

Science

Summary and Progression							Working Scientifically
Nursery	Reception	<u>Y1</u>	<u>Y2</u>	<u>Y3</u>	<u>Y4</u>	<u>Y5</u>	<u>Y6</u>
<ul style="list-style-type: none"> Encourage children to ask questions Talk about what they see using a wide vocabulary Observe and explore the environment Respond to open ended questions 	<ul style="list-style-type: none"> Ask questions to find out more, and to check they understand what has been said to them Talk about what they see using a wide vocabulary Children to answer who, where and when questions first before answering 'why' and 'I wonder/how do you know' questions. Describe what they see, hear and feel Explore the natural world around them Connect one idea or action to another 	<ul style="list-style-type: none"> Ask simple questions linked to the science work we are doing. Observe closely and describe what I see. Perform simple tests, using familiar, everyday equipment. Gather and record information to help answer questions (including using photographs and drawings). 	<ul style="list-style-type: none"> Ask simple questions and recognise that they can be answered in different ways. Observe closely, using given measuring equipment. Perform simple tests without support. Identify and classify. Use my observations and ideas to suggest answers to questions. Gather and record accurate data to help in answering questions (incl. numerical data, where appropriate). 	<ul style="list-style-type: none"> Ask relevant scientific questions and suggest a scientific way of answering them. Set up, with guidance, simple practical enquiries, comparative and fair tests. Make careful observations and take accurate measurements using standard units. Gather, record, classify and present data in a variety of ways to help answer questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Use results to draw simple conclusions and make predictions for new values. Use straightforward scientific evidence to answer questions or to support my findings. 	<ul style="list-style-type: none"> Ask relevant questions and use different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and fair tests independently. Make systematic and careful observations and take accurate measurements using standard units, and use a range of equipment, including thermometers and data loggers. Report on findings, including oral and written explanations, displays or presentations of results and conclusions. Use results to suggest improvements to enquiries and to raise questions. Identify differences, similarities or changes related to simple scientific ideas and processes. 	<ul style="list-style-type: none"> Work as part of a team to plan enquiries to answer questions, including recognising and controlling variables. Take measurements, using a range of equipment, with precision, taking repeat readings when appropriate. Record data and results using scientific diagrams and labels, classification keys, tables, bar and line graphs. Use test results to make predictions to set up further comparative and fair tests. Report and present findings, including conclusions, causal relationships and degree of trust, in oral and written forms. 	<ul style="list-style-type: none"> Plan more sophisticated scientific enquiries to answer questions, including recognising and controlling variables. Justify my choices of data collection method and number of observations and measurements. Choose the most appropriate method to record data and results of increasing complexity. Identify scientific evidence that has been used to support or refute ideas or arguments.
Summary and Progression					Living Things (Animals, Humans and Plants)		
Nursery	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Plants and animals <ul style="list-style-type: none"> Plant seeds and care for growing plants Understand key features of a life cycle 	Plants and animals <ul style="list-style-type: none"> Describes what they see, hear and feel outside Explore the natural 	<ul style="list-style-type: none"> Identify and name a variety of plants and animals, identify their parts and describe their basic structure. 	<ul style="list-style-type: none"> Explore and compare the differences between things that 	<ul style="list-style-type: none"> Identify and describe the functions of different parts of flowering plants, 	<ul style="list-style-type: none"> Group and classify living things in different ways and understand impact of environment. 	<ul style="list-style-type: none"> Describe the differences in the life cycles of plants, mammals, amphibians, insects 	<ul style="list-style-type: none"> Give reasons for classifying plants and animals based on specific characteristics.

<p>of a plant and an animal</p> <ul style="list-style-type: none"> • Begin to understand the need to respect and care for the natural environment and all living things. 	<p>world around them</p> <ul style="list-style-type: none"> • Develop an understanding of growth, decay and changes over time > life cycles (caterpillar) 		<p>are living, dead.</p> <ul style="list-style-type: none"> • Understand habitats and how they provide basic needs of plants, animals and humans (including food chains). • Understand lifecycles of plants, animals and humans. 	<p>animals and humans describe and their lifecycles.</p> <ul style="list-style-type: none"> • Explore the requirements of plants, animals and humans for life and growth and understand how they differ. 	<ul style="list-style-type: none"> • Describe the simple functions of the basic parts of the digestive system and teeth in humans. • Construct and interpret a food chains. 	<p>and birds and understand their reproductive processes.</p> <ul style="list-style-type: none"> • Raise questions about the environment and study the work of naturalists. • Describe the changes as humans develop to old age. 	<ul style="list-style-type: none"> • Understand the human circulatory system and how nutrients and water are transported in human body. • Learn how to keep their bodies healthy and how their bodies might be damaged. • Explore the work of scientists and scientific research.
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Summary and Progression

Electricity

Nursery	Reception	Y1	Y2	Y3	Y4	Y5	Y6
		<ul style="list-style-type: none"> • Know the difference between mains and battery operated appliances. • Identify 3 appliances that work on mains and 3 that work on battery. 	<ul style="list-style-type: none"> • Recognise some simple conductors and insulators. • Explain how conductors and insulators are used in everyday life. 	<ul style="list-style-type: none"> • Construct a simple electrical circuit and identify its parts. • Use symbols to make a circuit diagram. 	<ul style="list-style-type: none"> • Draw, construct and use simple circuits. • Identify whether or not a lamp will light. • Recognise that a switch opens and closes a circuit. • Recognise some common conductors and insulators. 	<ul style="list-style-type: none"> • Recognise symbols in a complex circuits. • I understand what a circuit breaker is. 	<ul style="list-style-type: none"> • Compare and give reasons for variations in how components function. • Construct and adapt simple series circuits and answer question about the changes. • Represent a circuit in a diagram using recognised symbols.

Summary and Progression							Earth & Space
Nursery	Reception	Y1	Y2	Y3	Y4	Y5	Y6
<p>Earth, Space and light</p> <ul style="list-style-type: none"> • Know what the sun is, know what the moon is. • Name light and dark 	<p>Earth and Space and light</p> <ul style="list-style-type: none"> • Know that we live planet Earth. • Discuss the difference between day and night • Observe and interact objects casting shadow • Discuss the difference between light and dark (we cannot see when there is no light). • Know some light sources (sun, torch, candle/fire) 	<ul style="list-style-type: none"> • Understand what the Earth, Sun and Moon are. 	<ul style="list-style-type: none"> • Order the Earth, Sun and Moon by size and their rotation. • Recognise what planets are. 	<ul style="list-style-type: none"> • Explain how we get day and night. 	<ul style="list-style-type: none"> • Explain why the sun appears to move across the sky. • Describe where the sun rises and sets. 	<ul style="list-style-type: none"> • Describe and understand our solar system. • Describe the shape movement of the Earth, and other planets, relative to the Sun. • Describe the movement of the Moon relative to the Earth. • Use the idea of the Earth's rotation to explain day and night. 	<ul style="list-style-type: none"> • Know phases of the moon.
Summary and Progression							Materials
Nursery	Reception	Y1	Y2	Y3	Y4	Y5	Y6
<ul style="list-style-type: none"> • Use all their senses in hands in exploration of natural materials • Explore collection of materials with similar and/or different properties • Talk about what they see using a wide vocabulary • Talk about differences between materials and changes they notice 	<ul style="list-style-type: none"> • Observe and interact with natural processes such as ice melting • Explore different materials. • Look closely at similarities, differences, patterns and change in materials. 	<ul style="list-style-type: none"> • Distinguish between an object and the material from which it is made. • Identify, name and compare a variety of everyday materials and describe their properties. 	<ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials for different purposes. • Find out how the shapes of solid objects made from some materials can be changed. 	<ul style="list-style-type: none"> • Compare and group together different kinds of rocks. • 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"> • Explore a variety of everyday materials and develop simple descriptions of the states of matter. • 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 understand evaporation and condensation. 	<ul style="list-style-type: none"> • Compare and group together everyday materials on the basis of their properties. • Know that some materials will dissolve in liquid. • Decide how mixtures might be separated and understand the difference between reversible and irreversible changes. • Understand comparative and fair tests. 	<ul style="list-style-type: none"> • Explain the formation of new materials. • Compare and group materials based on their properties and their response to magnets.
Summary and Progression							Forces
Nursery	Reception	Y1	Y2	Y3	Y4	Y5	Y6

<ul style="list-style-type: none"> • Explore and talk about different forces they can feel • Explore how things work 	<ul style="list-style-type: none"> • Explore forces, magnets, floating and sinking in the environment 	<ul style="list-style-type: none"> • Identify different forces within the everyday environment. 	<ul style="list-style-type: none"> • Compare how different things move on different surfaces. • Understand forces have magnitude and direction. • Know that some forces need contact, but magnetism and gravity are non-contact forces. 	<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 and predict how magnets have poles and 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. 	<ul style="list-style-type: none"> • Understand that gravity is a force and investigate how it works. • Use and apply scientific equipment to measure forces. 	<ul style="list-style-type: none"> • Explain that unsupported objects fall towards the Earth because of the force of gravity. • Identify and explore the effects of air resistance, water resistance and friction. • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. • Explore the work of how Galileo Galilei and Isaac Newton. 	<ul style="list-style-type: none"> • Understand the effects of forces in context and know that some mechanisms allow a smaller force to have a greater effect (levers, pulleys and gears). • Explore the effects of water resistance, buoyancy and friction in context.
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Summary and Progression							Light & Sound
Nursery	Reception	Y1	Y2	Y3	Y4	Y5	Y6
		<ul style="list-style-type: none"> • Understand that a shadow is formed when an object blocks the light. • Discuss what objects make sounds. • Use vocabulary to describe different sounds. 	<ul style="list-style-type: none"> • Understand the difference between natural and artificial light sources. • Begin to identify how sounds are made. 	<ul style="list-style-type: none"> • Recognise the need light in order to see things. • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Notice that light is reflected from surfaces. • Recognise that shadows are formed when the light from a light source is blocked by a solid object. 	<ul style="list-style-type: none"> • Identify how sounds are made, associating some of them with something vibrating and these vibrations travel through a medium to the ear. • Understand how pitch and volume of a sound can be changed. 	<ul style="list-style-type: none"> • Explain how an object can reflect light. • Draw a scientific diagram to support my explanation. • Describe how the eye sees light/colour and how it functions. • Understand transparency, translucency and opaqueness. 	<ul style="list-style-type: none"> • Recognise that light appears to travel in straight lines. • Explain that objects are seen because they give out or reflect light into the eye and explain why shadows have the same shape as the objects that cast them. • Work scientifically by investigating a range of phenomena involving light.