



# Victoria Lane Academy Science

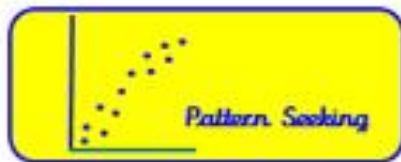
## Detailed Curriculum Overview



Comparative & Fair Testing



Identifying & Classifying



Pattern Seeking



Observing Over Time



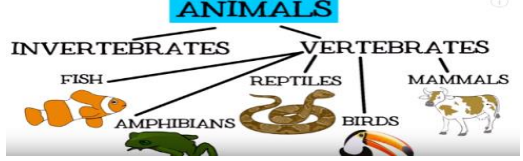




Research



# Victoria Lane Academy Detailed Curriculum Overview—Year 1



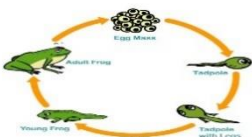




<u>Working Scientifically</u>	<u>Plants</u>	<u>Animals including Humans</u>	<u>Everyday Materials</u>	<u>Seasonal Changes</u>
				
<ul style="list-style-type: none"> <li>*Talk about what they see, hear, smell, touch</li> <li>*Use simple equipment to help them make observations</li> <li>*Perform a simple test</li> <li>*Tell other people what they have done</li> <li>*Identify and classify things they observe</li> <li>*Think of some questions to ask</li> <li>*Answer some scientific questions</li> <li>*Give simple reasons for their answers</li> <li>*Explain what they have found out</li> <li>*Show their work using pictures, captions, labels</li> <li>*Record their findings using standard units</li> <li>*Put information into a chart or table</li> </ul>	<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 style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Observe the growth of flowers and vegetables</li> <li>*Plant structures – leave, flowers, blossom, petals, fruit, roots, bulb, seed, trunk, branches, stem</li> </ul>	<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 style="text-align: center;"><u>Non - Statutory</u></p> <ul style="list-style-type: none"> <li>*Compare animals</li> <li>*Group animals according to what they eat</li> <li>*Use their senses to compare different textures, sounds and smells</li> </ul>	<ul style="list-style-type: none"> <li>*Distinguish between an object and the material it is made from</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> <p style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Properties of materials (hard/soft, shiny/dull, rough/smooth, bendy/not bendy, waterproof/not waterproof, absorbent/not absorbent, opaque/transparent</li> <li>*Explore other materials such as brick, paper, fabric, elastic, foil</li> </ul>	<ul style="list-style-type: none"> <li>*Observe changes across the four seasons</li> <li>*Observe and describe weather associated with the seasons and how day length varies</li> </ul> <p style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Observe and describe weather associated with the seasons</li> <li>*Observe and describe how day length varies with the seasons</li> </ul>



## Victoria Lane Academy Detailed Curriculum Overview —Year 2




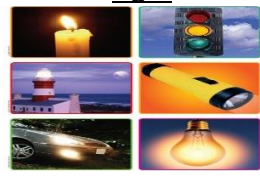

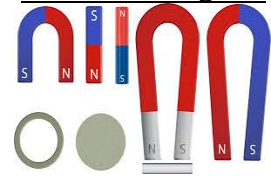


<p style="text-align: center;"><u>Working Scientifically</u></p> 	<p style="text-align: center;"><u>Plants</u></p> 	<p style="text-align: center;"><u>Animals including Humans</u></p> 	<p style="text-align: center;"><u>Use of Everyday Materials</u></p> 	<p style="text-align: center;"><u>Living Things and their Habitats</u></p> 
<ul style="list-style-type: none"> <li>*Use their senses to help them answer questions</li> <li>*Use some scientific words to describe what they have seen and measured</li> <li>*Compare several things</li> <li>*Carry out a simple fair test</li> <li>*Explain why it might not be fair to compare two things</li> <li>*Say whether things happened as they expected</li> <li>*Suggest how to find things out</li> <li>*Use prompts to find things out</li> <li>*Organise things into groups</li> <li>*Find simple patterns (or associations)</li> <li>*Identify animals and plants by a specific criteria, eg, lay eggs or not; have feathers or not</li> <li>*Use text, diagrams, pictures, charts, tables to record their observations</li> <li>*Measure using simple equipment</li> </ul>	<ul style="list-style-type: none"> <li>*Observe and describe how seeds and bulbs grow into mature plants</li> <li>*Find out &amp; describe how plants need water, light and a suitable temperature to grow and stay healthy</li> </ul>	<ul style="list-style-type: none"> <li>*Notice that animals including humans have offspring which grow into adults</li> <li>*Find out about and describe the basic needs of animals including humans for survival (water, air, food)</li> <li>*Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene.</li> </ul>	<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, 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 style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Find out about people who developed useful new materials (John Dunlop, Charles Macintosh, John McAdam)</li> <li>*Understand how some materials are used for more than one thing.</li> <li>*Understand that different materials can be used for the same thing.</li> <li>*Think about the properties of materials that make them suitable or unsuitable for certain items</li> </ul>	<ul style="list-style-type: none"> <li>*Explore and compare the differences between things that are living, dead and never been alive</li> <li>*Identify that most living things live in habitats to which they are suited</li> <li>*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>*Describe how animals obtain their food from plants and other animals using simple food chains.</li> <li>*Identify and name different sources of food.</li> </ul> <p style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Become familiar with life processes that are common to all living things</li> <li>*Compare animals in habitats such as the seashore, woodlands, ocean, rainforests</li> <li>*Describe the conditions of different habitats and how the conditions affect the plants and animals that live there.</li> </ul>









## Victoria Lane Academy Detailed Curriculum Overview —Year 3



<b>Working Scientifically</b> 	<b>Plants</b> 	<b>Animals including Humans</b> 	<b>Light</b> 	<b>Rocks and Soils</b> 	<b>Forces and Magnets</b> 
<ul style="list-style-type: none"> <li>*Suggest how to find something out</li> <li>*Make and record a prediction before testing</li> <li>*Plan a fair test and explain why it was fair</li> <li>*Set up a simple fir test to make comparisons</li> <li>*Measure using different equipment and units of measure</li> <li>*Record observations in different ways e.g. diagrams, charts.</li> <li>*Describe what they have found using scientific language.</li> <li>*Explain what they have found out.</li> <li>*Use a range of equipment in an investigation.</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>*Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow)</li> <li>*Explain how requirements vary from plant to plant</li> <li>*Investigate the way in which water is transported within plants</li> <li>*Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul>	<ul style="list-style-type: none"> <li>*Identify that animals including humans need the right types and amounts of nutrition.</li> <li>*Identify that animals, including humans, cannot make their own food: they get nutrition from what they eat.</li> <li>*Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul> <p style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Explain the importance of a nutritionally balanced diet.</li> <li>*Name and describe the functions of the skeletal system of a human.</li> <li>*Name and describe the functions of the muscular system of a human.</li> </ul>	<ul style="list-style-type: none"> <li>*Recognise we need light in order to see things.</li> <li>*Recognise dark is the absence of light.</li> <li>*Notice light is reflected from surfaces.</li> <li>*Understand light from the sun can be dangerous.</li> <li>*Describe different light sources.</li> <li>*Recognise shadows are formed when light from a source is blocked.</li> <li>*Find patterns in the way that the size of shadows change.</li> </ul>	<ul style="list-style-type: none"> <li>*Compare and group different rocks on the basis of their appearance and simple physical properties.</li> <li>*Describe how fossils are formed when things that have lived are trapped within rock.</li> <li>*Recognise that soils are made from rocks and organic matter.</li> </ul> <p style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Observe rocks including those in buildings and gravestones and explore how they have changed over time.</li> <li>*Use hand lenses to identify and classify rocks according to whether they have grains or crystals</li> <li>*Research fossils and different kinds of living things that are found in them</li> <li>*Explore and investigate differences between different soils</li> <li>*Investigate what happens when rocks are rubbed together Investigate changes that occur with rocks and soils when they are in water</li> </ul>	<ul style="list-style-type: none"> <li>*Compare how things move on different surfaces.</li> <li>*Notice that some forces need contact between two objects but magnetic forces can act at a distance</li> <li>*Observe how magnets attract or repel each other and attract some materials and not others</li> <li>*Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet. Identify some magnetic materials</li> <li>*Describe magnets as having two poles</li> <li>*Predict whether two magnets will attract or repel each other depending on which poles are facing.</li> </ul>

## Victoria Lane Academy Detailed Curriculum Overview —Year 4









<p style="text-align: center;"><u>Working Scientifically</u></p> 	<p style="text-align: center;"><u>Living Things and their Habitats</u></p> 	<p style="text-align: center;"><u>Animals including Humans</u></p> 	<p style="text-align: center;"><u>States of Matter</u></p> 	<p style="text-align: center;"><u>Sound</u></p> 	<p style="text-align: center;"><u>Electricity</u></p> 
<ul style="list-style-type: none"> <li>*Set up a simple fair test to make comparisons</li> <li>*Plan a fair test and isolate variables, explaining why it was fair and which variables have been isolated</li> <li>*Decide which information needs to be collected and which is the best way for collecting it</li> <li>*Use their findings to draw a simple conclusion.</li> <li>*Measure and record findings in a range of ways.</li> <li>*Explain findings in different ways e.g. display, writing, presentation.</li> <li>*Identify patterns in evidence or measurements</li> <li>*Make a prediction based on something they have found out.</li> <li>*Evaluate findings using scientific language, drawings, labelled diagrams, bar charts and tables</li> <li>*Use scientific evidence to answer questions or to support their findings</li> <li>*Identify differences, similarities or changes.</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 a classification key to group, identify and name a variety of living things in their local and wider environment</li> <li>*Recognise that environments can change and this can sometimes pose a danger to living things.</li> </ul> <p style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Group plants based on whether they are flowering or non-flowering plants</li> <li>*Group vertebrates and invertebrates</li> <li>*Explore human impact on environments both positive and negative impacts</li> </ul>	<ul style="list-style-type: none"> <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> <li>*Construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul> <p style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Compare the teeth of herbivores and carnivores and suggest reasons for differences.</li> <li>*Find out what damages teeth and how to look after them</li> </ul>	<ul style="list-style-type: none"> <li>*Compare and group materials together, according to whether they are solids, liquids or gases</li> <li>*Observe that some materials change state when they are heated or cooled</li> <li>*Measure or research the temperature at which different materials change state in degrees Celsius.</li> <li>*Identify the part that evaporation and condensation has in the water cycle.</li> <li>*Associate the rate of evaporation with temperature.</li> </ul> <p style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Observe water as a solid, liquid and a gas and note the changes to water when it is heated or cooled.</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 vibrations that produced it.</li> <li>*Recognise that sounds get fainter as the distance from the sound source increases.</li> </ul> <p style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Investigate which materials provide the best insulation against sound</li> </ul>	<ul style="list-style-type: none"> <li>*Identify common appliances that run on electricity</li> <li>*Construct a simple series electric circuit.</li> <li>*Identify and name the basic part in a series circuit, 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>*Recognise that a switch opens and closes a circuit</li> <li>*Associate a switch opening with whether or not a lamp lights in a simple series circuit.</li> <li>*Recognise some common conductors and insulators.</li> <li>*Associate metals with being good conductors.</li> </ul>



## Victoria Lane Academy Detailed Curriculum Overview —Year 5



<p style="text-align: center;"><u>Working Scientifically</u></p> 	<p style="text-align: center;"><u>Living Things and their Habitats</u></p> 	<p style="text-align: center;"><u>Animals including Humans</u></p> 	<p style="text-align: center;"><u>Properties and changes of materials</u></p> 	<p style="text-align: center;"><u>Earth and Space</u></p> 	<p style="text-align: center;"><u>Forces</u></p> 
<p>*Plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables where necessary.</p> <p>*Make a prediction with reasons.</p> <p>*Use test results to make predictions to set up comparative and fair tests.</p> <p>*Present a report of their findings through writing, display and presentation</p> <p>*Take measurements using a range of scientific equipment with increasing accuracy and precision.</p> <p>*Take repeat readings when appropriate.</p> <p>*Record more complex data and results using scientific diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>*Report and present findings from enquiries through written explanations and conclusions.</p> <p>*Use a graph to answer scientific questions.</p>	<p>*Describe the differences in the life cycles of a mammal, amphibians, insects and birds.</p> <p>*Describe the life process of reproduction in some plants and animals</p> <p style="text-align: center;"><u>Non-Statutory</u></p> <p>*Explore the work of well know naturalists and animal behaviourists e.g. David Attenborough and Jane Goodall.</p> <p>*Find out about different types of reproduction including sexual and asexual reproduction in plants</p> <p>*Compare how different animals reproduce and grow</p>	<p>Describe the changes as humans develop to old age</p> <p style="text-align: center;"><u>Non-Statutory</u></p> <p>*Create a timeline to indicate stages of growth in humans.</p> <p>*Explain what puberty is and the changes that occur</p> <p>*Research the gestation periods of other animals and compare this with humans</p> <p>*Find out and record the length and mass of a baby as it grows</p>	<p>*Compare and group together everyday materials on the basis of their properties, including hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <p>*Explain how some materials dissolve in liquid to form a solution.</p> <p>*Describe how to recover a substance from a solution.</p> <p>*Use their knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving, evaporating.</p> <p>*Give reasons, based on evidence for comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>*Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>*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.</p> <p style="text-align: center;"><u>Non-Statutory</u></p> <p>*Research how chemists create new materials e.g. Spencer Silver and Ruth Benerito</p>	<p>*Describe the movement of the Earth and other planets relative to the sun in the solar system.</p> <p>*Describe and explain the movement of the Moon relative to the Earth.</p> <p>*Describe the sun, earth and moon as approximately spherical bodies.</p> <p>*Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p> <p style="text-align: center;"><u>Non-Statutory</u></p> <p>*Construct simple shadow clocks and sundials</p> <p>*Compare the time of day at different places on the Earth</p>	<p>*Explain that unsupported objects fall towards the Earth because of gravity.</p> <p>*Identify the effects of air resistance, water resistance and friction that act between moving surfaces.</p> <p>*Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>



## Victoria Lane Academy Detailed Curriculum Overview —Year 6



<p style="text-align: center;"><u>Working Scientifically</u></p> 	<p style="text-align: center;"><u>Living Things and their Habitats</u></p> 	<p style="text-align: center;"><u>Animals including Humans</u></p> 	<p style="text-align: center;"><u>Evolution and Inheritance</u></p> 	<p style="text-align: center;"><u>Light</u></p> 	<p style="text-align: center;"><u>Electricity</u></p> 
<ul style="list-style-type: none"> <li>*Explore different ways to test an idea, choose the best way, and give reasons.</li> <li>*Plan and carry out an investigation by controlling variables fairly and accurately.</li> <li>*Make a prediction with reasons and use information to inform it.</li> <li>*Use test results to make further predictions and set up further comparative tests</li> <li>*Explain, a scientific idea and what evidence supports it</li> <li>*Decide which units of measurement they need to use and why a measurement needs to be repeated.</li> <li>*Record their measurements in different ways (bar charts, tables and line graphs)</li> <li>*Measure using a range of scientific equipment with increasing accuracy and precision.</li> <li>*Find a pattern from their data and explain what it shows.</li> <li>*Use a graph to answer scientific questions.</li> <li>*Link what they have found out to other science.</li> <li>*Suggest how to improve their work and say why they think this.</li> <li>*Record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models.</li> <li>*Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results.</li> </ul>	<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 microorganisms, plants and animals.</li> <li>*Give reasons for classifying plants and animals based on specific characteristics</li> </ul>	<ul style="list-style-type: none"> <li>*Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</li> <li>*Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</li> <li>*Describe the ways in which nutrients and water and transported within animals, including humans.</li> </ul>	<ul style="list-style-type: none"> <li>*Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</li> <li>*Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</li> <li>*Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul> <p style="text-align: center;"><u>Non-Statutory</u></p> <ul style="list-style-type: none"> <li>*Explore what happens when different breeds of dogs reproduce</li> <li>*Find out about the work of Mary Anning and Charles Darwin</li> <li>*Compare how animals are adapted to their environment.</li> </ul>	<ul style="list-style-type: none"> <li>*Recognise that light appears to travel in straight lines.</li> <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>*Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells using in a circuit</li> <li>*Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers, the on/off position of switches.</li> <li>*Use recognised symbols when representing a simple circuit in a diagram.</li> </ul>

