

# Willow Lane Science Curriculum

## Our intent

Through the teaching of science at Willow Lane, we aim to inspire curiosity and equip our children with the scientific knowledge needed for them to better understand the world around them. We 'teach to the heart' by creating rich opportunities for our children to work scientifically and to explore, experience and question natural phenomenon so that they gain a deeper understanding and appreciation of scientific ideas. At Willow Lane, you can see our children acting out the movements of stars, planets and moons in our solar system; making weather stations to record and investigate patterns in the seasons; and identifying and classifying the incredible variety of life, both in our school grounds and further afield. Our children develop the aspirations, knowledge and skills to thrive and become tomorrow's scientists.

Our curriculum provides a detailed interpretation of the National Curriculum statements. We have adapted the guidance within the National Curriculum to meet the needs of the children at Willow Lane and created a broad and balanced curriculum. It provides opportunities for children to delve deeper and apply their knowledge in a wide range of contexts. We also value and teach skills to ensure children are confident when working scientifically. Furthermore, we know our children learn more when they are provided with memorable experiences with which to anchor and link their learning. These experiences provide opportunities for rich discussion and enable children to develop their cultural capital and vocabulary.



*Willow Lane*  
Community Primary School

# Assessment in Science

## How we assess

Teachers use the 'I will know...' and 'I will know how to...' statements in each unit to assess whether children are achieving age related expectations. Teachers use formative assessment as an opportunity to identify strengths in the unit and plan opportunities to further deepen and broaden children's learning. It is also an opportunity to identify children and areas that require further consolidation and plan future learning episodes accordingly.

Unit outcomes allow teachers to identify those who are working towards unit expectations, those who are meeting the expectations for the unit and those who are working at greater depth within the unit. Outcomes may take the form of low-stakes testing, reports, presentations or other creative tasks that allow children to showcase their learning.

Children not meeting the expectations for a unit, or where gaps are identified, will be given further opportunities to revisit the foundational learning identified in each unit (written in bold). This may be through regular retrieval tasks based on the 'Learning Checks' or through planned learning tasks designed to enable learners to revisit and apply earlier knowledge or skills in a new context.

The outcomes and 'Learning Checks' also support the subject lead and teachers in identifying strengths and areas for further development in the curriculum design and teaching and learning of science.

To assess children's skills for working scientifically, observe their execution of skills that have been previously modelled and take note of those children who are not secure in using them. If children are not yet secure in the skills, further opportunities should be provided later in the year for them to revisit them. If children are secure in the skills, then opportunities to broaden them should be created.

The overview of the progression in skills for working scientifically is shown on the next page. Key skills for each unit should be selected from the overview to meet the needs of each class. It is based on the Teacher Assessment in Primary Science project developed by Bath University and the Primary Science Teaching Trust (PSTT). The TAPS focused assessment approach embeds assessment within classroom primary science activities. To assess children's skills for working scientifically, teachers observe the execution of skills that have been previously modelled and take note of those children who are not yet secure in using them. If children are not yet secure in the skills, further opportunities are planned in later learning episodes for children to revisit them. If children are secure in the skills, then opportunities to broaden the skills and apply them in new contexts are planned as appropriate.

Year group	Autumn		Spring		Summer	
<b>EYFS: Red</b>						
<b>1. Orange</b>	<ul style="list-style-type: none"> <li>Seasonal change (1)</li> <li>Everyday materials (2)</li> </ul>		<ul style="list-style-type: none"> <li>Animals- human body parts and senses (1)</li> <li>Animals- common names and basic structure (2)</li> </ul>		<ul style="list-style-type: none"> <li>Plants- common names and basic structure (1)</li> <li>Seasonal change (2)</li> </ul>	
<b>2. Yellow</b>	<ul style="list-style-type: none"> <li>Living things and habitats (1)</li> <li>Material uses (2)</li> </ul>		<ul style="list-style-type: none"> <li>Animals -offspring to adults, (1)</li> <li>Basic needs and health (2)</li> </ul>		<ul style="list-style-type: none"> <li>Plants- seeds and growth</li> </ul>	
<b>3. Green</b>	<ul style="list-style-type: none"> <li>Forces and magnets</li> </ul>		<ul style="list-style-type: none"> <li>Materials- rocks (1)</li> <li>Light- reflection and shadow (2)</li> </ul>		<ul style="list-style-type: none"> <li>Growth and function of parts (1)</li> <li>Animals- muscles, skeleton and nutrition (2)</li> </ul>	
<b>4. Blue</b>	<ul style="list-style-type: none"> <li>Material properties- states of matter</li> </ul>		<ul style="list-style-type: none"> <li>Sound (1)</li> <li>Electricity (2)</li> </ul>		<ul style="list-style-type: none"> <li>Living things- classification and care of environment (1)</li> <li>Animals- teeth and digestion (2)</li> </ul>	
<b>5. Indigo</b>	<ul style="list-style-type: none"> <li>Materials- properties and changes</li> </ul>		<ul style="list-style-type: none"> <li>Earth and space (1)</li> <li>Forces- gravity and resistance (2)</li> </ul>		<ul style="list-style-type: none"> <li>Animals- human development</li> <li>Living things- lifecycles (2)</li> </ul>	
<b>6. Violet</b>	<ul style="list-style-type: none"> <li>Electricity (1)</li> <li>Light (2)</li> </ul>		<ul style="list-style-type: none"> <li>Living things- classification (1)</li> <li>Inheritance and evolution (2)</li> </ul>		<ul style="list-style-type: none"> <li>Animals- exercise, health and the circulatory system</li> </ul>	

	Plan		Do		Review	
	Ask Qs and plan enquiry	Set up enquiry	Observe + Measure	Record	Interpret + Report	Evaluate
<b>KS1</b> <b>(age 5-7)</b> <i>Develop close observations</i>	Ask simple Qs and recognise that they can be answered in different ways*.	Perform simple tests.	Observe closely, using simple equipment.	Gather and record data to help in answering questions.	Identify and classify. <i>Use appropriate scientific language to communicate ideas.</i>	. Use their observations and ideas to suggest answers to questions.
<b>Y1 TAPS plans</b>	Materials: reflection tests	Materials: floating and sinking	Plants: structure	Seasons: seasonal change	Animals inc. Humans: animal classification	Animals inc. Humans: body parts
<b>Y2 TAPS plans</b>	Materials: waterproof	Materials: rocket mice	Plants: compare growth	Living things: woodlice habitats	Living things: nature spotters	Animals inc. Humans: handspans
<b>Lower KS2</b> <b>(age 7-9)</b> <i>Develop systematic approach</i>	Ask relevant questions and use different types* of scientific enquiries to answer them.	Set up simple practical enquiries, comparative and fair tests.	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Identify differences, similarities or changes related to simple scientific ideas and processes.	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Use straightforward scientific evidence to answer questions or to support their findings.
<b>Y3 TAPS plans</b>	Animals inc. Humans: investigating skeletons	Forces: shoe grip Forces: strongest magnet	Plants: measuring plants	Light: making shadows Forces: cars down ramps	Rocks: rock reports	Plants: function of stem Forces: balloon rockets
<b>Y4 TAPS plans</b>	Sound: investigating pitch	Materials: drying materials	Materials: measure temperature	Living things: local survey	Electricity: conductors Sound: string telephones	Animals inc. Humans: teeth (eggs) in liquids
<b>Upper KS2</b> <b>(age 9-11)</b> <i>Develop independence</i>	Plan different types* of scientific enquiries to answer <i>their own questions</i> , including recognising and controlling variables where necessary.	Use test results to make predictions to set up further comparative and fair tests.	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.	Report and present findings from enquiries, inc. conclusions and causal relationships, in oral and written forms such as displays and other presentations, <i>using appropriate scientific language.</i>	Explain degree of trust in results. Identify <i>and evaluate</i> scientific evidence ( <i>their own and others'</i> ) that has been used to support or refute ideas or arguments.
<b>Y5 TAPS plans</b>	Materials: dissolving Materials: nappy absorbency	Materials: insulation layers	Animals inc. Human: growth survey Forces: spinners	Materials: sugar cubes Space: craters	Materials: champion tapes Living things: life cycle research	Forces: aquadynamics
<b>Y6 TAPS plans</b>	Electricity: bulb brightness	Animals inc. Humans: heart rate	Light: investigating shadows	Living things: outdoor keys	Living things: invertebrate research	Evolution: fossil habitats Evolution: egg strength