



Science Long term plan overview
Year A

	Autumn	Spring	Summer
Nursery	<ul style="list-style-type: none"> ● Seasonal changes <ul style="list-style-type: none"> ○ Explore the outdoor environment ○ Talk about what they see using a wide vocabulary. ○ Recognise that there are different seasons and begin to notice some features of each season. ● Cooking <ul style="list-style-type: none"> ○ Talk about the differences between materials and changes they notice. ○ combining different ingredients, and then cooling or heating (cooking) them ● Water <ul style="list-style-type: none"> ○ leave ice cubes out in the sun, see what happens when you shake salt onto them ○ Explore how different materials sink and float. 	<ul style="list-style-type: none"> ● Seasonal changes <ul style="list-style-type: none"> ○ Explore the outdoor environment ○ Talk about what they see using a wide vocabulary. ○ Recognise that there are different seasons and begin to notice some features of each season. ● Light <ul style="list-style-type: none"> ○ Explore how you can shine light through some materials, but not others. ○ Investigate shadows ● Play with malleable materials, change and effects of forces. <ul style="list-style-type: none"> ○ Talk about the differences between materials and changes they notice ○ Explore and talk about different forces they can feel. ○ Examples: <ul style="list-style-type: none"> ○ how the water pushes up when they try to push a plastic boat under it ○ how they can stretch elastic, snap a twig, but cannot bend a metal rod ○ magnetic attraction and repulsion 	<ul style="list-style-type: none"> ● Seasonal changes <ul style="list-style-type: none"> ○ Explore the outdoor environment ○ Talk about what they see using a wide vocabulary. ○ Recognise that there are different seasons and begin to notice some features of each season. ● Our bodies and being healthy <ul style="list-style-type: none"> ○ Begin to understand the need to respect and care for the natural environment and all living things. ○ Discuss the importance of eating healthily and brushing their teeth. ○ Discuss why it's important to wash their hands carefully and throughout the day, including before they eat and after they've used the toilet. ● Growth <ul style="list-style-type: none"> ○ Discuss the concepts of growth, change and decay with natural materials. ○ Plant seeds and care for growing plants. ○ Understand the key features of the life cycle of a plant and an animal.
Year R	<ul style="list-style-type: none"> ● Seasonal changes <ul style="list-style-type: none"> ○ Guide children's understanding by draw children's attention to the weather and seasonal features. 	<ul style="list-style-type: none"> ● Properties of snow and ice <ul style="list-style-type: none"> ○ Guide children's understanding by draw children's attention to the weather and seasonal features. 	<ul style="list-style-type: none"> ● Animal habitats <ul style="list-style-type: none"> ○ Encourage focused observation of the natural world. ○ Listen to children describing and



	<ul style="list-style-type: none"> ○ Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons. ○ Throughout the year, take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change. ○ Look for children incorporating their understanding of the seasons and weather in their play. ● Materials and their properties <ul style="list-style-type: none"> ○ Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. ○ Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water. ● Light and dark <ul style="list-style-type: none"> ○ Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water. 	<ul style="list-style-type: none"> ○ Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons. ○ Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. ○ Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water. ● Growth and change of living things <ul style="list-style-type: none"> ○ Offer opportunities for children to begin to organise events using basic chronology, recognising that things happened before they were born. ○ After close observation, draw pictures of the natural world, including animals and plants. ○ Recognise that living things grow and change as they get older. ○ Begin to observe plants as they grow, describing some of the changes. 	<p>commenting on things they have seen whilst outside, including plants and animals.</p> <ul style="list-style-type: none"> ○ Name and describe some plants and animals children are likely to see, encouraging children to recognise familiar plants and animals whilst outside. ○ After close observation, draw pictures of the natural world, including animals and plants.
Year 1 and 2	● <i>What's growing</i> – plants 1	● <i>Amazing me!</i> – animals inc. humans	● <i>Brilliant builders 1</i> - Everyday



	<ul style="list-style-type: none">○ identify and name a variety of common wild and garden plants, including deciduous and evergreen trees○ identify and describe the basic structure of a variety of common flowering plants, including trees○ 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● Wild weather – seasonal changes 1<ul style="list-style-type: none">○ observe changes across the 4 seasons○ observe and describe weather associated with the seasons and how day length varies	<p>(human focus)</p> <ul style="list-style-type: none">○ identify, name, draw and label the basic parts of the human body and say which of the body is associated with each sense○ notice that animals, including humans, have offspring which grow into adults○ find out about and describe the basic needs of animals, including humans, for survival (water, food and air)○ describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene● Wild and wonderful creatures – animals inc. humans (animal focus)<ul style="list-style-type: none">○ identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates○ identify and name a variety of common animals that are carnivores, herbivores and omnivores○ describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, and including pets)○ identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense○ notice that animals, including humans, have offspring which grow into adults	<p>Materials</p> <ul style="list-style-type: none">○ distinguish between an object and the material from which it is made○ identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock○ describe the simple physical properties of a variety of everyday materials○ compare and group together a variety of everyday materials on the basis of their simple physical properties○ identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses○ find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching● Food chains – living things and their habitats<ul style="list-style-type: none">○ explore and compare the differences between things that are living, dead and things that have never been alive○ identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
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		<ul style="list-style-type: none"> ○ find out about and describe the basic needs of animals, including humans, for survival (water, food and air) ○ describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene 	<ul style="list-style-type: none"> ○ identify and name a variety of plants and animals in their habitats, including micro-habitats ○ 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>Year 3 and 4</p>	<ul style="list-style-type: none"> ● Sound <ul style="list-style-type: none"> ○ identify how sounds are made, associating some of them with something vibrating ○ recognise that vibrations from sounds travel through a medium to the ear ○ find patterns between the pitch of a sound and features of the object that produced it ○ find patterns between the volume of a sound and the strength of the vibrations that produced it ○ recognise that sounds get fainter as the distance from the sound source increases. ● Living things and their habitats <ul style="list-style-type: none"> ○ recognise that living things can be grouped in a variety of ways ○ explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment ○ recognise that environments can change and that this can sometimes pose dangers to living things. 	<ul style="list-style-type: none"> ● Animals, including humans (Digestion, teeth, food chains) <ul style="list-style-type: none"> ○ describe the simple functions of the basic parts of the digestive system in humans ○ identify the different types of teeth in humans and their simple functions ○ construct and interpret a variety of food chains, identifying producers, predators and prey ● Electricity <ul style="list-style-type: none"> ○ identify common appliances that run on electricity ○ construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers ○ identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery ○ recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit 	<ul style="list-style-type: none"> ● Plants <ul style="list-style-type: none"> ○ identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers ○ explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant ○ investigate the way in which water is transported within plants ○ explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.



		<ul style="list-style-type: none"> ○ recognise some common conductors and insulators, and associate metals with being good conductors. 	
<p>Year 5 and 6</p>	<ul style="list-style-type: none"> ● Light <ul style="list-style-type: none"> ○ recognise that light appears to travel in straight lines ○ use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye ○ explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes ○ use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. ● Properties and changes in materials <ul style="list-style-type: none"> ○ compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets ○ know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution ○ use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating ○ give reasons, based on evidence from 	<ul style="list-style-type: none"> ● Animals including humans (Circulatory system, heart, health and digestion). <ul style="list-style-type: none"> ○ identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood ○ recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function ○ describe the ways in which nutrients and water are transported within animals, including humans. ● Earth and space <ul style="list-style-type: none"> ○ describe the movement of the Earth, and other planets, relative to the Sun in the solar system ○ describe the movement of the Moon relative to the Earth ○ describe the Sun, Earth and Moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 	<ul style="list-style-type: none"> ● Living things and habitats - <ul style="list-style-type: none"> ○ describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals ○ give reasons for classifying plants and animals based on specific characteristics. ● Famous scientists <ul style="list-style-type: none"> ○ find out about the work of a variety of scientists (eg James Hansen, Dr Eunice Newton Foote) and the impact that their work has had.



	<p>comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <ul style="list-style-type: none"> ○ demonstrate that dissolving, mixing and changes of state are reversible changes ○ explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. 		
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Science Long term plan overview
Year B

	Autumn	Spring	Summer
Nursery	<ul style="list-style-type: none"> ● Seasonal changes <ul style="list-style-type: none"> ○ Explore the outdoor environment ○ Talk about what they see using a wide vocabulary. ○ Recognise that there are different seasons and begin to notice some features of each season. ● Cooking <ul style="list-style-type: none"> ○ Talk about the differences between 	<ul style="list-style-type: none"> ● Seasonal changes <ul style="list-style-type: none"> ○ Explore the outdoor environment ○ Talk about what they see using a wide vocabulary. ○ Recognise that there are different seasons and begin to notice some features of each season. ● Light <ul style="list-style-type: none"> ○ Explore how you can shine light 	<ul style="list-style-type: none"> ● Seasonal changes <ul style="list-style-type: none"> ○ Explore the outdoor environment ○ Talk about what they see using a wide vocabulary. ○ Recognise that there are different seasons and begin to notice some features of each season. ● Our bodies and being healthy <ul style="list-style-type: none"> ○ Begin to understand the need to



	<p>materials and changes they notice.</p> <ul style="list-style-type: none"> ○ combining different ingredients, and then cooling or heating (cooking) them ● Water <ul style="list-style-type: none"> ○ leave ice cubes out in the sun, see what happens when you shake salt onto them <p>Explore how different materials sink and float.</p>	<p>through some materials, but not others.</p> <ul style="list-style-type: none"> ○ Investigate shadows ● Play with malleable materials, change and effects of forces. <ul style="list-style-type: none"> ○ Talk about the differences between materials and changes they notice ○ Explore and talk about different forces they can feel. ○ Examples: <ul style="list-style-type: none"> ○ how the water pushes up when they try to push a plastic boat under it ○ how they can stretch elastic, snap a twig, but cannot bend a metal rod ● magnetic attraction and repulsion 	<p>respect and care for the natural environment and all living things.</p> <ul style="list-style-type: none"> ○ Discuss the importance of eating healthily and brushing their teeth. ○ Discuss why it's important to wash their hands carefully and throughout the day, including before they eat and after they've used the toilet. ● Growth <ul style="list-style-type: none"> ○ Discuss the concepts of growth, change and decay with natural materials. ○ Plant seeds and care for growing plants. ● Understand the key features of the life cycle of a plant and an animal.
<p>Year R</p>	<ul style="list-style-type: none"> ● Seasonal changes <ul style="list-style-type: none"> ○ Guide children's understanding by draw children's attention to the weather and seasonal features. ○ Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons. ○ Throughout the year, take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change. ○ Look for children incorporating their understanding of the seasons and weather in their play. ● Materials and their properties <ul style="list-style-type: none"> ○ Encourage interactions with the 	<ul style="list-style-type: none"> ● Properties of snow and ice <ul style="list-style-type: none"> ○ Guide children's understanding by draw children's attention to the weather and seasonal features. ○ Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons. ○ Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. ○ Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting 	<ul style="list-style-type: none"> ● Animal habitats <ul style="list-style-type: none"> ○ Encourage focused observation of the natural world. ○ Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. ○ Name and describe some plants and animals children are likely to see, encouraging children to recognise familiar plants and animals whilst outside. ● After close observation, draw pictures of the natural world, including animals and plants.



	<p>outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences.</p> <ul style="list-style-type: none"> ○ Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water. ● Light and dark ● Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water. 	<p>an object and a boat floating on water.</p> <ul style="list-style-type: none"> ● Growth and change of living things <ul style="list-style-type: none"> ○ Offer opportunities for children to begin to organise events using basic chronology, recognising that things happened before they were born. ○ After close observation, draw pictures of the natural world, including animals and plants. ○ Recognise that living things grow and change as they get older. ● Begin to observe plants as they grow, describing some of the changes. 	
<p>Year 1 and 2</p>	<ul style="list-style-type: none"> ● <i>People and their pets</i> – animals inc. humans (animal focus) <ul style="list-style-type: none"> ○ identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals ○ identify and name a variety of common animals that are carnivores, herbivores and omnivores ○ describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) ○ identify, name, draw and label the basic parts of the human body and say 	<ul style="list-style-type: none"> ● <i>Brilliant Builders 2</i> – everyday materials <ul style="list-style-type: none"> ○ distinguish between an object and the material from which it is made. ○ identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. ○ describe the simple physical properties of a variety of everyday materials. ○ compare and group together a variety of everyday materials on the basis of their simple physical properties. ○ identify and compare the suitability of a variety of everyday materials, including 	<ul style="list-style-type: none"> ● <i>Habitats and Homes</i> – Living things and their habitats. <ul style="list-style-type: none"> ○ explore and compare the differences between things that are living, dead and things that have never been alive ○ identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other ● <i>Exploring Changes</i> – everyday materials



	<p>which part of the body is associated with each sense</p> <ul style="list-style-type: none"> • Weather art – seasonal changes 2 <ul style="list-style-type: none"> ○ observe changes across the 4 seasons ○ observe and describe weather associated with the seasons and how day length varies 	<p>wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <ul style="list-style-type: none"> ○ find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. • Art and Nature – plants 2 <ul style="list-style-type: none"> ○ identify and name a variety of common wild and garden plants, including deciduous and evergreen trees ○ identify and describe the basic structure of a variety of common flowering plants, including trees ○ 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 	<ul style="list-style-type: none"> ○ distinguish between an object and the material from which it is made ○ identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock ○ describe the simple physical properties of a variety of everyday materials ○ compare and group together a variety of everyday materials on the basis of their simple physical properties ○ identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses ○ find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
<p>Year 3 and 4</p>	<ul style="list-style-type: none"> • Forces and Magnets <ul style="list-style-type: none"> ○ compare how things move on different surfaces ○ notice that some forces need contact between two objects, but magnetic forces can act at a distance ○ observe how magnets attract or repel each other and attract some materials and not others ○ compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials 	<ul style="list-style-type: none"> • States of Matter <ul style="list-style-type: none"> ○ compare and group materials together, according to whether they are solids, liquids or gases ○ observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) ○ identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	<ul style="list-style-type: none"> • Animals, including humans (Nutrition, muscles, skeleton) <ul style="list-style-type: none"> ○ identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat ○ identify that humans and some other animals have skeletons and muscles for support, protection and movement.



	<ul style="list-style-type: none"> ○ describe magnets as having two poles ○ predict whether two magnets will attract or repel each other, depending on which poles are facing. ● Rocks <ul style="list-style-type: none"> ○ compare and group together different kinds of rocks on the basis of their appearance and simple physical properties ○ describe in simple terms how fossils are formed when things that have lived are trapped within rock ○ recognise that soils are made from rocks and organic matter. 	<ul style="list-style-type: none"> ● Light <ul style="list-style-type: none"> ○ recognise that they need light in order to see things and that dark is the absence of light ○ notice that light is reflected from surfaces ○ recognise that light from the sun can be dangerous and that there are ways to protect their eyes ○ recognise that shadows are formed when the light from a light source is blocked by an opaque object ○ find patterns in the way that the size of shadows change. 	
<p>Year 5 and 6</p>	<ul style="list-style-type: none"> ● Electricity <ul style="list-style-type: none"> ○ associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit ○ compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches ○ use recognised symbols when representing a simple circuit in a diagram. ● Forces <ul style="list-style-type: none"> ○ explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object ○ identify the effects of air resistance, water resistance and friction, that act between moving surfaces 	<ul style="list-style-type: none"> ● Animals including humans <ul style="list-style-type: none"> ○ describe the changes as humans develop to old age. ● Evolution and inheritance <ul style="list-style-type: none"> ○ recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago ○ recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents ○ identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. ○ find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and 	<ul style="list-style-type: none"> ● Living things and their habitat- <ul style="list-style-type: none"> ○ describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird ○ describe the life process of reproduction in some plants and animals. ● Famous scientists <ul style="list-style-type: none"> ○ find out about the work of a variety of scientists and the impact that their work has had.



- recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Alfred Wallace developed their ideas on evolution.