



*Doing all the good we can*  
Science Progression Overview

Year 1/2 Working scientifically	Autumn A Why is Richmond Special?	Spring A What's it made of and why?	Summer A How do people tell their stories?	Autumn B How do I care for my body and mind?	Spring B What makes a good home?	Summer B Why is our environment precious?
-ask simple questions and recognise that they can be answered in different ways -observe closely, using simple equipment -perform simple tests -know how to identify and classify -use their observations and ideas to suggest answers to questions	<b>Plants</b> <b>Common plants</b> <b>Plant structure</b> -know and name a variety of common wild and garden plants, including deciduous and evergreen trees -know and name the petals, stem leaves and roots of a plant -know and name the roots, trunk, branches	<b>Everyday materials</b> <b>Properties of materials</b> <b>Grouping materials</b> -distinguish between an object and the material from which it is made -know the simple physical properties of a variety of everyday materials -compare and group together	<b>Plants</b> <b>Plant and seed growth</b> <b>Plant reproduction</b> <b>Keeping plants healthy</b> -know and describe how seeds and bulbs grow into mature plants -know and describe how plants need water, light and a suitable temperature to	<b>Animals including humans</b> <b>Human body and senses</b> -know, draw and label the basic parts of the human body -know which part of the body is associated with each sense -identify and name a variety of common animals including fish, amphibians,	<b>Everyday materials</b> <b>Identify different materials</b> <b>Name everyday materials</b> <b>Properties of materials</b> -know a variety of everyday materials, including wood, plastic, glass, metal, water and rock - know how the shapes of solid objects made from some	<b>All living things and their habitats</b> <b>Alive or dead</b> <b>Habitats</b> <b>Adaptations</b> <b>Food chains</b> -know and compare the differences between things that are living, dead, and things that have never been alive -know that most living things live in habitats to



*Doing all the good we can*  
Science Progression Overview

<p>-know how to gather and record data to help in answering questions</p>	<p>and leaves of a tree  <b>Seasonal change</b>  <b>The four seasons</b>  <b>Seasonal weather</b>          -know changes across the four seasons          -know and describe weather associated with the seasons and how day length varies</p>	<p>a variety of everyday materials on the basis of their simple physical properties  <b>Uses of Everyday Materials</b>          -know and compare the suitability of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p>	<p>grow and stay healthy</p>	<p>reptiles, birds and mammals          -identify and name a variety of common animals that are carnivores, herbivores and omnivores          -know and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)   <b>Animals reproduction</b>  <b>Healthy living</b>  <b>Basic needs</b></p>	<p>materials can be changed by squashing, bending, twisting and stretching</p>	<p>which they are suited          -describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other          -know a variety of plants and animals in their habitats, including micro-habitats          -know how animals obtain their food from plants and other animals, using the idea of a</p>
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*Doing all the good we can*  
Science Progression Overview

				<ul style="list-style-type: none"><li>-know that animals, including humans, have offspring which grow into adults</li><li>-find out and describe the basic needs of animals, including humans, for survival (water, food and air)</li><li>-describe the importance for humans of exercise, eating the right amount of different types of food, and hygiene</li></ul>		<ul style="list-style-type: none"><li>simple food chain</li><li>-identify and name different sources of food</li></ul>
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*Doing all the good we can*  
Science Progression Overview

Year 3/4 Working scientifically	Autumn A Why is Richmond special?	Spring A What is beneath us and why does it matter?	Summer A How do we get our message across?	Autumn B How do I care for my body and mind?	Spring B Why is history worth knowing?	Summer B How can I have my say?
-ask relevant questions and use different types of scientific enquiries to answer them -know how to set up simple practical enquiries, comparative and fair tests -make systematic and careful observations and, where appropriate,	<b>Forces</b> <b>Different forces</b> <b>Magnets</b> -compare how things move on different surfaces -know how some forces need contact between two objects, but magnetic forces can act at a distance -know how magnets attract or repel each other and	<b>Sound</b> <b>How sounds are made</b> <b>Sound vibrations</b> <b>Pitch and volume</b> -know how sound is made, associating some of them with vibrating -know that vibrations from sounds travel through a medium to the ear	<b>States of matter</b> <b>Compare and group materials</b> <b>Solids, liquids and gasses</b> <b>Changing state</b> <b>Water cycle</b> -group materials based on their state of matter (solid, liquid, gas) -know that some materials change state when they are heated or cooled, and	<b>Animals including humans</b> <b>Skeleton and muscles</b> <b>Nutrition</b> <b>Exercise and health</b> -know that animals, including humans, need the right types and amount of nutrition and that they cannot make their own food; they get	<b>Plant life</b> <b>Basic structure and functions</b> -know the function of different parts of flowering plants: roots, stem/trunk, leaves and flowers  <b>Grouping living things</b> <b>Classification keys</b> <b>Adaptation of living things</b>	<b>Light</b> <b>Reflections</b> <b>Shadows</b> -know that dark is the absence of light -know that light is needed in order to see -know that light is reflected from surfaces -know that shadows are formed when the light from a light source is blocked by an opaque object



*Doing all the good we can*  
Science Progression Overview

<p>take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>- know how to gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>-record findings using simple scientific language, drawings, labelled</p>	<p>attract some materials and not others</p> <p>-compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and know some magnetic materials</p> <p>-know that magnets have two poles</p> <p>-know whether two magnets will attract or repel each other, depending on</p>	<p>-know the correlation between pitch and the object producing a sound</p> <p>-know the correlation between the volume of a sound and the strength of the vibrations that produced it</p> <p>-know that sounds get fainter as the distance from the sound source increases</p> <p><b>Rocks</b>  <b>Fossil formation</b>  <b>Compare and group rocks</b></p>	<p>measure or research the temperature at which this happened in degrees Celsius(°C)</p> <p>-know the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p> <p><b>Electricity</b>  <b>Uses of electricity</b>  <b>Simple circuits and switches</b></p>	<p>nutrition from what they eat</p> <p>-know that humans and some other animals have skeletons and muscles for support, protection and movement</p> <p><b>Digestive system</b>  <b>Teeth</b>  <b>Food chains</b></p> <p>-know the simple functions of the basic parts of the digestive system in humans</p> <p>-know the different types of human teeth</p>	<p>-know that living things can be grouped in a variety of ways</p> <p>-use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>-know how environments can change and that this can sometimes pose dangers to living things</p>	<p>-know that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>-know that there are patterns in the way that the size of shadows change</p> <p><b>Plants</b>  <b>Life cycle</b>  <b>Water transportation</b></p> <p>-know the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow)</p>
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*Doing all the good we can*  
Science Progression Overview

<p>diagrams, keys, bar charts and tables          -report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions          -use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p>which poles are facing</p>	<p><b>Soil</b>          -compare and group 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          -know how soil is made from rocks and organic matter</p>	<p><b>Conductors and insulators</b>          -identify common appliances that run on electricity          -construct a simple series circuit          -identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers)          -predict and test whether a lamp will light within a simple series circuit, based on</p>	<p>and their simple functions          -construct and interpret food chains, identifying producers, predators and prey</p>		<p>-know how water is transported within plants          -know the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>
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*Doing all the good we can*  
Science Progression Overview

<p>-identify differences, similarities or changes related to simple scientific ideas and processes -use straightforward scientific evidence to answer questions or to support their findings</p>			<p>whether or not the lamp is part of a complete loop with a battery -know that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit -know the difference between conductors and insulators -associate metals with being good conductors</p>			
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*Doing all the good we can*  
Science Progression Overview

Year 5/6 Working scientifically	Autumn A Why is Richmond special?	Spring A Where does it come from and where does it go?	Summer A How do words make us feel?	Autumn B How do I care for my body and mind?	Spring B What legacy will I leave behind?	Summer B What makes a colourful world?
-know how to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary -take measurements, using a range of scientific equipment, with increasing	<b>All living things and their habitats</b> <b>Life cycles – plants and animals</b> <b>Reproductive processes</b> <b>Famous naturalists</b> -know the life cycle of different living things e.g. mammal, amphibian, insect and bird	<b>Properties and changes in materials</b> <b>Compare properties of everyday materials</b> <b>Soluble/dissolving</b> <b>Reversible and irreversible changes</b> - compare and group materials based on their properties (e.g. hardness, solubility,	<b>Forces</b> <b>Gravity</b> <b>Friction</b> <b>Forces and motion of mechanical devices</b> -know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	<b>Animals, including humans</b> <b>Changes as humans develop from birth to old age</b> -describe the changes as humans develop to old age <b>The circulatory system</b> <b>Water transportation</b>	<b>Evolution and inheritance</b> <b>Identical and non-identical offspring</b> <b>Fossil evidence and evolution</b> <b>Adaptation and evolution</b> -know that living things have changed over time -know that fossils provide information about living things that	<b>Electricity</b> <b>Electrical circuits</b> <b>Fuses and voltage</b> -know that 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





*Doing all the good we can*  
Science Progression Overview

<p>accuracy and precision, taking repeat readings when appropriate</p> <p>-record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>-use test results to make predictions to set up further comparative and fair tests</p>	<p>-know the difference between different life cycles</p> <p>-know the process of reproduction in plants</p> <p>-know the process of reproduction in animals</p> <p><b>Classification of living things and the reasons for it</b></p> <p>-classify living things into broad groups according to observable characteristics and based on similarities and</p>	<p>transparency, conductivity [electrical &amp; thermal] and response to magnets</p> <p>-know that some materials will dissolve in a liquid to form a solution</p> <p>-know how to recover a substance from a solution</p> <p>-use knowledge of solids, liquids and gases to decide how mixtures might be separated (e.g. through filtering, sieving</p>	<p>-know the effect of air and water resistance acting between moving surfaces</p> <p>- know the effect of friction acting between moving surfaces</p> <p>-know that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</p> <p><b>Light</b></p> <p><b>How light travels</b></p> <p><b>Reflection</b></p> <p><b>Ray models of light</b></p>	<p><b>Impact of exercise on the body</b></p> <p>-identify and name the main parts of the human circulatory system</p> <p>-know the function of the heart, blood vessels and blood</p> <p>-know the impact of diet, exercise, drugs and lifestyle on the way the body functions</p> <p>-know the ways in which nutrients and water are</p>	<p>inhabited the Earth millions of years ago</p> <p>-know that living things produce offspring of the same kind, but offspring normally vary and are not identical to their parents</p> <p>-know how animals and plants are adapted to suit their environment in different ways</p> <p>-know that adaptation may lead to evolution</p>	<p>function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</p> <p>-know recognised symbols when representing a simple circuit in a diagram</p>
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*Doing all the good we can*  
Science Progression Overview

<p>-report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations          -identify scientific evidence that has been used to support or refute ideas or arguments</p>	<p>differences, including micro-organisms, plants and animals          -give reasons for classifying plant and animals based on specific characteristics</p>	<p>and evaporating)          -give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic          -know and demonstrate that dissolving, mixing and changes of state are reversible changes          -know how some changes</p>	<p>-know how 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</p>	<p>transported in animals, including humans</p>		
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*Doing all the good we can*  
Science Progression Overview

		<p>result in the formation of a new material and that this is not usually irreversible, including changes associated with burning and the action of acid on bicarbonate of soda</p> <p><b>Earth and space</b> <b>Movement of the earth and the planets</b> <b>Movement of the moon</b> <b>Night and day</b> -know about and describe the movement of the Earth and</p>	<p>in straight lines to explain why shadows have the same shape as the objects that cast them</p>			
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*Doing all the good we can*  
Science Progression Overview

		<p>other planets relative to the Sun in the solar system</p> <ul style="list-style-type: none"><li>-describe the movement of the Moon relative to the Earth</li><li>-know the Sun, Earth and Moon are approximately spherical bodies</li><li>-use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</li></ul>				
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Science Progression Overview