



**Progression of Science: PLANTS**

	<b>KNOWLEDGE</b>	<b>PERFORMANCE OF SKILLS</b>
Nursery	<ul style="list-style-type: none"> <li>• Notice detailed features of objects in their environment. (22-36 Months) UtW</li> <li>• Comment and ask questions about aspects of their familiar world, such as the place they live of the natural world. (30-50 Months) UtW</li> <li>• Show care and concern for living things and the environment. (30-50 Months) UtW</li> <li>• Talk about some of the things they have observed, such as plants, animals, natural and found objects. (30-50 Months) UtW</li> <li>• Develop an understanding of growth, decay and changes over time. (30-50 Months) UtW</li> <li>• Talk about the features of their own environment and how environments might change over time. (30-50 Months) UtW</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Are inquisitive and offer suggestions as to the characteristics of the plants in their environment.</li> <li>• Following adult instruction, choose not to cause harm to plants in their environment.</li> <li>• Ask questions to ascertain information about plants in their locality.</li> <li>• Recognise that plants change over time.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Can select appropriate plant to fit a characteristic.</li> <li>• Know that plants are living and should be taken care of.</li> <li>• Recognise that plants grow from seeds, get larger and sometimes die.</li> <li>• Describe the changes they see over time in plants.</li> </ul>
Reception	<p><b>Prior knowledge</b>  <b>In Nursery Children should:</b></p> <ul style="list-style-type: none"> <li>• Notice detailed features of objects in their environment.</li> <li>• Comment and ask questions about aspects of their familiar world, such as the place they live of the natural world.</li> <li>• Show care and concern for living things and the environment.</li> </ul> <p>ELG - Understanding the World: The Natural World</p> <ul style="list-style-type: none"> <li>• Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.</li> <li>• Explore the natural world around them, making observations and drawing pictures of animals and plants.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Can discuss plants in terms of their similarities and differences, beginning to relate them to their experiences.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Can describe the similarities and differences of plants, relating them to their experiences.</li> </ul>



<p>Year 1</p>	<p><b>Prior knowledge</b> In EYFS Children should:</p> <ul style="list-style-type: none"> <li>• Make observations of plants</li> <li>• Know some names of plants, trees and flowers</li> <li>• May be able to name and describe different plants, trees and flowers</li> <li>• Show some care for their world around them</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Name some plants within the local environment.</li> <li>• Name some key characteristics of plants and use them to identify species.</li> <li>• Begin to explain that although plants have common parts they sometimes differ.</li> <li>• Observe that some trees are green whilst others are not.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Name a variety of plants within the local environment.</li> <li>• Name the key characteristics of plants and use them to identify species.</li> <li>• Explain that although plants have common parts they sometimes differ.</li> <li>• Explain that some trees are green whilst others are not and relate this to seasonal changes.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>• Name an increasing variety of plants within the local environment.</li> <li>• Name the key characteristics of plants and use them to identify and wider range of species.</li> <li>• Explain that another plants have common parts they sometimes differ, beginning to formulate and express ideas as to why this might be the case.</li> <li>• Explain that some trees, which are evergreens, retain their leaves throughout the year and know that those which lose them are deciduous. Relate these to the seasonal changes observed.</li> </ul>
<p>Year 2</p>	<p><b>Prior Knowledge</b></p> <ul style="list-style-type: none"> <li>• Name the basic structural parts of flowering plants.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Can name some of the processes during which seeds and bulbs grow into mature plants.</li> </ul>



	<ul style="list-style-type: none"> <li>Know that seeds and bulbs grow into mature plants and describe the process.</li> <li>Research and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul>	<ul style="list-style-type: none"> <li>Can name some of the conditions needed for plant growth.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Can name the processes during which seeds and bulbs grown into mature plants.</li> <li>Can name the conditions needed for plant growth.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>Can name the processes during which seeds and bulbs grow into mature plants and consider whether this happens at the same rate for different species.</li> <li>Can use their knowledge of plant growth conditions to hypothesise about why some areas have less/more plant growth. (Deserts, rainforests)</li> </ul>
Year 3	<p><b>Prior Knowledge:</b></p> <ul style="list-style-type: none"> <li>Name the basic structural parts of flowering plants.</li> <li>Research and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>Can identify and describe the functions of some different parts of flowering plants.</li> <li>Can mostly accurately describe how water is transported in plants.</li> <li>Can explain some of the links between flowers and the plant life cycle.</li> <li>Can explain some of the requirements for plants to live and grow .</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Can identify and describe the functions of different parts of flowering plants.</li> <li>Can explain how water is transported in plants.</li> <li>Can explain the role of flowers in the life cycle of flowering plants: pollination, seed formation and dispersal.</li> <li>Can explain the requirements for plants to live and grow. .</li> <li></li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>Can explain that some plants do not have the key parts of flowering plants and explain how they survive.</li> <li>Can explain the role of bees in the life cycle of flowering plants and explain the problems caused by their decline.</li> </ul>
	<ul style="list-style-type: none"> <li>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</li> <li>Investigate the way in which water is transported by plants.</li> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> <li>Explore the requirements of plants for life and growth (air, light, water, nutrients from the soil and room to grow) and how they vary from plant to plant</li> </ul>	
Year 5	<p><b>Prior knowledge</b></p> <ul style="list-style-type: none"> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>Can describe with increasing accuracy the stages in development and reproduction of flowering and non-flowing plants.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Can describe the stages in development and reproduction of flowering and non-flowing plants.</li> </ul> <p><b>Some children (GDS)</b></p>
	<p>Taken from Living things and their habitats:</p> <ul style="list-style-type: none"> <li>Describe the life processes of reproduction in some plants and animals.</li> </ul>	



		<ul style="list-style-type: none"> <li>• Can explain that plants reproduce both sexually and asexually referring this to their life cycles.</li> </ul>
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**Progression of Science: LIVING THINGS AND THEIR HABITATS**

	<b>KNOWLEDGE</b>	<b>PERFORMANCE OF SKILLS</b>
Nursery	<ul style="list-style-type: none"> <li>• To look closely at similarities, differences, patterns and change.</li> <li>• Show care and concern for living things and the environment. (30-50 Months) UtW</li> <li>• Talk about some of the things they have observed, such as plants, animals, natural and found objects. (30-50 Months) UtW</li> <li>• Develop an understanding of growth, decay and changes over time. (30-50 Months) UtW</li> <li>• Talk about the features of their own environment and how environments might change over time. (30-50 Months) UtW</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Begin to recognise that animals live in different places.</li> <li>• Recognise that the changes seasons cause natural changes to the world around them.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Can talk about the homes of animals and recognise that these are different depending on species.</li> <li>• Associate seasonal changes to the changing world around them and in other environments.</li> </ul>
Reception	<p><b>Prior knowledge</b> In Nursery Children should:</p> <ul style="list-style-type: none"> <li>• Look closely at similarities, differences, patterns and change.</li> <li>• Show care and concern for living things and the environment. (30-50 Months) UtW</li> <li>• Talk about some of the things they have observed, such as plants, animals, natural and found objects. (30-50 Months) UtW</li> <li>• Develop an understanding of growth, decay and changes over time. (30-50 Months) UtW</li> <li>• Talk about the features of their own environment and how environments might change over time. (30-50 Months) UtW</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Begin to discuss the similarities and differences between environments.</li> <li>• Make observations of animals which are recorded in drawing form, begin to offer vocabulary which describes features.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Discuss the similarities and differences between environments, relating to their individual experiences.</li> <li>• Make observations of animals which are recorded in drawing form, offering vocabulary which describes features.</li> </ul>
	<p>ELG - Understanding the World: The Natural World</p> <ul style="list-style-type: none"> <li>• Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.</li> <li>• Explore the natural world around them, making observations and drawing pictures of animals and plants.</li> </ul>	



<p>Year1</p>	<p><b>Prior knowledge</b></p> <ul style="list-style-type: none"> <li>In EYFS children should know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.</li> </ul> <p><i>Taken from Year 1 plants.</i></p> <ul style="list-style-type: none"> <li>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul> <p><i>Taken from Year 1 Animals Including Humans</i></p> <ul style="list-style-type: none"> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds 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, including humans.</li> </ul> <p><i>Taken from Year 1 Seasonal Changes.</i></p> <ul style="list-style-type: none"> <li>Observe changes across the four seasons.</li> </ul>	<p><i>Linked strands.</i></p>
<p>Year 2</p>	<p><b>Prior Knowledge</b></p> <ul style="list-style-type: none"> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>Research and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>Begin to understand that living things live in habitats which suit their needs.</li> <li>Use some existing knowledge to explain that habitats provide for the basic needs of animals and that they depend upon each other.</li> <li>Can name some plants and animals within each habitat.</li> <li>Can use food chains to make simple links about sources of food.</li> </ul> <p><b>Most children (EXS)</b></p>



	<ul style="list-style-type: none"> <li>Identify that most living thing 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 microhabitats.</li> <li>Describe how animals obtain their food from plants and other animals. Using the idea of simple food chain, and identify and name different sources of food.</li> </ul> <p><b>Taken from Animals including humans</b></p> <ul style="list-style-type: none"> <li>Notice that animals, including humans, have offspring which grow into adults.</li> </ul>	<ul style="list-style-type: none"> <li>Understand that living things live in habitats which suit their needs and reason why some habitats are unsuitable for some species.</li> <li>Can explain that habitats provide for the basic needs of animals and that they depend upon each other.</li> <li>Can name a variety of plants and animals within each habitat.</li> <li>Can use food chains to make identify sources of food within a habitat.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>Can consider which characteristics a species would need to possess to be successful in a particular habitat.</li> <li>Can explain the relationships between stages of the food line in a linear sequence.</li> <li>Can name an increasing variety of plants and animals within each habitat.</li> <li>Can create further food chains building on those shared during teaching.</li> </ul>
Year 3	<p><b>Prior Knowledge:</b></p> <ul style="list-style-type: none"> <li>Name the basic structural parts of flowering plants.</li> </ul> <p><b>Taken from Year 3 Plants.</b></p> <ul style="list-style-type: none"> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul>	<p><b>In preparation for year four learning children should be able to recognise key differences between flowering and non-flowering plants and the roles that flowers play in the life cycle of flowering plants.</b></p>
Year 4	<p><b>Prior knowledge</b></p> <ul style="list-style-type: none"> <li>Identify that most living thing 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 common animals including fish, amphibians, reptiles, birds and mammals.</li> </ul> <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 the local and wider environment.</li> <li>Recognise that environments can change and that this can sometimes pose a danger to living things</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>Sort living things by their characteristics when provided with criteria and begin to suggest criteria to sort by.</li> <li>Sort living things using yes/no questions based on observable characteristics using a classification key.</li> <li>Explain with some accuracy how habitats can change and how this make affect living things there.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Recognise that living things are similar and different in many ways, choose appropriate criteria which might be used to sort living things.</li> <li>Sort living things using yes/no questions based on observable characteristics using a classification key. Create questions which might be used in this process.</li> <li>Explain accurately how habitats can change and how this make affect living things there.</li> </ul> <p><b>Some children (GDS)</b></p>



		<ul style="list-style-type: none"> <li>• Create classification keys for similar species to work through the smaller observable differences.</li> <li>• Consider artificial habitats, such as zoos and describe their pros and cons in terms of conservation.</li> <li>• Relate the changes in habitats to the endangerment of animals.</li> </ul>
Year 5	<p><b>Prior Learning:</b></p> <ul style="list-style-type: none"> <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> <li>• Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul> <hr/> <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> <li>• Describe the life processes of reproduction in some plants and animals.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Use diagrams of life cycles (mammals, amphibians, insects and birds) to support and conversation about similarities and differences.</li> <li>• Can describe with increasing accuracy the stages in development and reproduction of flowering and non-flowing plants.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Explain with increasing accuracy the similarities and differences between the life cycles of living things.</li> <li>• Can describe the stages in development and reproduction of flowering and non-flowing plants.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>• Compare and contrast the life cycles of animals from the same group.</li> <li>• Explain that plants reproduce both sexually and asexually referring this to their life cycles.</li> </ul>
Year 6	<p><b>Prior Knowledge:</b></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 the local and wider environment.</li> <li>• Recognise that environments can change and that this can sometimes pose a danger to living things</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Give reasons for classifying plants and animals based on specific, observable characteristics.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Can draw on given characteristics to group living things including micro-organisms, plants and animals.</li> <li>• Can sort larger groups of living things into smaller ones using given characteristics.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Can classify living things including micro-organisms, plants and animals choosing relevant observable characteristics.</li> <li>• Explain that animals can be separated into two main groups and identify animals which are vertebrates and invertebrates.</li> <li>• Explore the further groups that living things are divided into and use this knowledge to suggest animals which are part of these groups.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>• Can explain the impact and implications of Carl Linnaeus' work.</li> </ul>



**Progression of Science: Animals Including Humans.**

	<b>KNOWLEDGE</b>	<b>PERFORMANCE OF SKILLS</b>
Nursery	<ul style="list-style-type: none"> <li>To observe the effects of physical activity on their bodies. Physical Development – Health and Self Care (30-50 months)</li> <li>To eat a healthy range of foodstuffs and understand a need for variety in food. Physical Development – Health and Self Care (40-60 months)</li> <li>To show some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health. Physical Development – Health and Self Care (40-60 months)</li> </ul>	<p><b>All Children (WTS)</b></p> <ul style="list-style-type: none"> <li>Can elaborate on how their bodies react to exercise when questions.</li> <li>Begin to explain that some foods are healthy (good for the body) and unhealthy (bad for the body).</li> <li>Begin to explain that if we are tired, we need sleep, dirty to be clean and hungry to eat a healthy meal.</li> </ul> <p><b>Most Children (EXS)</b></p> <ul style="list-style-type: none"> <li>Can explain how taking part in exercise may affect their body.</li> <li>Relate the concept of unhealthy being bad for the body and healthy being good for the body.</li> <li>Know that there are things we can do to keep our minds and bodies healthy and begin to relate the concept of sleep, hygiene, exercise and healthy eating to this.</li> </ul>
Reception	<p><b>Prior knowledge</b>  <b>In Nursery children should</b></p> <ul style="list-style-type: none"> <li>observe the effects of physical activity on their bodies.</li> <li>Eat a healthy range of foodstuffs and understand a need for variety in food.</li> <li>Show some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health.</li> </ul> <p>ELG – Physical Development: Health and Self Care</p> <ul style="list-style-type: none"> <li>To know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.</li> </ul>	<p><b>All Children (WTS)</b></p> <ul style="list-style-type: none"> <li>Begin to relate the concept of safety and well-being to physical activities such as tooth-brushing, keeping clean and crossing the road safely.</li> <li>Further develop their understanding of the benefit of sleep, exercise, diet and hygiene.</li> </ul> <p><b>Most Children (EXS)</b></p> <ul style="list-style-type: none"> <li>Know that it is important to be safe and that activities such as crossing the road, brushing our teeth and keeping ourselves clean help us to be fit and well.</li> <li>Can explain which foods are healthy and which are not and offer diet, sleep, exercise and hygiene as solutions to problems they encounter in their experiences and reading.</li> </ul>



<p>Year1</p>	<p><b>Prior knowledge</b></p> <ul style="list-style-type: none"> <li>In EYFS children should know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds 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 (fish, amphibians, reptiles, birds and mammals including pets).</li> <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>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>Can name some animals from each of the broad groups (fish, amphibian, reptile, bird, mammal).</li> <li>Can describe some animals as herbivores, omnivores or carnivores considering their diet.</li> <li>Can name some of the common structures observed in animals.</li> <li>With increasing accuracy, name, draw and label parts of the body and associate them with sight, smell, hearing, taste and touch.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Can name a variety of animals from each of the broad groups (fish, amphibian, reptile, bird, mammal).</li> <li>Can describe animals as herbivores, omnivores or carnivores considering their diet.</li> <li>Name, draw and label parts of the body associated with senses.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>Can name an increasing variety of animals from each of the broad groups (fish, amphibian, reptile, bird, mammal).</li> <li>Can consider and explain the positives, negatives and interesting points of having two mouths, one ear and one eye in the middle of your head.</li> </ul>
<p>Year 2</p>	<p><b>Prior Knowledge</b></p> <ul style="list-style-type: none"> <li>Talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.</li> </ul> <hr/> <p>Year Two:</p> <ul style="list-style-type: none"> <li>Know that animals, including humans, have offspring which grow into adults.</li> <li>know the differences between living things, dead things and things that have never been alive and compare by these characteristics.</li> <li>Know the basic needs of animals, including humans, for survival (water, food and air).</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>With growing accuracy, consider which offspring belong to which animal, including humans.</li> <li>Explain with growing accuracy that animals, including humans can be categorised as alive, dead or never alive.</li> <li>Begin to describe why exercise, diet and hygiene is important.</li> <li>Recall some of the basic needs of animals for survival.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Identify the offspring of animals, including humans and use observable characteristics to explain their choices.</li> <li>Explain with that animals, including humans can be categorised as alive, dead or never alive and group them by these criteria.</li> <li>Describe why exercise, diet and hygiene is important.</li> </ul>



	<ul style="list-style-type: none"> <li>Know the importance of exercise, eating the right amounts of a range of foods and hygiene, for humans.</li> </ul> <p><b>Taken from Living things and their habitats.</b></p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Explain the basic needs of animals, including humans (air, food, water).</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>Can name some animals whose offspring do not immediately share their characteristics – caterpillars and butterflies, tadpoles and frogs, for example.</li> </ul>
Year 3	<p><b>Prior Knowledge:</b></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> <li>Know the basic needs of animals, including humans, for survival (water, food and air).</li> </ul> <hr/> <p><b>Year Three:</b></p> <ul style="list-style-type: none"> <li>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> <li>Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.</li> </ul> <p><b>Taken from Rocks</b></p> <ul style="list-style-type: none"> <li>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>Can explain with increasing accuracy the role of the skeleton and muscles to support, protect and move the body.</li> <li>Know some of the nutritional groups and some of the foods that fit into these.</li> <li>Know that animals, including humans do not make their own food.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Can explain the role of the skeleton and muscles to support, protect and move the body.</li> <li>Know the nutritional groups and some of the foods that fit into these.</li> <li>Know that animals, including humans get nutrients from food.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>Research invertebrates and compare their structural differences to vertebrates.</li> <li>Relate the differences observed in skeletons to the skills and characteristics of different animals. I.e. longer legs and jumping. Wings and flying.</li> <li>Explain how the amount of sugar in certain drinks can influence how healthy they are and explain why.</li> </ul>
Year 4	<p><b>Prior knowledge</b></p> <ul style="list-style-type: none"> <li>Describe how animals obtain their food from plants and other animals. Using the idea of simple food chain, and identify and name different sources of food.</li> <li>Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>Supported by food chains, identify with increasing accuracy, producers, predators and prey.</li> <li>Begin to describe the process of digestion and the organs in the body which relate to this process.</li> <li>Identify and describe the purpose of some teeth-types in humans.</li> </ul> <p><b>Most children (EXS)</b></p>



	<ul style="list-style-type: none"> <li>• Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> <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> </ul>	<ul style="list-style-type: none"> <li>• Identify the producers, predators and prey in a food chain.</li> <li>• Describe with accuracy the process of digestion and the organs in the body which relate to this process.</li> <li>• Identify and describe the purpose of teeth-types in humans.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>• Can research and create their own food chains labelling different parts of the chain.</li> </ul>
Year 5	<p><b>Prior Learning:</b></p> <ul style="list-style-type: none"> <li>• Know that animals, including humans, have offspring which grow into adults.</li> <li>• Describe the differences in the life cycles of a mammal, an amphibian an insect and a bird.</li> </ul> <hr/> <p>Year Five:</p> <ul style="list-style-type: none"> <li>• Describe the changes as humans develop to old age.</li> </ul> <p><b>Taken from Living things and their habitats</b></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>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Explain with growing accuracy the journey from foetus to mature adult.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Explain the journey from foetus to mature adult.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>• Explore and explain the effect of growing older on hearing, sight, and taste.</li> </ul>
Year 6	<p><b>Prior Knowledge:</b></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> </ul> <hr/> <ul style="list-style-type: none"> <li>• Identify and name the main parts of the circulatory system, and describe the functions of the heart, blood vessels and blood.</li> <li>• Describe the ways in which nutrients and water are transported within animals, including humans.</li> <li>• Recognise the impact of diet, exercise drugs and lifestyle on the way bodies function.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• With growing accuracy, can name and describe the functions of the heart, blood vessels and blood.</li> <li>• Begin to describe the ways in which nutrients and water are transported within the bodies of animals, including humans.</li> <li>• Explain the positive and negative effects of diet, exercise, alcohol and drugs with some accuracy.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Can name and describe the functions of the heart, blood vessels and blood. Explain the positive and negative effects of diet, exercise, alcohol and drugs with increasing accuracy.</li> <li>• Describe the ways in which nutrients and water are transported within the bodies of animals, including humans.</li> <li>• Explain the positive and negative effects of diet, exercise, alcohol and drugs.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>• Describe the impact of exercise on the pulse.</li> </ul>



		<ul style="list-style-type: none"> <li>Explain the benefits of key nutrients for the body.</li> </ul>
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**Progression of Science: Materials**

	<b>KNOWLEDGE</b>	<b>PERFORMANCE OF SKILLS</b>
Nursery	<ul style="list-style-type: none"> <li>To begin to be interested in and describe the texture of things. Expressive Arts and Design: Exploring and Using Media and Materials (30-50 months)</li> <li>Talk about the differences between materials and changes they notice. Understanding the World (30-50 Months).</li> </ul>	<p><b>All Children (WTS)</b></p> <ul style="list-style-type: none"> <li>When exploring mixed media, comment on the characteristics of materials. "Yuck!", "Slippery", "Soft".</li> <li>Enjoys exploring the different textures around them during play. Choosing a soft blanket to keep doll warm or a bright colour for a flower in keeping with their observations of the world around them.</li> </ul> <p><b>Most Children (EXS)</b></p> <ul style="list-style-type: none"> <li>Can describe the texture of the materials around them and seek certain materials for certain uses in their play.</li> </ul>
Reception	Children continue to be exposed to a range of materials. Continuous provision includes water play and building to encourage exploration of concepts such as waterproof and strong/brittle.	
Year 1 Everyday Materials	<p><b>Prior Knowledge:</b> In EYFS children should:</p> <ul style="list-style-type: none"> <li>Be able to ask questions about where they live.</li> <li>Talk about why things happen and how things work.</li> <li>Discuss things they have observed, such as natural and found objects.</li> <li>Manipulate materials to achieve a planned effect.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>With scaffolding of key vocabulary, match objects to the materials they are made from.</li> <li>Name some common materials and choose appropriate objects from a group which are made from them.</li> <li>Using some scientific vocabulary, name the properties of materials.</li> <li>Can match objects to others of the same material.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Given an object, can name the object and the material it is made from.</li> <li>Name common materials and provide some accurate examples.</li> <li>Describe the properties of a variety of every day materials using relevant scientific vocabulary hard/soft shiny/dull stretchy/stiff rough/smooth bendy/not bendy waterproof/not waterproof transparent/opaque absorbent/not absorbent</li> </ul>
	<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, metal, water and rock.</li> <li>Describe the simple physical properties of a variety of everyday materials.</li> </ul>	



	<ul style="list-style-type: none"> <li>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul>	<ul style="list-style-type: none"> <li>Use their knowledge of materials to sort them by their physical properties.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>Can begin to abstractly relate materials to objects made from them.</li> <li>Can describe materials by further properties such as recyclable and man-made.</li> </ul>
<p>Year 2 Uses of materials.</p>	<p><b>Prior Knowledge:</b></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, 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> <hr/> <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><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>Given a property such a 'waterproof' or 'strong' children can choose a material which is suitable for purpose.</li> <li>Explain that some materials are changeable and others aren't. 'The straw is bendy; I can change the shape.'</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Given a property such a 'waterproof' or 'strong' children can choose a material which is suitable for purpose and compare its likely success to others.</li> <li>Explain which materials can be changed through the process of squashing, bending, twisting and stretching, and which cannot.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>Investigate and report on premises such as are all metals are rigid? Can you stretch plastics?</li> <li>After research, can explain how some materials, such as glass and metal can be shaped.</li> </ul>
<p>Year 3 Rocks</p>	<p><b>Prior Knowledge:</b></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><b>Children may:</b></p> <ul style="list-style-type: none"> <li>Have understanding of what soil is.</li> <li>Have some understanding of what a fossil is.</li> </ul> <hr/> <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 in within rock.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>Given criteria, match types of rock to those similar.</li> <li>With scaffolds, explain how fossils are formed.</li> <li>Know that rocks and other materials make soil.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Sort and group rocks by their appearance and physical properties.</li> <li>Explain the simple process of fossil formation.</li> <li>Describe what soil is made from.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>Following research, report on other types of rock, such as precious stones.</li> <li>Investigate how rocks are quarried and explain the process.</li> </ul>



	<ul style="list-style-type: none"> <li>Recognise that soils are made from rocks and organic matter.</li> </ul>	
<p>Year 4 States of matter.</p>	<p><b>Prior Knowledge:</b></p> <ul style="list-style-type: none"> <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> <hr/> <ul style="list-style-type: none"> <li>Compare and group materials together according to whether they are solids, liquids or gases.</li> <li>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation and temperature.</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><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>When given properties of solids, liquids and gasses can classify a material accordingly.</li> <li>When presented with a diagram of the water cycle, can locate where evaporation and condensation are taking place and can describe how temperature affects the processes of evaporation.</li> <li>Can explain following observation that heating and cooling materials causes them to change. Can relate the process of boiling and freezing to temperatures 'water boils at 100 °C and freezes at 0 °C'.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Can identify which properties of an object make it a solid liquid or a gas.</li> <li>Can describe the role of evaporation and condensation in the water cycle and how the rate of evaporation is related to the temperature.</li> <li>Can relate the processes of freezing, melting and boiling to specific temperatures when describing the changes in materials.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>Can describe the different states of matter which a single object may take. It is a solid when it is frozen, but becomes a liquid when it melts.</li> <li>Research a wider range of materials and the temperatures at which they change.</li> </ul>
<p>Year 5 Properties and changes of materials</p>	<p><b>Prior Knowledge:</b></p> <ul style="list-style-type: none"> <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> <li>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation and temperature.</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> <hr/> <ul style="list-style-type: none"> <li>Give reasons based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastics.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>Given the properties of a material can suggest some appropriate uses for it following comparative and fair tests.</li> <li>Can use scientific vocabulary to describe the properties of everyday materials and compare and group them (including their conductivity and magnetic properties)</li> <li>Given a set of reactions, explain what reversible and irreversible changes are and identify new products made as a result of these.</li> <li>Following exploration, explain that some changes such as dissolving and freezing can be reversed.</li> <li>Having explored the use of filtering, sieving and evaporating explain these processes as a way of recovering substances from solutions.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Using their knowledge of materials and based on the results of comparative testing, give reasons for the use of a range of everyday materials.</li> </ul>



	<ul style="list-style-type: none"> <li>• Compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets.</li> <li>• 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 with bicarbonate of soda.</li> <li>• Demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>• Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</li> <li>• Use knowledge of solids, liquids and gases to decide how mixtures might be separated including through filtering, sieving and evaporating.</li> </ul>	<ul style="list-style-type: none"> <li>• Group materials and compare them using age-appropriate scientific vocabulary.</li> <li>• Understand that some changes in materials result in new products being made. Relate this to burning items and the creation of ash and the addition of vinegar to bicarbonate of soda creating a gas.</li> <li>• Describe the processes of freezing, mixing and changes of state as reversible processes. Demonstrate this using an appropriate method.</li> <li>• Use filtering, sieving and evaporation to separate substances given a solution.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>• Consider how materials could be combined to achieve multiple objectives. i.e Layers in clothing for harsh weather conditions.</li> <li>• Apply separation and reversible changes to real world situations – cleaning dirty water and drinking water from salt water.</li> </ul>
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**Progression of science: ENERGY**

Nursery	<ul style="list-style-type: none"> <li>• To look closely at similarities, differences, patterns and change.</li> <li>• Show care and concern for living things and the environment. (30-50 Months) UtW</li> <li>• Talk about some of the things they have observed, such as plants, animals, natural and found objects. (30-50 Months) UtW</li> <li>• Develop an understanding of growth, decay and changes over time. (30-50 Months) UtW</li> <li>• Talk about the features of their own environment and how environments might change over time. (30-50 Months) UtW</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Begin to recognise that their environment changes throughout the year.</li> <li>• Recognise that the changing seasons cause natural changes to the world around them.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Associate seasonal changes to the changing world around them and in other environments.</li> <li>• Begin to associate certain changes to points in the year. Warmer in the summer, colder in the winter.</li> </ul>
Reception	<p><b>Prior knowledge</b>  <b>In Nursery Children should:</b></p> <ul style="list-style-type: none"> <li>• Look closely at similarities, differences, patterns and change.</li> <li>• Show care and concern for living things and the environment. (30-50 Months) UtW</li> <li>• Talk about some of the things they have observed, such as plants, animals, natural and found objects. (30-50 Months) UtW</li> <li>• Develop an understanding of growth, decay and changes over time. (30-50 Months) UtW</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Begin to discuss the similarities and differences between environments.</li> <li>• Make observations of things in their local environment and consider how they have changed. (Grown/died).</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Discuss the similarities and differences between environments, relating to their individual experiences.</li> </ul>



	<ul style="list-style-type: none"> <li>• Talk about the features of their own environment and how environments might change over time. (30-50 Months) UtW</li> </ul>	<ul style="list-style-type: none"> <li>• Make observations of animals and plants changing throughout the year.</li> </ul>
	<p>ELG - Understanding the World: The Natural World</p> <ul style="list-style-type: none"> <li>• Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.</li> <li>• Explore the natural world around them, making observations and drawing pictures of animals and plants.</li> </ul>	
<p>Year 1 Seasons and how they change.</p>	<p><b>Prior Knowledge:</b> <b>In Early Years children should:</b></p> <ul style="list-style-type: none"> <li>• Develop an understanding of change.</li> <li>• Observe and explain why certain things may occur (e.g. leaves falling off trees, weather changes).</li> <li>• Look closely at similarities, differences, patterns and change.</li> <li>• Comment and ask questions about the place they live and the natural world.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Observe changes across the four seasons.</li> <li>• Observe and describe weather associated with seasons and how day length varies.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Given pictures of different seasons, children can discuss some of the differences and similarities they see, including the likely weather.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Given examples of different seasons, children can discuss some of the differences and similarities they will see including the likely weather.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>• Begin to research the weather in different countries. What is the weather like at Christmas in New Zealand?</li> </ul>
<p>Year 2</p>		
<p>Year 3 Light</p>	<p><b>Prior Knowledge:</b> <b>Children may:</b></p> <ul style="list-style-type: none"> <li>• Have existing knowledge of where light comes from.</li> <li>• Have seen their shadow and relate this to the sun.</li> <li>• Have understanding of a reflection.</li> <li>• Understand the light is needed to be able to see things.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Recognise that light is needed to see things and that darkness 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 eyes can be protected.</li> <li>• Recognise that shadows are formed with the light from a light source is blocked out by an opaque object.</li> <li>• Find patterns in the way that the size of shadows change.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Explain that seeing is a process that involves light.</li> <li>• Given a group of objects, sort them into ones which reflect light and ones which do not.</li> <li>• Can explain why sunglasses should be worn on a sunny day.</li> <li>• Can explain why shadows are formed and that shadows change.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Explain that a source of light must be present for our eyes to see objects. Know that when it is dark, our eyes cannot see.</li> <li>• Understand which materials are reflectors of light and that reflective surfaces are easier to see in low levels of light.</li> <li>• Can explain the dangers to eyes posed by the sun and how to protect themselves.</li> <li>• Can explain that shadows are made by opaque objects blocking light and describe how shadows change.</li> </ul> <p><b>Some children (GDS)</b></p>



		<ul style="list-style-type: none"> <li>• Conduct investigations to find the most effective reflective surfaces.</li> <li>• Explore the different shaped shadows that are created by 3D shapes.</li> </ul>
Year 4 Sound	<p><b>Prior Knowledge:</b></p> <p>Children may:</p> <ul style="list-style-type: none"> <li>• Understand that different objects make different sounds.</li> <li>• Have some understanding that they use their ears to hear sounds.</li> <li>• Know about their different senses.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Can associate a sound with something vibrating.</li> </ul> <p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>• Explain that sounds produce vibrations when travel through a medium from a source and into our ears, making parts of them vibrate.</li> <li>• Explain that the loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source. A sound insulator is a material which blocks sound effectively.</li> <li>• Describe pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>• Know that sound cannot travel through a vacuum.</li> <li>• Can explain that the ear shapes of living things vary and look at reasons why this is so.</li> <li>• Can explain that different materials can be used to soundproof buildings and after exploration can choose materials which minimise noise effectively.</li> </ul>
	<ul style="list-style-type: none"> <li>• Identify how sounds are made, associating some of them with something vibrating.</li> <li>• Recognise that vibrations from sounds travel through a medium to the ear.</li> <li>• Find patterns between the pitch of a sound and features of the object that produced it.</li> <li>• Find patterns between the volume of a sound and the strength of the vibration which produced it.</li> <li>• Recognise that sounds get fainter as the distance from the sound source increases.</li> </ul>	
Year 5	<p><b>Prior Knowledge:</b></p>	<p>In order to be prepared for year six, children should understand that light is required for humans to see objects and that in the absence of light, objects cannot be seen. They should know that some objects are reflectors of light and that shadows are the absence of light and be able to explain the dangers of sunlight for the eyes.</p>
Year 6 Light	<p><b>Prior Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Recognise that light is needed to see things and that darkness 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 eyes can be protected.</li> <li>• Recognise that shadows are formed with the light from a light source is blocked out by an opaque object.</li> <li>• Find patterns in the way that the size of shadows change.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• After exploration can explain that light appears to travel in straight lines.</li> <li>• With a supporting diagram, can explain the light travels from a source, reflects off of an object and into the eye.</li> <li>• Can begin to describe sources of light which are natural and manmade.</li> <li>• Know the shadows occur when light is blocked by an opaque object.</li> </ul> <p><b>Most children (EXS)</b></p>
	<ul style="list-style-type: none"> <li>• Recognise that light appears to travel in straight lines.</li> </ul>	



	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</li> </ul>	<ul style="list-style-type: none"> <li>• Can explain that light travels in straight lines and the process by which the human eye sees producing a diagram to support.</li> <li>• Can sort light sources into natural and manmade.</li> <li>• Explain that shadows take the shape of the opaque object blocking the light which travels in a straight line.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>• Can explain that the moon is not a source of light but a reflection of the sun illuminating the star.</li> </ul>
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**Progression of science: ELECTRICITY**

Year 1		
Year 2		
Year 3		
Year 4	<p><b>Prior knowledge:</b> Children may have developed an understanding that:</p> <ul style="list-style-type: none"> <li>• objects need electricity to work.</li> <li>• a switch will turn something on and off.</li> </ul> <ul style="list-style-type: none"> <li>• Know common appliances that run on electricity.</li> <li>• Identify the parts of a simple electrical circuit.</li> <li>• Know that some parts of a simple circuit are integral to it working – complete loop, battery.</li> <li>• Know that a switch opens and closes a circuit.</li> <li>• Recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>	<p><b>All children (WTS)</b></p> <ul style="list-style-type: none"> <li>• Can name a range of equipment used within electrical circuits.</li> <li>• With support, can construct a working electrical circuit.</li> <li>• Following observation, can explain that the changing position of a switch can turn components on and off.</li> <li>• Can test materials to identify them as conductors of electricity.</li> </ul> <p><b>Most children EXS</b></p> <ul style="list-style-type: none"> <li>• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li> <li>• 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>• Associate open and closed switched with whether or not a lamp lights in a simple series circuit</li> <li>• Sort materials into conductors and insulators.</li> </ul> <p><b>Some children GDS</b></p> <ul style="list-style-type: none"> <li>• Create circuits which suit a particular purpose – burglar alarm, traffic lights.</li> </ul>
Year 5		
Year 6	<p><b>Prior knowledge:</b></p>	<p><b>All children (WTS)</b></p>



<ul style="list-style-type: none"> <li>Identify the parts of a simple electrical circuit.</li> <li>Know that some parts of a simple circuit are integral to it working – complete loop, battery.</li> <li>Know that a switch opens and closes a circuit.</li> </ul>		<ul style="list-style-type: none"> <li>Can attribute a growing range of electrical symbols to the components they represent.</li> <li>Following observations, can attribute the brightness, speed or loudness of a component with the amount of batteries (voltage) in a circuit.</li> <li>Following observations, attribute the effectiveness of components to the number of them within a circuit.</li> </ul>
	<ul style="list-style-type: none"> <li>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</li> <li>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.</li> <li>Use recognised symbols when representing a simple circuit in a diagram.</li> </ul>	<p><b>Most children (EXS)</b></p> <ul style="list-style-type: none"> <li>Can use circuit diagrams and symbols to draw a given circuit.</li> <li>Can explain that the voltage within a circuit will affect the components.</li> <li>Explain that the position of a switch will determine whether or not a circuit is complete and attribute this to the component being on or off.</li> <li>Understand that the effectiveness of components is altered when there are more in a circuit.</li> </ul> <p><b>Some children (GDS)</b></p> <ul style="list-style-type: none"> <li>Following research, explain how scientific knowledge of electricity has developed.</li> </ul>

**Progression of science: FORCES**

	Knowledge	Progression of Skills
<b>Nursery</b>	<ul style="list-style-type: none"> <li>Explore and talk about different forces they can feel.</li> </ul>	<p><b>All children WTS</b></p> <ul style="list-style-type: none"> <li>Provided with the opportunity, explore the effect of rolling a ball at different inclines. When prompted, they can discuss the difference in speed.</li> <li>Children know that when things are dropped they will fall.</li> <li>When prompted can associate the properties of floating and sinking to objects during water play.</li> </ul> <p><b>Most children EXS</b></p> <ul style="list-style-type: none"> <li>When exploring with balls and ramps, children notice that the higher the ramp the faster the ball will roll.</li> <li>Children explore how fast different things drop.</li> <li>Children explore the concept of floating and sinking and describe which objects can/can't do this.</li> </ul>
<b>Reception</b>	<b>Children continue to explore pushes and pulls through exploration of the world around them during continuous provision.</b>	
<b>Year 1</b>		
<b>Year 2</b>		



<p><b>Year 3 Magnetism</b></p>	<p><b>Prior knowledge:</b>  <b>In year 2 children may have:</b></p> <ul style="list-style-type: none"> <li>• An awareness of how to make things stop and start, using simple pushes and pulls.</li> <li>• An awareness of materials which float and sink.</li> </ul>	<p><b>All children WTS</b></p> <ul style="list-style-type: none"> <li>• Following observation, can describe how the same object travels differently across a range of surfaces.</li> <li>• Can explain their experiences after using a pulley to reduce the effort required to move an object.</li> <li>• Observe and report on the fact that magnetism can affect two objects from a distance.</li> <li>• Observe and report on whether materials are attracted or repelled by magnets – including other magnets.</li> </ul> <p><b>Most children EXS</b></p> <ul style="list-style-type: none"> <li>• Describe and compare the movement of different objects over a range of surfaces.</li> <li>• Explain that a pulley can be used to alter the effort needed to lift objects.</li> <li>• Compare and group together a variety of everyday materials based on whether they are attracted to a magnet and identify some magnetic materials</li> <li>• Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul> <p><b>Some children GDS</b></p> <ul style="list-style-type: none"> <li>• Understand the magnets come in varying strengths and that this alters their capability to lift different masses.</li> <li>• Research and report on the changing understanding of magnets during history.</li> </ul>
<p><b>Year 4</b></p>		
<p><b>Year 5 Forces</b></p>	<p><b>Prior knowledge:</b></p> <ul style="list-style-type: none"> <li>• Know how things move on different surfaces and compare this.</li> <li>• Know how a simple pulley works and use making lifting an object simpler</li> </ul> <ul style="list-style-type: none"> <li>• know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> <li>• Identify the effects of air resistance, water resistance and friction that act between moving surfaces.</li> </ul>	<p><b>All children WTS</b></p> <ul style="list-style-type: none"> <li>• Explain that forces cause objects to start and stop moving and begin to explain that they also control the speed at which they do so.</li> <li>• Know that Gravity causes objects to fall.</li> <li>• Begin to explain that some forces such as air resistance, water resistance and friction occur between two surfaces.</li> <li>• Explain that machines, can be used to alter the amount of force needed to complete an action.</li> </ul> <p><b>Most children EXS</b></p> <ul style="list-style-type: none"> <li>•</li> </ul> <p><b>Some children GDS</b></p>



	<ul style="list-style-type: none"> <li>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul>	
<b>Year 6</b>		

**Progression of science: EARTH AND SPACE**

<b>Year 1</b>		
<b>Year 2</b>		
<b>Year 3</b>		
<b>Year 4</b>		
<b>Year 5</b>	<p><b>Prior knowledge:</b></p> <ul style="list-style-type: none"> <li>At Chilton, pupils currently study an Earth and Space related topic at KS1.</li> <li>They have previous knowledge of planet names and understand that the sun is at the centre of our solar system and that other planets have moons.</li> </ul>	<p>All children WTS</p> <ul style="list-style-type: none"> <li>Can explain that planets travel around the sun.</li> <li>Can name the planets of our solar system and being to describe their positions in relation to the sun.</li> <li>Know that the moon orbits the Earth.</li> <li>Know that the sun, Earth and moon are spherical.</li> <li>begin to relate the turning of the Earth on an axis to day and night.</li> </ul> <p>Most children EXS</p> <ul style="list-style-type: none"> <li>Can name the planets of the solar system and increasingly their position in relation to the sun.</li> <li>draw a model of the solar system, placing the sun at the centre.</li> <li>Understand that the moon orbits the Earth and discuss the phases of the moon following observation over time studies.</li> <li>Explain that the rotation of the Earth causes day and night.</li> <li>Attribute the tilt of the Earth on an axis to the fact that the sun appears to move across the sky.</li> </ul> <p>Some children GDS</p> <ul style="list-style-type: none"> <li>Attribute the tilt of Earth to the seasons of the year.</li> <li>Explore patterns between the size of planets and the time it takes them to orbit the sun.</li> <li>Relate the Earth's orbit of the sun to a year and the moons orbit of Earth to a (Lunar) month.</li> </ul>
<b>Year 6</b>		

