li>• Measuring forces: Newton meter, Newtons (N)</li> <li>• Particles</li> <li>• Surface area</li> <li>• Push, pull</li> <li>• Balance</li> <li>• Mass – grams and kilograms</li> <li>• Mechanical devices – gears, levers, pulleys, springs</li> </ul>		
Links to prior learning	Year 3		
	<ul style="list-style-type: none"> <li>• Compare how things move on different surfaces</li> <li>• Notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>• Observe how magnets attract or repel each other and attract some materials and not others</li> <li>• 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</li> <li>• Describe magnets as having two poles</li> </ul> <p style="text-align: center;">Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>		
<b>Learning objectives</b>	<b>Context</b>	<b>Learning objectives</b>	<b>Context</b>
To be able to explain that unsupported	How does the surface of an object affect how it falls?		Can they explain that unsupported objects fall towards the Earth because of the force

objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.			of gravity acting between the Earth and the falling object?
To be able to identify the effects of air resistance that act between moving surfaces.	What affects how well a parachute falls?	To be able to identify scientific evidence that has been used to support or refute ideas or arguments.	Can they identify the effects of air resistance, water resistance and friction, that act between moving surfaces?
To be able to identify the effects of air resistance that act between moving surfaces.	What is friction? Where can we find examples of it?	To be able to use test results to make predictions to set up further fair-tests.  To be able to plan a fair-test; identifying the control variables.	Can they identify the effects of air resistance, water resistance and friction, that act between moving surfaces?
To be able to identify the effects of friction between moving surfaces.	How does the shape of an object affect how it moves in water?	To be able to use test results to make predictions to set up further fair-tests. To be able to plan a fair-test; identifying the control variables.	Can they identify the effects of air resistance, water resistance and friction, that act between moving surfaces?
To be able to recognise that some mechanisms, including pulleys, allow	How do pulleys work?		Can they recognise that some mechanisms including levers, pulleys and gears, allow a smaller force to have a greater effect?

a smaller force to have a greater effect.			
To be able to recognise that some mechanisms, including gears, allow a smaller force to have a greater effect.	How do gears work?		
To be able to recognise that some mechanisms, including levers, allow a smaller force to have a greater effect.	How do levers work?		Can they recognise that some mechanisms including levers, pulleys and gears, allow a smaller force to have a greater effect?
<i>To study Albert Einstein (b.1879)</i>	How does Gravity work in space?	<i>Use a compass and explore how it works: like Albert Einstein did when he was 5 years old.</i>	<i>In 1905 Albert Einstein published four papers in a Scientific journal that would change the course of Modern Physics. In 1915, Albert completed his “general theory of relativity”. He was hugely influential in the new Science of Cosmetology and came up with mathematical models for how the Universe both expands and shrinks. As part of the Manhattan Project he was instrumental in triggering the “Nuclear Age”.</i>
<b>Year 5 Term 5</b>	<b>Living things and their habitats</b>		
Links to prior learning	<p style="text-align: center;">Year 2</p> <ul style="list-style-type: none"> <li>• Explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>• 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.</li> <li>• Identify and name a variety of plants and animals in their habitats, including micro-habitats</li> </ul>		

	<p>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>Year 4</p> <ul style="list-style-type: none"> <li>• recognise that living things can be grouped in a variety of ways</li> </ul> <ul style="list-style-type: none"> <li>• explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment <ul style="list-style-type: none"> <li>• recognise that environments can change and that this can sometimes pose dangers to living things</li> </ul> </li> </ul>		
Vocabulary	<ul style="list-style-type: none"> <li>• <b>Animals</b> – amphibians, reptiles, birds, mammals, insects, fish</li> <li>• <b>Animal development</b> – egg, larva, pupa, nymph, adult, metamorphosis</li> <li>• <b>Parts of a flower</b> – petal, stamen (anther + filament), carpel (stigma + style + ovary + ovule)</li> <li>• <b>Processes</b> – pollination, fertilisation, germination</li> </ul>		
Learning objectives	Context	Learning objectives	Context
To be able to explain the differences in the life cycles of a mammal, an amphibian, an insect and a bird.	What happens at the different stages of an animal's life?	To be able to plan the correct enquiry to answer a question.	Can they describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird?
To be able to explain the life cycle of a mammal.	How do mammals change over time?	To be able to recognise which secondary sources will be most useful to their research (non-statutory).	Can they describe the life cycle of a mammal?
To be able to explain the life cycle of an insect.	Do all insects have the same lives?		Can they describe the life cycle of an insect?
To be able to describe the life process of reproduction in some animals.	How do animals make a baby?		Can they describe the life process of reproduction in some plants and animals?

To be able to describe the life process of reproduction in some plants.	How do plants reproduce?	To be able to use scientific diagrams and labels.	Can they describe the life process of reproduction in some plants and animals?
To be able to describe the life process of reproduction in some plants.	How does a flower change over time?	To be able to use scientific diagrams and labels.	Can they describe the life process of reproduction in some plants and animals?
<b>Year 5 Term 6</b>	<b>Animals including humans</b>		
Links to prior learning	<p style="text-align: center;">Year 1</p> <ul style="list-style-type: none"> <li>• Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals</li> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>• Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles and mammals, and including pets).</li> <li>• Identify, name draw and label the basic parts of the human body and say which parts of the body is associated with each sense.</li> </ul> <p style="text-align: center;">Year 2</p> <ul style="list-style-type: none"> <li>• Notice that animals, including humans, have offspring which grow into adults</li> <li>• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul> <p style="text-align: center;">Year 3</p> <ul style="list-style-type: none"> <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</li> <li>• Identify that humans and some animals have skeletons and muscles for support, protection and movement.</li> </ul>		

	<p>Year 4</p> <ul style="list-style-type: none"> <li>Describe the simple functions of the basic parts of the digestive system in humans</li> <li>Identify the different types of teeth in humans and their simple functions</li> <li>Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul>		
Vocabulary	<ul style="list-style-type: none"> <li>Gestation</li> <li>Fetus</li> <li>Fertilisation</li> <li>Species</li> <li>Baby</li> <li>Toddler</li> <li>Adolescen</li> </ul>		<ul style="list-style-type: none"> <li>Adult</li> <li>Elderly person</li> <li>Puberty</li> <li>Hormones</li> <li>Pituitary gland</li> <li>Testosterone</li> <li>Estrogen</li> </ul>
Learning objectives	Context	Learning objectives	Context
To be able to describe the changes as humans develop from birth to old age.	What are the main stages of human life?	To be able to raise different types of questions (non-statutory).	Can they describe the changes as humans develop from birth to old age?
To be able to describe the changes as humans develop from birth to old age.	How long does it take for different animals to have a baby?	<p>To be able to communicate data using a scatter graph.</p> <p>To be able to present conclusions.</p> <p>To be able to use evidence to refute or support an idea</p>	Can they describe the changes as humans develop from birth to old age?
To be able to describe the changes as humans develop from birth to old age.	How does the weight of a baby change?	<p>To be able to record data within tables.</p> <p>To be able to present conclusions.</p>	Can they describe the changes as humans develop from birth to old age?

		To be able to use evidence to refute or support an idea.	
To be able to describe the changes as humans develop from birth to old age.	How does the length of a baby change?	To be able to record data using line graphs. To be able to present conclusions.	Can they describe the changes as humans develop from birth to old age?
To be able to describe the changes as humans develop from birth to old age.	What happens to the human body as you become a teenager?	To be able to plan an enquiry that will answer a scientific question	Can they describe the changes as humans develop from birth to old age?
To be able to describe the changes as humans develop from birth to old age.	What happens to adults as they get older?		Can they describe the changes as humans develop from birth to old age?
<b>Year 6 Term 1</b>	<b>Evolution and Inheritance</b>		
<b>Links to STAR</b>	<b>Rainforests - plants</b>		
Links to prior learning			
Vocabulary	<ul style="list-style-type: none"> <li>• Evolution, evolve</li> <li>• Natural selection</li> <li>• Survival</li> <li>• Reproduction</li> <li>• Offspring, parents, siblings</li> <li>• Environment</li> <li>• Variation</li> <li>• Fossils; ammonites, belemnites, micrasters, etc</li> </ul>		
Learning objectives	Context	Learning objectives	Context

<p>To be able to recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p>	<p>How do we know about living things that have lived in the past?</p>	<p>To be able to identify scientific evidence that has been used to support or refute ideas or arguments.</p>	<p>Can they recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago?</p>
<p>To be able to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p>	<p>Are all brothers and sisters the same as each other?</p>	<p>To be able to identify scientific evidence that has been used to support or refute ideas or arguments.</p>	<p>Can they recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents?</p>
<p>To be able to identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>	<p>What must all living things be able to do in order to survive?</p>		<p>Can they identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution?</p>
<p>To be able to identify how animals are adapted to suit their environment in</p>	<p>Which animal would survive in these habitats?</p>		<p>Can they identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution?</p>

different ways and that adaptation may lead to evolution.			
To be able to identify how plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	How are plants suited to adapt to their environments?	To be able to measure with a data logger.  To be able to present findings from an enquiry.	Can they identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution?
To be able to identify how plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	Can you design a plant to survive a catastrophe?	To be able to recognise which secondary sources will be most useful to research ideas (non-statutory).	Can they identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution?
<i>To study Rosalind Franklin (b.1920) a chemist and x-ray crystallographer.</i>	What is the genetic basis for our similarities and differences?§	<i>Study x-ray photos of the human body and the Double Helix, including Rosalind's famous X-ray image known as "Photo 51"</i>	<i>Rosalind Franklin did critical work on Molecular structures of DNA, RNA, Coal and Graphite. She captured a famous photo proving DNA is a double helix. Her research and experiments led to our better understanding of illness and disease and our continued study of genetic structures and have enabled Scientists to develop better treatments and medicines and to improve our length and quality of life.</i>
<b>Year 6 Term 2</b>	<b>Light</b>		
Links to prior learning	<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</li> <li>• Notice that light is reflected from surfaces</li> <li>• Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> </ul>		

	<ul style="list-style-type: none"> <li>Recognise that shadows are formed when the light from a light source is blocked by a solid object Find patterns in the way that the sizes of shadows change.</li> </ul>		
Vocabulary	<ul style="list-style-type: none"> <li><b>Simple comparisons:</b> dark, dull, bright, very bright</li> <li><b>Comparative vocabulary:</b> brighter, duller, and darker</li> <li><b>Superlative vocabulary:</b> brightest, dullest, and darkest</li> <li>Opaque, translucent, transparent</li> <li><b>Shadow</b> – block, absence of light</li> <li>Reflect – bounce, mirror, reflection</li> <li>See – light source</li> <li>Sun – sunset, sunrise, position</li> </ul>		
Learning objectives	Context	Learning objectives	Context
To understand that light appears to travel in straight lines.	How does light travel? What evidence is there that light travels in a straight line?	To be able to use scientific evidence to support or refute on idea.  To be able to plan a scientific enquiry to answer a questions.	Can they explain that light appears to travel in straight lines?
To be able to 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.	How do we see things?	To be able to use scientific evidence to support or refute on idea.	Can they explain how we see objects through light being reflected? Can they explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes?
Use the idea that light travels in straight lines to explain why shadows have the same shape as the	What do you notice about a shadow and the object that casts it?	To be able to use test results to make predictions to set up further comparative tests.	Can they explain that light travels in straight lines to explain why shadows have the same shape as the objects that cast them?

objects that cast them.		To be able to plan a scientific enquiry to answer a questions.	
To be able to 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.	How do we see things in a mirror?	To be able to plan a fair-test; recognising and controlling variables.	Can they 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 be able to 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.	How could you see over a wall?	To be able to plan a scientific enquiry to answer a questions.	Can they 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?
<b>Year 6 Term 3 &amp; 4</b>	Electricity		
<b>Links to STAR</b>	Victorians – Industrial revolution		
Links to prior learning	Year 4		
	<ul style="list-style-type: none"> <li>• . Identify common appliances that run on electricity</li> <li>• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</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</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</li> </ul>		

	Recognise some common conductors and insulators, and associate metals with being good conductors.		
Vocabulary	<ul style="list-style-type: none"> <li>• Electricity, Volts</li> <li>• Series circuit</li> <li>• <b>Components:</b> battery, bulb (lamp), bulb (lamp) holder, buzzer, crocodile clip, leads, wires, switch</li> <li>• <b>Describing words:</b> brighter, duller, slow, fast, quiet, loud</li> <li>• Conductor, insulator</li> <li>• Resistance</li> <li>• <b>Effects of electricity:</b> Light, sound, movement, heat</li> </ul>		
Learning objectives	Context	Learning objectives	Context
To be able to use recognised symbols when representing a simple circuit in a diagram.	What do these symbols represent?		Can they identify symbols related to electrical components?
To be able to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.	How will the number of batteries affect the brightness of a bulb?	<p>To be able to take repeat measurements of data with precision using a data-logger.</p> <p>To be able to explain the degree of trust can be had in results.</p>	Can they understand how the number of cells and the voltage affects how a component works?
To be able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.	What affects the brightness of a bulb in an investigation?	<p>To be able to plan a fair-test by recognising the control variables.</p> <p>To be able to use predictions to set up fair tests.</p>	<p>Can they understand how the number of cells and the voltage affects how a component works?</p> <p>Can they understand how a switch impacts on other components?</p>

<p>To be able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</p>	<p>How can we represent the circuits we make using drawings?</p>		<p>Can they understand how the number of cells and the voltage affects how a component works?</p> <p>Can they understand how a switch impacts on other components?</p>
<p>To be able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</p> <p>To be able to use recognised symbols when representing a simple circuit in a diagram.</p>	<p>How can we use the electrical components to make a scarecrow?</p>		<p>Can they understand how the number of cells and the voltage affects how a component works?</p> <p>Can they understand how a switch impacts on other components?</p> <p>Can they identify symbols related to electrical components?</p>
<p><i>To study Thomas Edison (b.1847) and the impact he had on life during Victorian times. (Victorian electricity period)</i></p>	<p>How did electricity change the Victorians?</p>	<p><i>Investigate how a light bulb works, like Thomas Edison.</i></p>	<p>Thomas Edison was an American inventor who is considered one of America's leading businessmen and inventors. He invented the first commercially viable incandescent light bulb, following on from English inventor Humphry Davy's first electric arc lamp in the</p>

			early 1800s. He also developed a method for recording sound; the phonograph.
<i>To study Annie Easley (b.1933), a computer programmer, mathematician and rocket scientist and consider the impact her work has had on developing alternate energy. (Modern Electricity period)</i>	How is electricity developing and changing now?	<i>Investigate alternative forms of energy that are better for the planet.</i>	<i>Annie worked on one of the first computer programs to enable navigation in space as part of the Centaur project. This research is still used today. In the 1970s Annie researched power plants and electric batteries as a way to help solve the energy crisis. She created a program that measured solar winds. Her work with electric batteries laid the foundation for today's hybrid cars.</i>
<b>Year 6 Term 5</b>	Living things and their habitats		
<b>Links to STAR</b>	Swanscombe now and then – local habitats		
Links to prior learning	<p style="text-align: center;">Year 2</p> <ul style="list-style-type: none"> <li>• Explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>• 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.</li> <li>• Identify and name a variety of plants and animals in their habitats, including micro-habitats</li> </ul> <p style="text-align: center;">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 style="text-align: center;">Year 4</p> <ul style="list-style-type: none"> <li>• recognise that living things can be grouped in a variety of ways</li> <li>• explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> </ul> <p style="text-align: center;">recognise that environments can change and that this can sometimes pose dangers to living things</p> <p style="text-align: center;">Year 5</p> <ul style="list-style-type: none"> <li>• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> </ul>		

	Describe the life process of reproduction in some plants and animals.		
Vocabulary	<ul style="list-style-type: none"> <li>• Classification</li> <li>• Vertebrate, invertebrate</li> <li>• Kingdoms: animal, plant, 'micro-organism'</li> <li>• Classes: amphibian, reptile, bird, mammal,</li> <li>• Scales, feathers</li> <li>• Flowering plant, non-flowering plant</li> </ul>		
Learning objectives	Context	Learning objectives	Context
<p>To be able to describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.</p> <p>To be able to give reasons for classifying plants and animals based on specific characteristics.</p>	How can we classify living things?		<p>Can they 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?</p> <p>Can they give reasons for classifying plants and animals based on specific characteristics?</p>
To be able to describe how living things are classified into broad groups according to common observable	Which fungi can you identify?		Can they 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?

characteristics and based on similarities and differences, including micro-organisms, plants and animals.			
To be able to give reasons for classifying plants and animals based on specific characteristics.	Which plants can you find and where are they?		Can they give reasons for classifying plants and animals based on specific characteristics?
To be able to give reasons for classifying plants and animals based on specific characteristics.	How can we classify trees?	To be able to make a key to classify plants.	Can they give reasons for classifying plants and animals based on specific characteristics?
To be able to give reasons for classifying plants and animals based on specific characteristics.	How can we classify different flowering plants?	To be able to make a key to classify plants.	Can they give reasons for classifying plants and animals based on specific characteristics?
Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences,	How many different living things live in our school environment?	To be able to make a key to classify plants.	Can they 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?

<p>including micro-organisms, plants and animals.</p> <p>To be able to give reasons for classifying plants and animals based on specific characteristics.</p>			<p>Can they give reasons for classifying plants and animals based on specific characteristics?</p>
<p><b>Year 6 Term 6</b></p>	<p>Animals including humans</p>		
<p>Links to prior learning</p>	<p style="text-align: center;">Year 1</p> <ul style="list-style-type: none"> <li>• Identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals</li> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>• Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles and mammals, and including pets).</li> <li>• Identify, name draw and label the basic parts of the human body and say which parts of the body is associated with each sense.</li> </ul> <p style="text-align: center;">Year 2</p> <ul style="list-style-type: none"> <li>• Notice that animals, including humans, have offspring which grow into adults</li> <li>• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul> <p style="text-align: center;">Year 3</p> <ul style="list-style-type: none"> <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</li> <li>• Identify that humans and some animals have skeletons and muscles for support, protection and movement.</li> </ul> <p style="text-align: center;">Year 4</p> <ul style="list-style-type: none"> <li>• Describe the simple functions of the basic parts of the digestive system in humans</li> </ul>		

	<ul style="list-style-type: none"> <li>Identify the different types of teeth in humans and their simple functions</li> <li>Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul> <p style="text-align: center;">Year 5 Describe the changes as humans develop from birth to old age.</p>		
Vocabulary	<ul style="list-style-type: none"> <li>Circulatory system – heart, blood, veins, arteries, pulse, clotting</li> <li>Diet – balanced, vitamins, minerals, proteins, carbohydrates, sugars, fats</li> <li>Drugs – caffeine, nicotine, alcohol, cannabis, cocaine, heroine</li> <li>Lifestyle – healthy</li> </ul>		
Learning objectives	Context	Learning objectives	Context
To be able to identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood.	What does the heart do?		Can they identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood?
To be able to identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood.	What happens to the heart when we exercise?	<p>To be able to plan pattern-seeking enquiry.</p> <p>To be able to report causal relationships.</p> <p>To be able to record results using a line graph.</p>	Can they identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood?
To be able to identify and name the main parts of the human circulatory system, and	What does our blood do?		Can they identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood?

explain the functions of the heart, blood vessels and blood.			
To be able to describe the ways in which nutrients and water are transported within animals, including humans.	Why do we need to drink water?		Can they describe the ways in which nutrients and water are transported within animals, including humans?
To be able to recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.	How do we look after our well-being?	To be able to present findings from enquiries.	Can they recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function?