

Round Hill Primary School - Progression of Skills for Science

Working Scientifically

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Planning	National Curriculum Pupils should be taught to: <i>-asking simple questions and recognising that they can be answered in different ways</i>		National Curriculum Pupils should be taught to: <i>-asking relevant questions and using different types of scientific enquiries to answer them</i> <i>-setting up simple practical enquiries, comparative and fair tests</i>		National Curriculum Pupils should be taught to: <i>-planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</i>	
<ul style="list-style-type: none"> • Answer 'how' and 'why' questions about their experiences and in response to stories or events. 	<ul style="list-style-type: none"> • Explore the world around them and raise their own simple questions • Start to ask questions about the world around them • Responds to suggestions with own ideas 	<ul style="list-style-type: none"> • Having their own ideas- thinking of ideas; finding ways to solve problems; finding new ways to do things • Making predictions • Planning making decisions about how to solve a problem and reach a goal 	<ul style="list-style-type: none"> • Ask relevant questions when prompted • Set up simple and practical enquiries, comparative and fair tests • Set up comparative tests 	<ul style="list-style-type: none"> • Ask relevant questions • Plan different types of scientific enquiries to answer questions • Set up simple and practical enquiries, comparative and fair tests 	<ul style="list-style-type: none"> • With prompting, plan different types of scientific enquiries to answer questions – introduce types of variables • With prompting, recognise and control variables where necessary 	<ul style="list-style-type: none"> • Plan different types of scientific enquiries to answer questions • Use their science experiences to explore ideas and raise different kinds of questions • Recognise and control variables where necessary • Make links between concepts
Investigate	National Curriculum Pupils should be taught to: <i>-performing simple tests</i> <i>-observing closely, using simple equipment</i> <i>-identifying and classifying</i>		National Curriculum Pupils should be taught to: <i>-making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</i>		National Curriculum Pupils should be taught to: <i>-taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</i>	
<ul style="list-style-type: none"> • Make observations of animals and plants and explain why some things occur, and talk about changes. 	<ul style="list-style-type: none"> • With guidance, they should begin to notice patterns and relationships • Begin to carry out simple tests with support • Follow instructions safely • Begin to recognise different ways in which they might answer scientific questions • Use simple equipment • Identify and classify 	<ul style="list-style-type: none"> • Testing their ideas • Children use everyday language as they explore to talk about size, weight, capacity. They explore characteristics of everyday objects and shapes • Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying) 	<ul style="list-style-type: none"> • Make systematic observations, using simple equipment • Use standard units when taking measurements 	<ul style="list-style-type: none"> • Make systematic and careful observations using a range of equipment, including thermometers and data loggers • Take accurate measurements using standard units, where appropriate 	<ul style="list-style-type: none"> • Select, with prompting, and use appropriate equipment to take readings • Take precise measurements using standard units 	<ul style="list-style-type: none"> • Take measurements using a range of scientific equipment • Children choose equipment • Take measurements with increasing accuracy and precision • Take repeat readings when appropriate

	with guidance	<ul style="list-style-type: none"> • Observe closely using simple equipment with help, observe changes over time • Use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data 				
Recording	National Curriculum Pupils should be taught to: <i>-gathering and recording data to help in answering questions</i>		National Curriculum Pupils should be taught to: <i>-gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</i> <i>-recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</i>		National Curriculum Pupils should be taught to: <i>-recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</i>	
• Talk about the features of their own immediate environment and how environments might vary from one another.	• Children represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories. • As a class introducing sorting and recording into tables and pictograms.	• Developing ideas of grouping, sequencing, cause and effect • Use drawings and charts to show their findings • Record simple data • Children use Carroll and Venn diagrams for sorting • Interpreting data into block graphs from tables or tally's	• Record findings in various ways • With prompting, suggest how findings may be tabulated • With prompting, use various ways of recording, grouping and displaying evidence • Begin to use Bar charts/Venn diagram	• Record findings using simple scientific language, drawings and labelled diagrams • Record findings using keys, bar charts, and tables • Gather, record, classify and present data in a variety of ways to help to answer questions • Decide how to collect data • Ask further questions based on data.	• Record data using labelled diagrams, keys, tables and charts • Use line graphs to record data and explain the events shown by each section of the line graph - Structure given such as axis but the children plot the data	• Record data and results of increasing complexity using scientific diagrams and labels • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar charts • Record data and results of increasing complexity using line graphs • Design and create own methods of recording data.

Reporting Findings	National Curriculum Pupils should be taught to: <i>-gathering and recording data to help in answering questions</i>		National Curriculum Pupils should be taught to: <i>-reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</i>		National Curriculum Pupils should be taught to: <i>-reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations</i>	
<ul style="list-style-type: none"> Children know about similarities and differences in relation to places, objects, materials and living things. 	<ul style="list-style-type: none"> Recognise findings 	<ul style="list-style-type: none"> Making links and noticing patterns Speaking: Uses talk to organise, sequence and clarify thinking and ideas Children can make observations about plants and animals and explain why some things occur and talk about changes. Draw on observations to refer back to ideas 	<ul style="list-style-type: none"> With prompting, suggest conclusions from enquiries Suggest how findings could be reported 	<ul style="list-style-type: none"> Report on findings from enquiries, including oral and written explanations, of results and conclusions Report on findings from enquiries using displays or presentations 	<ul style="list-style-type: none"> Report and present findings from enquiries, including conclusions and, with prompting, suggest causal relationships With support, present findings from enquiries orally and in writing What if questions posed orally. 	<ul style="list-style-type: none"> Report and present findings from enquiries, including conclusions and causal relationships Report and presents findings from enquiries in oral and written forms such as displays and other presentation Report and present findings from enquiries, including explanations of, and degree of, trust in results What if questions
Evaluation	National Curriculum Pupils should be taught to: <i>-using their observations and ideas to suggest answers to questions</i>		National Curriculum Pupils should be taught to: <i>-using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions -identifying differences, similarities or changes related to simple scientific ideas and processes -using straightforward scientific evidence to answer questions or to support their findings.</i>		National Curriculum Pupils should be taught to: <i>-using test results to make predictions to setup further comparative and fair tests -identifying scientific evidence that has been used to support or refute ideas or arguments</i>	
<ul style="list-style-type: none"> Children will offer explanations for why things might happen. 	<ul style="list-style-type: none"> Say whether what happened was what the expected. With guidance they can use scientific language to explain their findings Talk about what they 	<ul style="list-style-type: none"> Checking how well their activities are going Changing strategy as needed Reviewing how well the approach worked Understanding: Listens and responds to ideas 	<ul style="list-style-type: none"> Suggest possible improvements or further questions to investigate Use results to make basic conclusions Use conclusions to ask more questions 	<ul style="list-style-type: none"> Identify differences, similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support their findings 	<ul style="list-style-type: none"> Make predictions based on previous scientific knowledge. Use results to draw conclusions and make suggestions for further questions to be investigated. 	<ul style="list-style-type: none"> Identify scientific evidence that has been used to support or refute ideas or arguments Use test results to make predictions to set up further comparative

	have found out • Orally making predictions and questioning statements during sessions	expressed by others • Children can discuss similarities and differences between living things, objects and materials. • Talk about what they have found out and how they found it out • Write down answers to predictions and reasoning why.		• Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Developing cause and effect statements and 'er' and 'er' statements (greater the battery the brighter the bulb)	• Suggest further comparative or fair tests	and fair tests • Researching and justifying with arrange of sources, open up investigations to prove or disprove theories.
Greater Depth	Year 1 Greater Depth	Year 2 Greater Depth	Year 3 Greater Depth	Year 4 Greater Depth	Year 5 Greater Depth	Year 6 Greater Depth
	• Can they find out by watching, listening, tasting, smelling and touching? • Can they give reasons for their answers? • Can they discuss similarities and differences? • Can they explain what they have found out using scientific vocabulary? • Can they make accurate measurements using nonstandard measurements i.e. unifix	• Can they suggest ways of finding out through listening, hearing, smelling, touching and tasting? • Can they say whether things happened as they expected and if not why not? • Can they suggest more than one way of grouping animals and plants and explain their reasons? • Can they use information from books and online information to find things out? • Can they begin to independently consider controlling variables to create a fair test?	• Can they record and present what they have found using scientific language, drawings, labelled diagrams, bar charts and tables? • Can they explain their findings in different ways (display, presentation, and writing)? • Can they use their findings to draw a simple conclusion? • Can they suggest improvements and predictions for further tests? • Can they suggest how to improve their work if they did it again?	• Can they plan and carry out an investigation by controlling variables fairly and accurately? • Can they use test results to make further predictions and set up further comparative tests? • Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? • Can they report findings from investigations through written explanations and conclusions? • Can they use a graph or diagram to answer scientific questions? • Can they use a range of variables to	• Can they explore different ways to test an idea, choose the best way and give reasons? • Can they vary one factor whilst keeping the others the same in an experiment? • Can they use information to help make a prediction? • Can they explain, in simple terms, a scientific idea and what evidence supports it? • Can they decide which units of measurement they need to use? • Can they explain why a measurement needs to be repeated? • Can they find a pattern from their data and explain	• Can they choose the best way to answer a question and use information from different sources to plan an investigation? • Can they make a prediction which links with other scientific knowledge? Can they plan which equipment they will need and use it effectively? Can they explain qualitative and quantitative data? • Can they identify scientific evidence that has been used to support or to refute ideas or arguments and link their conclusions to it? • Can they explain how they could

				investigate?	what it shows? • Can they link what they have found out to other science? • Can they suggest how to improve their work and say why they think this?	improve their way of working? • Can they 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?
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Progression of Vocabulary - Working Scientifically

<u>EYFS</u>	<u>KS1</u>	<u>LKS2</u>	<u>UKS2</u>
<ul style="list-style-type: none"> • Comment • Question • Ideas • Choose • Equipment • Technology • Look closely • Similarity • Difference • Change • Talk about • Draw • Create • Why 	<ul style="list-style-type: none"> • aim • answers • block diagrams • changes • compare • describe • difference • different • enquiry • equipment • experience • explore • findings • gather 	<ul style="list-style-type: none"> • accurate • bar chart • chart • classify • comparative test • conclusion (What have we found out?) • criteria • data • develop • diagram • evaluate • evidence • explanation • key 	<ul style="list-style-type: none"> • accuracy and precision • bar graphs • causal relationship • degree of trust • dependent variable • independent variable • justify • line graphs • refute • repeat results • scatter graphs • support • variables (what do we change, what do we keep the same, how and what)

<ul style="list-style-type: none"> • How • Experience • Environment • Explain 	<ul style="list-style-type: none"> • group • identify (name) • investigate • measure • notice • observe • patterns • pictograms • questions • record • same • similarity • simple tables • sort • sorting diagrams • tally charts • test • What will we do? (plan) • What do you think will happen? (prediction) • What happened? (results) • What have we found out? (conclusion) 	<ul style="list-style-type: none"> • making a test fair • method • observations • plan (What will we do?) • practical enquiry • prediction (What do you think will happen?) • primary sources • questioning • reasoning • relationships • results (What happened?) • secondary sources • standard units • table • What do we change, what do we keep the same, what are we measuring? 	<p>are we measuring?)</p>
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