



# **Rosehill Junior School**

## *Science Content Coverage Document*



The following table shows the progression of subject content outlined in the National Curriculum taught at Rosehill.

<b><u>Working Scientifically</u></b>	
<b><u>Lower Key Stage 2</u></b>	<b><u>Upper Key Stage 2</u></b>
<p>During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>• asking relevant questions and using different types of scientific enquiries to answer them <b>(Y3 Forces L3) (Y3 Light L5) (Y3 Animals Including Humans L4) (Y4 States of Matter L4) (Y4 Animals Including Humans L3)</b></li> <li>• setting up simple practical enquiries, comparative and fair tests <b>(Y3 Forces L3/4) (Y3 Rocks L5) (Y3 Light L5) (Y4 Sound L4) (Y4 Animals Including Humans L3)</b></li> <li>• making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers <b>(Y3 Rocks L5/6) (Y3 Light L5) (Y3 Plants L3) (Y4 States of Matter L5) (Y4 Sound L5)</b></li> <li>• gathering, recording, classifying and presenting data in a variety of ways to help in answering questions <b>(Y3 Forces L4) (Y4 Electricity L5)</b></li> <li>• recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables <b>(Y3 Forces L4) (Y3 Plants L4) (Y4 States of Matter L5) (Y4 Sound L5)</b></li> <li>• reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> </ul>	<p>During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary <b>(Y5 Properties of Materials L2/3/4) (Y5 Forces L3/4/5) (Y5 Living Things and Their Habitat L4) (Y6 Light L3/4) (Y6 Living Things and Their Habitat L4/6) (Y6 Animals Including Humans L3/4)</b></li> <li>• taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate <b>(Y5 Properties of Materials L2/3) (Y5 Forces L3/4/5) (Y5 Living Things and Their Habitat L4) (Y6 Light L4) (Y6 Animals Including Humans L3/4)</b></li> <li>• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs <b>(Y5 Properties of Materials L2/3) (Y6 Light L3/4) (Y6 Animals Including Humans L3/4)</b></li> <li>• using test results to make predictions to set up further comparative and fair tests <b>(Y5 Properties of Materials L2/4) (Y5 Forces L3/4/5) (Y6 Light L4) (Y6 Living Things and Their Habitat L4/6) (Y6 Animals Including Humans L3/4)</b></li> <li>• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree</li> </ul>



<p><b>(Y3 Forces L4) (Y3 Rocks L6) (Y4 States of Matter L5) (Y4 Animals Including Humans L4)</b></p> <ul style="list-style-type: none"> <li>• using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions <b>(Y3 Forces L4) (Y3 Rocks L6) (Y3 Light L6) (Y4 States of Matter L5)</b></li> <li>• identifying differences, similarities or changes related to simple scientific ideas and processes <b>(Y3 Rocks L2) (Y3 Animals Including Humans L2) (Y3 Plants L1) (Y4 Electricity L2/5) (Y4 Living Things and Their Habitats L1/2)</b></li> <li>• using straightforward scientific evidence to answer questions or to support their findings. <b>(Y3 Forces L4) (Y3 Rocks L6) (Y3 Light L6) (Y4 Electricity L5) (Y4 Animals Including Humans L4)</b></li> </ul>	<p>of trust in results, in oral and written forms such as displays and other presentations <b>(Y5 Properties of Materials L2/3/4) (Y5 Forces L3/4/5) (Y5 Living Things and Their Habitat L4) (Y6 Light L3/4) (Y6 Living Things and Their Habitat L4/6) (Y6 Animals Including Humans L3/4)</b></p> <ul style="list-style-type: none"> <li>• identifying scientific evidence that has been used to support or refute ideas or arguments <b>(Y5 Properties of Materials L2/3/4) (Y5 Forces L3/4/5) (Y6 Light L3/4) (Y6 Living Things and Their Habitat L4/6) (Y6 Animals Including Humans L3/4)</b></li> </ul>
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<b>Y3</b>	
Rocks	<p><i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> <li>• compare and group together different kinds of rocks on the basis of their appearance and simple physical properties <b>(L1/2)</b></li> <li>• describe in simple terms how fossils are formed when things that have lived are trapped within rock <b>(L3)</b></li> <li>• recognise that soils are made from rocks and organic matter <b>(L4)</b></li> </ul>
Forces and Magnets	<p><i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> <li>• compare how things move on different surfaces <b>(L3/4)</b></li> <li>• notice that some forces need contact between two objects, but magnetic forces can act at a distance <b>(L5)</b></li> <li>• observe how magnets attract or repel each other and attract some materials and not others <b>(L5)</b></li> <li>• 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 <b>(L5)</b></li> <li>• describe magnets as having two poles <b>(L6)</b></li> <li>• predict whether two magnets will attract or repel each other, depending on which poles are facing. <b>(L6)</b></li> </ul>



<p>Light</p>	<p><i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> <li>● recognise that they need light in order to see things and that dark is the absence of light. <b>(L2)</b></li> <li>● notice that light is reflected from surfaces. <b>(L3)</b></li> <li>● recognise that light from the sun can be dangerous and that there are ways to protect their eyes <b>(L6)</b></li> <li>● recognise that shadows are formed when the light from a light source is blocked by an opaque object <b>(L4)</b></li> <li>● find patterns in the way that the size of shadows change. <b>(L5)</b></li> </ul>
<p><i>Animals Including Humans</i></p>	<p><i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> <li>● 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. <b>(L3/4/5/6)</b></li> <li>● identify that humans and some other animals have skeletons and muscles for support, protection and movement. <b>(L1/2)</b></li> </ul>
<p><i>Plants</i></p>	<p><i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> <li>● identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers <b>(L2)</b></li> <li>● 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 <b>(L2/3)</b></li> <li>● investigate the way in which water is transported within plants <b>(L3/4)</b></li> <li>● explore the part that flowers play in the life cycle of flowering plants, including pollination <b>(L5)</b>, seed formation <b>(L5)</b> and seed dispersal <b>(L6)</b></li> </ul>
<p><b>Y4</b></p>	
<p><i>States of Matter</i></p>	<p><i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> <li>● compare and group materials together, according to whether they are solids, liquids or gases <b>(L1)</b></li> <li>● 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) <b>(L2)</b></li> <li>● identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. <b>(L3)</b></li> </ul>



<p>Sound</p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• identify how sounds are made, associating some of them with something vibrating <b>(L1)</b></li> <li>• recognise that vibrations from sounds travel through a medium to the ear <b>(L1)</b></li> <li>• find patterns between the pitch of a sound and features of the object that produced it <b>(L3)</b></li> <li>• find patterns between the volume of a sound and the strength of the vibrations that produced it <b>(L1)</b></li> <li>• recognise that sounds get fainter as the distance from the sound source increases. <b>(L5)</b></li> </ul>
<p>Electricity</p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• identify common appliances that run on electricity <b>(L1)</b></li> <li>• construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers <b>(L3)</b></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 <b>(L4)</b></li> <li>• recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit <b>(L4)</b></li> <li>• recognise some common conductors and insulators, and associate metals with being good conductors <b>(L5)</b></li> </ul>
<p>Animals Including Humans</p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• describe the simple functions of the basic parts of the digestive system in humans <b>(L5)</b></li> <li>• identify the different types of teeth in humans and their simple functions <b>(L1)</b></li> <li>• construct and interpret a variety of food chains, identifying producers, predators and prey <b>(L6)</b></li> </ul>
<p>Living Things and Their Habitats</p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• recognise that living things can be grouped in a variety of ways <b>(L1/2)</b></li> <li>• explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment <b>(L3/4)</b></li> <li>• recognise that environments can change and that this can sometimes pose dangers to living things <b>(L5)</b></li> </ul>
<p><b>Y5</b></p>	



<p><i>Properties of Materials</i></p>	<p><i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> <li>• 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 <b>(L1/2)</b></li> <li>• know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution <b>(L4/5)</b></li> <li>• use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating <b>(L5)</b></li> <li>• give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic <b>(L2/3/7)</b></li> <li>• demonstrate that dissolving, mixing and changes of state are reversible changes <b>(L4/5/6)</b></li> <li>• 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 <b>(L5/6)</b></li> </ul>
<p><i>Forces</i></p>	<p><i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> <li>• explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object <b>(L2)</b></li> <li>• identify the effects of air resistance, water resistance and friction, that act between moving surfaces <b>(L3/4/5)</b></li> <li>• recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect <b>(L6)</b></li> </ul>
<p><i>Earth and Space</i></p>	<p><i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> <li>• describe the movement of the Earth, and other planets, relative to the Sun in the solar system <b>(L1/6)</b></li> <li>• describe the movement of the Moon relative to the Earth <b>(L1/3/4)</b></li> <li>• describe the Sun, Earth and Moon as approximately spherical bodies <b>(L1)</b></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 <b>(L2)</b></li> </ul>
<p><i>Animals Including Humans</i></p>	<p><i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> <li>• describe the changes as humans develop to old age <b>(L3)</b></li> </ul>



Living Things and Their Habitats	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird <b>(L1/2/3)</b></li> <li>describe the life process of reproduction in some plants and animals <b>(L5/6)</b></li> </ul>
<b>Y6</b>	
Light	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>recognise that light appears to travel in straight lines <b>(L1)</b></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 <b>(L1)</b></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 <b>(L1)</b></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 <b>(L3)</b></li> </ul>
Electricity	<p>Pupils should be taught to:</p> <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 used in the circuit <b>(L3/4)</b></li> <li>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 <b>(L3/4)</b></li> <li>use recognised symbols when representing a simple circuit in a diagram <b>(L2)</b></li> </ul>
Evolution and Inheritance	<p>Pupils should be taught to:</p> <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 <b>(L2)</b></li> <li>recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents <b>(L5)</b></li> <li>identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution <b>(L3/4)</b></li> </ul>
Living Things and Their Habitats	Pupils should be taught to:



	<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 <b>(L1/2)</b></li> <li>give reasons for classifying plants and animals based on specific characteristics <b>(L1)</b></li> </ul>
Animals Including Humans	<p>Pupils should be taught to:</p> <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 <b>(L1/2)</b></li> <li>recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function <b>(L3/4/5/6/7)</b></li> <li>describe the ways in which nutrients and water are transported within animals, including humans. <b>(L1/2)</b></li> </ul>

Enquiry Type	Y3	Y4	Y5	Y6
Comparative Tests	<p><b>Rocks - Lesson 5</b> How does adding different amounts of sand to soil affect how quickly water drains through it?</p> <p><b>Rocks - Lesson 6</b> How does adding different amounts of sand to soil affect how quickly water drains through it?</p>	<p><b>States of Matter - Lesson 4</b> How does changing the surface area of a liquid affect how quickly evaporation takes place?</p> <p><b>Sound - Lesson 4</b> How can I find which materials are the best insulators of sound?</p> <p><b>Animals Including Humans - Lesson 3/4</b></p>	<p><b>Properties of Materials - Lesson 2</b> Which materials make the best thermal insulators?</p> <p><b>Properties of Materials - Lesson 3</b> Which materials make the best electrical conductors?</p> <p><b>Properties of Materials - Lesson 4</b></p>	<p><b>Electricity - Lesson 3/4</b> How can we affect the brightness of a bulb?</p> <p><b>Electricity - Lesson 6</b> How does the conductivity of metals vary?</p> <p><b>Light - Lesson 4</b> How can we affect the scattering of light?</p> <p><b>Living Things and Their Habitats - Lesson 4/6</b></p>





	<p><b>Forces - Lesson 3/4</b> Which surfaces create the most friction?</p> <p><b>Light - Lesson 5</b> How does the distance an object is from a light source affect the size of the shadow it creates?</p> <p><b>Plants - Lesson 3/4</b> How does the length of a daffodil stem affect how long it takes for dye to reach the petals?</p>	<p>How do our teeth get damaged?</p>	<p>What temperature will dissolve sugar the quickest?</p> <p><b>Forces - Lesson 3</b> How does surface area affect air resistance?</p> <p><b>Forces - Lesson 4</b> How does surface area affect water resistance?</p> <p><b>Forces - Lesson 5</b> Which shoe soles create the most friction?</p>	<p>How can we affect how quickly microorganisms grow?</p> <p><b>Animals Including Humans - Lesson 4</b> How does the length of time we exercise affect our heart rate? Which type of exercise affects our heart rate the most?</p>
Identify and Classify	<p><b>Rocks - Lesson 2</b> Sort rocks based on their properties</p> <p><b>Forces - Lesson 5</b> Sort objects into magnetic and non-magnetic</p> <p><b>Light - Lesson 1</b> Sort sources of light into man made or natural</p> <p><b>Animals Including Humans - Lesson 1</b> How do different skeletons compare?</p>	<p><b>States of Matter - Lesson 1</b> Sorting activity - solids, liquids and gases</p> <p><b>Electricity - Lesson 1</b> Sorting electrical items into mains, battery or both</p> <p><b>Electricity - Lesson 5</b> Sort objects into conductors or insulators</p> <p><b>Animals Including Humans - Lesson 1</b> How can we organise</p>	<p><b>Properties of Materials - Lesson 1</b> Sort materials based on different properties</p> <p><b>Forces - Lesson 1</b> What forces are acting on an object?</p>	<p><b>Electricity - Lesson 1</b> Group electrical items according to their role</p> <p><b>Light - Lesson 3</b> How does the transparency of an object affect the shadow it makes?</p> <p><b>Evolution and Inheritance - Lesson 1</b> Identifying similarities and differences between skeletons</p> <p><b>Living Things and Their</b></p>



	<p><b>Animals Including Humans - Lesson 2</b> Sort animals based on what type of skeleton they have</p> <p><b>Animals Including Humans - Lesson 4</b> Sort foods into food groups</p> <p><b>Plants - Lesson 1</b> Sort flowers according to different criteria</p>	<p>teeth into groups?</p> <p><b>Animals Including Humans - Lesson 6</b> How can we organise animals into predators and prey?</p> <p><b>Living Things and Their Habitats - Lesson 1</b> How can we organise things into living, dead or never alive?</p> <p><b>Living Things and Their Habitats - Lesson 2</b> How can we organise animals into vertebrates and invertebrates?</p> <p><b>Living Things and Their Habitats - Lesson 3</b> Use classification keys accurately to identify vertebrates</p> <p><b>Living Things and Their Habitats - Lesson 4</b> Create own classification keys to identify invertebrates</p>		<p><b>Habitats - Lesson 1</b> How can I classify animals based on their observable characteristics?</p> <p><b>Living Things and Their Habitats - Lesson 2</b> How can I classify animals using a classification key?</p> <p><b>Animals Including Humans - Lesson 1</b> What are the key parts of the circulatory system - parts and location</p> <p><b>Animals Including Humans - Lesson 2</b> What are the key parts of the respiratory system - parts and location</p>
Observation Over Time	<b>Light - Lesson 6</b>	<b>States of Matter - Lesson</b>	<b>Properties of Materials -</b>	<b>Living Things and Their</b>



	<p>How does my shadow change during the day?  <b>Plants - Lesson 2/3</b>          What happens to a stick of celery when left in a glass of coloured water?</p>	<p><b>2</b>          Does adding salt to ice cubes speed up the melting process?  <b>States of Matter - Lesson 6</b>          Can all objects have their matter changed?  <b>Animals Including Humans - Lesson 3/4</b>          How do our teeth get damaged?</p>	<p><b>Lesson 2</b>          Which materials make the best thermal insulators?  <b>Properties of Materials - Lesson 4</b>          What temperature will dissolve sugar the quickest?  <b>Earth and Space - Lesson 4</b>          How does the appearance of the moon change throughout the month?  <b>Living Things and Their Habitats - Lesson 4</b>          How does a bean change as it germinates?</p>	<p><b>Habitats - Lesson 4/6</b>          How can we affect how quickly microorganisms grow?  <b>Animals Including Humans - Lesson 3</b>          How does exercise affect heart rate?</p>
<p>Pattern Seeking</p>	<p><b>Forces - Lesson 3/4</b>          Which surfaces create the most friction?</p>	<p><b>States of Matter - Lesson 5</b>          How does changing the surface area of a liquid affect how quickly evaporation takes place?  <b>Sound - Lesson 6</b></p>	<p><b>Forces - Lesson 3</b>          How does surface area affect air resistance?  <b>Forces - Lesson 4</b>          How does surface area affect water resistance?  <b>Forces - Lesson 5</b></p>	<p><b>Living Things and Their Habitats - Lesson 4</b>          How can we affect how quickly microorganisms grow?  <b>Animals Including Humans - Lesson 3</b></p>



		<p>How does the size of bars/length of tubes/length/width of strings affect the notes produced by instruments?</p> <p><b>Electricity - Lesson 2</b></p> <p>Which room of the house has the most sockets?</p> <p><b>Electricity - Lesson 5</b></p> <p>What materials are insulators or conductors</p>	<p>Which shoe soles create the most friction?</p> <p><b>Earth and Space - Lesson 6</b></p> <p>Is there a correlation between the size of the planet and the time taken to orbit around the sun?</p>	<p>How does exercise affect heart rate?</p> <p><b>Animals Including Humans - Lesson 4</b></p> <p>How does the length of time we exercise affect our heart rate?</p> <p>Which type of exercise affects our heart rate the most?</p>
Research	<p><b>Animals Including Humans - Lesson 4/5</b></p> <p>What foods are good sources of different nutrients?</p>	<p><b>Living Things and Their Habitats - Lesson 6</b></p> <p>Find out how a specific group/organisation are helping a specific animal</p>	<p><b>Properties of Materials - Lesson 7</b></p> <p>How are microplastics affecting the planet?</p>	<p><b>Electricity - Lesson 1</b></p> <p>How was electricity developed over time?</p> <p><b>Light - Lesson 2</b></p> <p>What are the different types of glasses and who uses them?</p> <p><b>Evolution and Inheritance - Lesson 2</b></p> <p>How did the body shape of a horse change over time?</p> <p><b>Living Things and Their Habitats - Lesson 4</b></p> <p>How did Carl Linnaeus</p>



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