



## Northwick Park Academy Trust Science Progression Ladder



Science Progression	Communication and Language	Physical Development	Understanding the World
<b>3 and 4 year olds</b>	Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"	Make healthy choices about food, drink, activity and tooth brushing.	<ul style="list-style-type: none"> <li>- Uses all their senses in hands-on exploration of natural materials.</li> <li>- Explore collections of materials with similar and/ or different properties.</li> <li>- Talk about what they see, using a wide vocabulary.</li> <li>- Begin to make sense of their own life-story and family's history.</li> <li>- Explore how things work.</li> <li>- Plant seeds and care for growing plants.</li> <li>- Understand the key features of the life-cycle of a plant and animal.</li> <li>- Begin to understand the need to respect and care for the natural environment and all living things.</li> <li>- Explore and talk about different forces they can feel.</li> <li>- Talk about the differences between materials and changes they notice.</li> </ul>
<b>Reception</b>	<ul style="list-style-type: none"> <li>- Learn new vocabulary.</li> <li>- Ask questions to find out more and to check what has been said to them.</li> <li>- Articulate their ideas and thoughts in well-formed sentences.</li> <li>- Describe events in some detail.</li> <li>- Use talk to work out problems and organise thinking and activities.</li> <li>- Explain how things work and why they might happen.</li> <li>- Use new vocabulary in different contexts.</li> </ul>	<ul style="list-style-type: none"> <li>- Know and talk about the different factors that support their overall health and wellbeing:               <ul style="list-style-type: none"> <li>* regular physical activity</li> <li>* healthy eating</li> <li>* tooth brushing</li> </ul> </li> <li>* sensible amounts of 'screen time'</li> <li>* having a good sleep routine</li> <li>* being a safe pedestrian</li> </ul>	<ul style="list-style-type: none"> <li>- Explore the natural world around them.</li> <li>- Describe what they see, hear and feel while they are outside.</li> <li>- Recognise some environments that are different to the one in which they live.</li> <li>- Understand the effect of changing seasons on the natural world around them.</li> </ul>
<b>Science Progression</b>	<b>Communication and Language/ Listening, Attention and Understanding</b>	<b>Personal, Social and Emotional Development/ Managing Self</b>	Understanding the World/ The Natural World
<b>Early Learning Goals</b>	- Make comments about what they have heard and ask questions to clarify their understanding.	- Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	- Explore the natural world around them, making observations and drawing pictures of animals and plants.



## Northwick Park Academy Trust Science Progression Ladder



			<ul style="list-style-type: none"><li>- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.</li><li>- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li></ul>
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Science Progression	Questioning / Using secondary sources	Planning and Predicting	Investigating and Observing	Recording	
<b>Year 1</b>	Ask simple questions and recognise that they can be answered in different ways.	Suggest what might happen and ways to test ideas.	Use simple equipment to observe closely.  Identify and classify (name and group).  Use his/her observations and ideas to suggest answers to questions.  Make observations using appropriate senses (explore using the five senses).	Communicate findings in simple ways, including tables.	Gather and record data to help in answering questions.
<b>Year 2</b>	Ask simple questions about a given topic.  With help, suggest questions/ ideas to recognise that they can be answered in different ways of scientific language (see the NC).  Gather and record data to help in answering questions including from secondary resources of information.  Use first-hand experience and, with help, simple	Think about how to collect evidence.  Suggest what might happen.  Think about and discuss whether comparisons and simple tests are fair or unfair.	Perform simple and comparative tests.  Follow simple instructions and equipment to observe closely including changes over time. Perform simple comparative tests.  Identify group and classify.  Use his/her observations and ideas to suggest answers to questions an ideas to suggest answers to questions noticing similarities, differences and patterns.	Gather and record data to help in answering questions, including tables and graphs.	Say whether what happened was what was expected and draw simple conclusions.



## Northwick Park Academy Trust Science Progression Ladder



	information sources to answer questions.				
<b>Year 3</b>	<p>Ask relevant questions and use different types of scientific enquiries to answer them.</p> <p>Use first-hand experience and information sources to answer questions.</p>	<p>With help, put forward ideas about how to test.</p> <p>With help, make predictions based on prior knowledge.</p> <p>With help, set up practical enquiries and begin to understand fair tests.</p> <p>With support, plan and carry out a fair test.</p>	<p>Make systematic and careful observations and where appropriate.</p> <p>Measure length, volume of liquid and time in standard measures, using simple measuring equipment.</p> <p>Take accurate measurements of forces.</p>	<p>Gather, record, classify and present data in a variety of ways to help with answering questions.</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</p>	<p>Report on findings from enquiries, including oral and, with support, written explanations, displays or presentations of results and conclusions.</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements.</p> <p>With help, identify simple patterns and suggest explanations.</p>
<b>Year 4</b>	<p>Suggest and ask relevant questions that can be tested and use different types of scientific enquiries to answer them.</p> <p>Use straightforward scientific evidence to answer questions or to support his/her findings.</p>	<p>Recognise why it is important to collect data in order to answer questions.</p> <p>Set up practical enquiries, comparative and fair tests.</p> <p>Put forward ideas about testing and make predictions.</p> <p>Identify how to carry out a fair test and explain why it is so.</p>	<p>Make systematic, careful and relevant observations and comparisons where appropriate.</p> <p>Take accurate measurements of temperature and time, using standard units, using a range of equipment, including thermometers and data loggers.</p> <p>Begin to think about why measurements should be repeated for reliability.</p>	<p>Gather, record, classify and present data in a variety of ways to help with answering questions.</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</p> <p>Explain what evidence shows</p>	<p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Use results to draw conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes.</p> <p>Suggest improvements in their work.</p>



## Northwick Park Academy Trust Science Progression Ladder



				and whether it supports predictions.	
<b>Year 5</b>	<p>Find things out using a wide range of secondary sources of information.</p> <p>Recognise that scientific ideas are based on evidence and creative thinking.</p>	<p>Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary and carrying out fair tests where appropriate.</p> <p>Make predictions based on scientific knowledge.</p>	<p>Suggest how to collect evidence and choose suitable equipment.</p> <p>Group and classify things and recognise patterns.</p> <p>Think about why measurements should be repeated for reliability.</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>Identify simple trends and patterns.</p> <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.</p>	<p>Identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Describe and evaluate their own and other people's scientific ideas related to topics covered in the National Curriculum (including ideas that have changed over time), using evidence from a range of sources.</p> <p>Use appropriate scientific language and ideas from the National Curriculum to explain, evaluate and communicate his/her methods and findings.</p> <p>Suggest improvements in their own work, giving reasons why.</p>
<b>Year 6</b>	<p>Find things out using a wide range of secondary sources of information.</p>	<p>Suggest methods of reliable testing and how to collect evidence, ensuring that it is sufficient and appropriate.</p>	<p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, deciding when repeat readings are necessary.</p>	<p>Choose appropriate methods of record data and results of increasing</p>	<p>Identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Describe and evaluate their own and other people's scientific ideas related</p>



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	<p>Consider how scientists have combine evidence from observations and measurements with creative thinking to suggest new ideas and explanations for phenomena.</p>	<p>Use test results to make predictions to set up further comparative and fair tests.</p>	<p>Group and classify things and recognise patterns.</p> <p>Carry out a fair test identifying key factors to be considered.</p> <p>Make a variety of relevant observations using appropriate apparatus.</p> <p>Identify trends and patterns and results that do not appear to fit the pattern.</p> <p>Provide explanations for difference in observations and measurements.</p>	<p>complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs, using ICT where appropriate.</p> <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.</p>	<p>to topics covered in the National Curriculum (including ideas that have changed over time), using evidence from a range of sources.</p> <p>Use appropriate scientific language and ideas from the National Curriculum to explain, evaluate and communicate his/her methods and findings.</p> <p>Make practical suggestions for improving their work, justifying why.</p>
<p><b>Year 6 Exceeding</b></p>	<p>Ask questions and develop a line of enquiry based on observations of the real world alongside prior knowledge and experience.</p>	<p>Make predictions using scientific knowledge and understanding.</p> <p>Select, plan and carry out the most appropriate type of scientific enquiry to test predictions.</p> <p>Identify independent, dependent and control variables, where appropriate.</p>	<p>Use appropriate techniques and apparatus paying attention to health and safety.</p>	<p>Make and record observations and measurements using a range of methods for different investigations.</p> <p>Apply mathematical concepts and calculate results.</p>	<p>Evaluate the reliability of methods used to record and suggest improvements.</p> <p>Evaluate data, showing awareness of potential sources of random and systematic error.</p> <p>Identify appropriate questions arising from results.</p>



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				Present reasoned explanations, including explaining data in relation to predictions and hypotheses.	
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