

Science Curriculum Overview 2023-24

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	<p><u>Plant and care for bulbs</u> -To understand that plants are living things and we must care and look after them.</p> <p><u>Materials</u> -To explore different materials and discuss how they feel and how they look and how they are similar and different.</p> <p><u>Nocturnal Animals</u> - To understand that some animals are awake during the night and these animals are called nocturnal animals.</p>		<p><u>Lifecycles</u> -To understand the key features of a life cycle of a mini beast and understand the key features of a life cycle of a plant.</p> <p><u>Mini beast</u> - To know that a minibeast is a type animal, an animal without a backbone that are usually small. -To recall the life cycle of a butterfly. - To name some common mini beasts and observe them in their habitats, noticing and describing their habitat/home.</p>		<p><u>Ice Experiment</u> - To be able to talk about differences between materials and the changes they notice.</p> <p><u>Volcano experiment</u> - To make observations about what they have seen and talk about differences between materials and the changes they notice.</p>	
Reception	.	<p><u>It's Cold Outside</u> Scientific Question: What animals would we find in the Polar regions? Research</p> <p>- To know in Winter the weather is cold. - To know that Polar regions are very cold places. - To observe that ice can melt. - To know that animals that may live in a polar region include</p>	<p><u>Seasons- Spring and Winter</u> Scientific Question: What changes can we see during Spring? Research Observation over time</p> <p>- To know that we have different types of weather in our country including rain, sunshine and snow. - To know we have four different seasons and the weather changes</p>	<p><u>How things grow</u> Scientific Question: What plants and animals do we have in our school environment? How do they change over time? Research Observation over time</p> <p>- To know that plants have a stem, roots, leaves and flowers. - To know that plants provide us food such as vegetables.</p>	<p><u>Minibeasts</u> Scientific Question: How can we sort the people according to their characteristics? e.g. hair colour Identifying, classifying and grouping</p> <p>- To know that minibeasts, including butterflies, go through several changes as they grow. - To know that we can find several insects in</p>	<p><u>Moving On</u> Scientific Question: Which animals live in water and which animals live on land? Identifying, classifying and grouping</p> <p>- To know that some animals and plants live in ponds. To know that some animals live in water e.g. fish. - To know that animals live in water and on land e.g. frogs.</p>

		<p>penguins and polar bears.</p>	<p>depending on the season.</p> <ul style="list-style-type: none"> - To know we need to be prepared for the weather e.g. coats in the rain and hats in the cold. - To recognise that during each season changes can happen to the wildlife. <p><u>Materials</u></p> <p>Scientific Question</p> <p>What is the most common material within our classroom?</p> <p>Pattern seeking</p> <ul style="list-style-type: none"> - To know that a material is what an object is made from. - To know that metal, wood, plastic and glass are all common materials. - To recognise that we can see a range of materials within our classroom and outdoors e.g the fence is made from metal. 	<ul style="list-style-type: none"> - To know that plants grow and change over time. 	<p>our local environment, including worms and butterflies.</p>	<p><u>Seasons- Summer</u></p> <p>Scientific Question:</p> <p>How can we prepare for Summer?</p> <p>Research</p> <ul style="list-style-type: none"> - To know that we have different types of weather in our country including rain, sunshine and snow. - To know we have four different seasons and the weather changes depending on the season. - To know we need to be prepared for the weather e.g. coats in the rain and hats in the cold. - To recognise that during each season changes can happen to the wildlife.
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Year 1	<p><u>Animals, including humans.</u></p> <p>Scientific Question: How can we organise all of the animals in the zoo? Identifying, classifying and grouping</p> <p>Scientist- Linda Brown Buck</p> <ul style="list-style-type: none">- To identify and name a variety of common animals.- To know what a carnivore, a herbivore, an omnivore are and give examples of each.- To describe the structures of common animals.- To know the parts of the human body and identify the 5 senses.	<p><u>Seasonal Change (Autumn)</u></p> <p>Scientific Question: How can we sort the leaves that we have collected on our walk? Identifying, classifying and grouping</p> <ul style="list-style-type: none">- To know when the 4 seasons occur.-To describe the signs of the 4 seasons.- To describe and compare the weather for each season.- To describe how the day length changes with the seasons.	<p><u>Seasonal Change (Winter)</u></p> <p>Scientific Question: What is the weather like in Winter? Research</p> <ul style="list-style-type: none">- To know when the 4 seasons occur.-To describe the signs of the 4 seasons.- To describe and compare the weather for each season.- To describe how the day length changes with the seasons.	<p><u>Plants</u></p> <p>Scientific Question: How has the sunflower changed each week? Observation over time</p> <ul style="list-style-type: none">- To explore and group different plants in the environment.- To identify and name common flowers.- To know the difference between a deciduous and an evergreen tree, giving examples of each.- To know the basic structure of plants and trees. <p><u>Seasonal Change (Spring)</u></p> <ul style="list-style-type: none">- To know when the 4 seasons occur.-To describe the signs of the 4 seasons.- To describe and compare the weather for each season.- To describe how the day length changes with the seasons.	<p><u>Everyday Materials</u></p> <p>Scientific Question: Which materials can be recycled? Research</p> <ul style="list-style-type: none">- To explore, identify and name a variety of everyday materials.- To identify the materials that an object is made from.- To describe and compare the physical properties of materials.- To compare and group materials based on their properties.	<p><u>Seasonal Change (Summer)</u></p> <p>Scientific Question: How would you group these things based on which season you are most likely to see them in? Identifying, classifying and grouping</p> <ul style="list-style-type: none">- To know when the 4 seasons occur.-To describe the signs of the 4 seasons.- To describe and compare the weather for each season.- To describe how the day length changes with the seasons.
Year 2	<p><u>Animals, including humans</u></p> <p>Scientific Question: How can humans live a healthy lifestyle? Research Identifying, classifying and grouping</p>	<p><u>Living things and their habitats</u></p> <p>Scientific Question: How does the habitat of the Arctic compare with the Desert? Research</p>		<p><u>Plants</u></p> <p>Scientific Question: What do seeds need in order to grow best? Comparative and fair testing</p>	<p><u>Materials</u></p> <p>Scientific Question: How have the materials we use changed over time? Research</p>	

	<ul style="list-style-type: none">- To recognise growth of animals and understand ‘offspring’.- To explain what animals need to survive.- To explain what humans need to stay healthy.		<ul style="list-style-type: none">- To explain the difference between things that are living, dead and have never been alive.- To know why animals are suited to their habitat and make comparisons.- To understand the terms ‘habitat’ and ‘micro-habitat’ identifying the different types of plants and animals living in them.- To understand what food chains are.		<ul style="list-style-type: none">- To identify each part of the plant.- To describe and observe how seeds and bulbs grow into mature plants.- To investigate what plants need to survive and stay healthy.	Scientists- Charles Macintosh and Ole Kirk Christiansen <ul style="list-style-type: none">- To identify and discuss the uses of everyday materials.- To understand how properties of materials make them suitable for their purpose.- To understand how the shape of objects can be changed.- To research the Scientist Charles Macintosh and complete an investigation relating to his work.
Year 3	<u>Animals, including humans</u> Scientific Question: How can we group the food that we eat? Identifying, classifying and grouping Scientist- Marie Curie	<u>Rocks</u> Scientific Question: Which soil absorbs the most water? Comparative and fair testing Scientist: Mary Anning - To observe different rocks and explore how	<u>Forces and Magnets</u> Scientific Question: Which surface is best to stop you slipping? Explain why. Comparative and fair testing Scientists- William Gilbert and Guillaume Amontons - Predict and investigate whether things move differently depending on the surface.	<u>Light</u> Scientific Question: How does the distance between the shadow puppet and the screen affect the size of the shadow? Comparative and fair testing Pattern seeking Observation over time	<u>Plants</u> Scientific Question: Explain the lifecycle of a flowering plant. Research Observation over time Scientist- Jeanne Baret - To identify and describe the functions	

	<ul style="list-style-type: none"> - To understand the importance of nutrition for animals and humans. - To show that animals (including humans) can be grouped according to what they eat. - To understand the 5 food groups and identify how they keep us healthy. - To know the main body parts associated with the skeleton and muscles and their purpose. - To identify and group animals with and without a skeleton. 	<p>they might have changed over time.</p> <ul style="list-style-type: none"> - To compare and group different rocks on their appearance and physical properties. - To understand what fossils are, how they are formed and whose fossils are found in sedimentary rock. - To know what 'soils' are and make comparisons between them. 	<ul style="list-style-type: none"> - To understand and compare how different forces work. - To observe how magnets attract or repel each other and some materials. - To compare and group everyday materials according to whether they are attracted to a magnet. - To understand the theory of William Gilbert and to explain what the magnetic poles are. 	<ul style="list-style-type: none"> - To know what a light source is and how light allows us to see. - To understand that light is reflected from surfaces. - To explain why the sun is dangerous. - To explore and explain how shadows are formed. - To investigate how the size of shadows change. 	<p>of different parts of flowering plants.</p> <ul style="list-style-type: none"> - To explain what plants need for growth. - To investigate how water is transported within plants. - To explain the role flowers play in the life cycle of flowering plants.
Year 4	<p><u>Animals, including humans</u></p> <p>Scientific Question: How are animals' teeth and diet linked and why?</p> <p>Research Pattern seeking</p> <ul style="list-style-type: none"> -To identify and describe the functions of the basic parts of the digestive system. - To identify the different types of teeth and explain their purpose. - To compare teeth of carnivores and herbivores and explain reasons for differences. 	<p><u>States of matter</u></p> <p>Scientific Question: Is there a pattern in how long it takes different sized ice lollies to melt?</p> <p>Pattern seeking Observation over time</p> <ul style="list-style-type: none"> - To explain the terms <i>solid, liquid</i> and <i>gas</i> and compare and group materials according to this. - To understand some materials can change state when they are heated or cooled and explain why. 	<p><u>Circuits and Electricity</u></p> <p>Scientific Question: What happens to the brightness of the bulbs when more cells are added?</p> <p>Comparative and fair testing</p> <p>Scientist- Lewis Latimer</p> <ul style="list-style-type: none"> - Recognise common appliances that run on batteries or mains electricity and Identify the dangers of electricity. - Complete a simple series circuit, 	<p><u>Living things and their habitats</u></p> <p>Scientific Question: Why are people cutting down the rainforests and what effect does that have?</p> <p>Research</p> <p>Scientist- Rachel Carson</p> <ul style="list-style-type: none"> - To explore the local environment to identify and name a variety living things. - To classify and group living things in a variety of ways. 	<p><u>Sound</u></p> <p>Scientific Question: How does the volume of a drum change as you move further away from it?</p> <p>Comparative and fair testing</p> <p>Scientist- Robert Boyle</p> <ul style="list-style-type: none"> -To understand and explain how sound is made. - To explain how the ear allows us to hear sound. - To understand and experiment with the theory of Robert Boyle (medium). - To explore how pitch and volume of sounds can be changed. - To explore the relationship between distance and sound.

	<ul style="list-style-type: none">- To construct and interpret a variety of food chains.	<ul style="list-style-type: none">- To understand the terms <i>evaporation</i> and <i>condensation</i> and their role in the water cycle.	identifying and naming the basic parts. <ul style="list-style-type: none">- Investigate how lamps and switches work in a circuit.- Recognise and experiment with common conductors and insulators.	<ul style="list-style-type: none">- To recognise that environments can change and explore examples of human impact on environments.	
Year 5	<p><u>Properties and changes of materials</u></p> <p>Scientific Question: What different ways can we use to separate materials?</p> <p>Comparative and fair testing</p> <p>Observation over time</p> <ul style="list-style-type: none">- To compare and group materials based on their properties.- To identify materials that dissolve in a liquid and explain how to recover a substance from a solution.- To explore how mixtures might be separated.- To use comparative and fair tests to give reasons for the particular uses of everyday materials.- To demonstrate that dissolving, mixing and changes of state are reversible changes.- To understand that some changes are irreversible and some changes result in the formation of new materials.- To understand that some changes are irreversible and some changes result in the formation of new materials.	<p><u>Forces</u></p> <p>Scientific Question: How does the surface area of a parachute affect the time it takes to fall to the ground?</p> <p>Comparative and fair testing</p> <p>Scientists- Galileo Galilei and Isaac Newton</p> <ul style="list-style-type: none">- To explore and explain the theory of gravity through research of scientists of Isaac Newton, Galileo Galilei and Aristotle.- To identify the effects of air resistance through scientific enquiry.- To identify the effects of water resistance	<p><u>Earth and Space</u></p> <p>Scientific Question: Is there a pattern between the size of a planet and the time it takes to travel around the Sun?</p> <p>Pattern seeking</p> <p>Scientist- Katherine Johnson</p> <ul style="list-style-type: none">-To describe the movement of the Earth, and other planets, relative to the Sun.- To understand what a <i>moon</i> is, and to describe the movement of the Moon relative to the Earth.- To explain day and night.	<p><u>Living things and their habitats</u></p> <p>Scientific Question: What are the differences between the life cycle of an insect and mammal?</p> <p>Research</p> <p>Identifying, classifying and grouping</p> <p>Scientist- Jane Goodall</p> <ul style="list-style-type: none">- To understand what a life cycle is and compare the differences between mammals, amphibians, insects and birds.- To observe and compare the life cycles of plants and animals in our environment to others around the world.- To understand the different types of reproduction in plants and animals.- To research the work of naturalists and animal behaviourists. <p><u>Animals including humans</u></p> <p>Scientific Question: What can adults do now that they couldn't when they were a young child?</p>	

			<p>through scientific enquiry.</p> <ul style="list-style-type: none"> - To identify the effects of friction through scientific enquiry. - To explore and explain the effects of levers, pulleys and simple machines on movement. 		<p>Research</p> <ul style="list-style-type: none"> -To identify the changes in the growth and development of humans. - To explain the changes experienced during puberty. - To research the gestation periods of animals and compare with humans.
Year 6	<p><u>Living things and their habitats</u></p> <p>Scientific Question: How would you make a classification key for vertebrates/invertebrates?</p> <p>Identifying, classifying and grouping</p> <p>Scientists- Carl Linnaeus and Libbie Hyman</p> <ul style="list-style-type: none"> - To know who Linnaeus was and learn about his classification system. - To explore classification systems, understanding that they grouped according to similarities and differences. - To explain the reasons for classifying plants and 	<p><u>Animals, including humans</u></p> <p>Scientific Question: How does our heart rate change throughout the day?</p> <p>Observation over time</p> <p>Scientists- Marie Maynard Daly</p> <ul style="list-style-type: none"> - To identify the main parts of the human circulatory system and explain their function. - To explain how a healthy lifestyle can promote better circulation throughout the body. - To explore and explain how nutrients 	<p><u>Light</u></p> <p>Scientific Question: How do we know that light travels in straight lines?</p> <p>Comparative and fair testing</p> <p>Research</p> <ul style="list-style-type: none"> - To explore and experiment with light travelling in straight lines. - To describe the movement of light beams as they reflect off surfaces. - To explain how we are able to see. - To explain how the shape and size of a shadow are determined. 	<p><u>Electricity</u></p> <p>Scientific Question: What affects the brightness of the bulb in an electrical circuit?</p> <p>Comparative and fair testing</p> <p>Pattern seeking</p> <ul style="list-style-type: none"> - To investigate the effect of changing the number and voltage of cells in an electrical circuit. - To explain the variations in how components, function. - To use diagrams to represent simple circuits using recognised symbols. 	<p><u>Evolution and inheritance</u></p> <p>Scientific Question: How has a given animal evolved over time?</p> <p>Research</p> <p>Scientists- Alfred Wallace and Charles Darwin</p> <ul style="list-style-type: none"> - To understand the theories and achievements of Charles Darwin and Alfred Wallace. - To identify possible heritable traits of offspring over generations. - To understand the process of natural selection. - To explain how animals survive through adaptation to their environment. - To explore how fossils are made and how they provide us with information.

	<p>animals based on specific characteristics.</p> <ul style="list-style-type: none"> - To describe and investigate helpful and harmful microorganisms. 	<p>are transported throughout the body.</p>	<ul style="list-style-type: none"> - To investigate how white light can be split into 7 rainbow colours. 		
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