

# **Pennyhill Primary School**

## **Working Scientifically Progression Document**

**2019 - 2020**

## Questioning

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ask simple scientific questions. Question words include what, why, how, when, who and which.	Ask and answer scientific questions about the world around them. Questions can help us find out about the world.	Ask questions about the world around them and explain that they can be answered in different ways. Questions can help us find out about the world and can be answered in different ways.	Ask relevant scientific questions, independently, about the world around them and begin to identify how they can answer them. Questions can help us find out about the world and can be answered using scientific enquiry.	Ask a wide range of relevant scientific questions that broaden their understanding of the world around them and identify how they can answer them. Questions can help us find out about the world and can be answered using a range of scientific enquiries.	Ask and answer deeper and broader scientific questions about the local and wider world that build on and extend their own and others' experiences and knowledge. Questions can help us find out about the world and can be answered using a range of scientific enquiries, including fair tests, research and observation.

## Measuring

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>With support, use simple equipment to measure and make observations. Simple equipment is used to take measurements and observations. Examples include metre sticks, measuring tapes, egg timers and hand lenses.</p>	<p>Use simple equipment to measure and make observations. Simple equipment is used to take measurements and observations. Examples include timers, hand lenses, metre sticks and trundle wheels.</p>	<p>Take measurements in standard units, using a range of simple equipment. Equipment is used to take measurements in standard units. Examples include data loggers plus sensors, timers (seconds, minutes and hours), thermometers (°C) and metre sticks (millimetres, centimetres and metres). Taking repeat readings can increase the accuracy of the measurement.</p>	<p>Take accurate measurements in standard units, using a range of equipment. Equipment is used to take measurements in standard units. Examples include data loggers plus sensors, timers (seconds, minutes and hours), thermometers (°C), and metre sticks, rulers or trundle wheels (millimetres, centimetres, metres).</p>	<p>Take increasingly accurate measurements, in standard units, using a range of chosen equipment. Specialised equipment is used to take measurements in standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers (°C), and measuring tapes (millimetres, centimetres, metres).</p>	<p>Take accurate, precise and repeated measurements in standard units, using a range of chosen equipment. Specialised equipment is used to take accurate measurements in standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers (°C), and measuring tapes (millimetres, centimetres, metres).</p>

## Investigating

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>With support, follow instructions to perform simple tests and begin to talk about what they might do or what might happen. Simple tests can be carried out by following a set of instructions.</p>	<p>Follow a set of instructions to perform a range of simple tests, making simple predictions for what might happen and suggesting ways to answer their questions. Tests can be carried out by following a set of instructions. A prediction is a guess for what might happen in an investigation.</p>	<p>Set up and carry out some simple comparative and fair tests, making predictions for what might happen. Tests can be set up and carried out by following or planning a set of instructions. A prediction is a best guess for what might happen in an investigation based on some prior knowledge.</p>	<p>Begin to independently plan, set up and carry out a range of comparative and fair tests, making predictions and following a method accurately. Scientific enquiries can be set up and carried out by following or planning a method. A prediction is a statement about what might happen in an investigation, based on some prior knowledge or understanding. A fair test is one in which only one variable is changed and all others remain constant.</p>	<p>Plan and carry out a range of enquiries, including writing methods, identifying variables and making predictions based on prior knowledge and understanding. A method is a set of clear instructions for how to carry out a scientific investigation. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.</p>	<p>Plan and carry out a range of enquiries, including writing methods, identifying and controlling variables, deciding on equipment and data to collect and making predictions based on prior knowledge and understanding. A method is a set of clear instructions for how to carry out a scientific investigation, including what equipment to use and observations to make. A variable is something that can be changed during a fair test. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.</p>

## Observing

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Observe objects, materials, living things and changes over time, sorting and grouping them based on their features. Objects, materials and living things can be looked at and compared.</p>	<p>Observe objects, materials, living things and changes over time, sorting and grouping them based on their features and explaining their reasoning. Objects, materials and living things can be looked at, compared and grouped according to their features.</p>	<p>Make increasingly careful observations, identifying similarities, differences and changes, and making simple connections. An observation involves looking closely at objects, materials and living things, which can be compared and grouped according to their features.</p>	<p>Begin to choose which observations to make and for how long and make systematic, careful observations and comparisons, identifying changes and connections. An observation involves looking closely at objects, materials and living things. Observations can be made regularly to identify changes over time.</p>	<p>Within a group, decide which observations to make, when and for how long, and make systematic and careful observations, using them to make comparisons, identify changes, classify and make links between cause and effect. An observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time.</p>	<p>Independently, decide which observations to make, when and for how long and make systematic and careful observations, using them to make comparisons, identify changes, classify and make links between cause and effect. An observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time, identify processes and make comparisons.</p>

## Reporting and Concluding

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Talk about what they have done and say, with help, what they think they have found out. The results are information that has been found out from an investigation.</p>	<p>Begin to notice patterns and relationships in their data and explain what they have done and found out using simple scientific language. The results are information that has been found out from an investigation and can be used to answer a question.</p>	<p>Use suitable vocabulary to talk or write about what they have done, what the purpose was and, with help, draw a simple conclusion based on evidence collected, beginning to identify next steps or improvements. Results are information that has been found out from an investigation. A conclusion is the answer to a question that uses the evidence collected.</p>	<p>Use scientific vocabulary to report and answer questions about their findings based on evidence collected, draw simple conclusions and identify next steps, improvements and further questions. Results are information, such as data or observations, that has been found out from an investigation. A conclusion is the answer to a question that uses the evidence collected.</p>	<p>Use relevant scientific vocabulary to report on their findings, answer questions and justify their conclusions based on evidence collected, identify improvements, further questions and predictions. The results are information, such as measurements or observations, that have been collected during an investigation. A conclusion is an explanation of what has been discovered using evidence collected.</p>	<p>Report on and validate their findings, answer questions and justify their methods, opinions and conclusions, and use their results to suggest improvements to their methodology, separate facts from opinions, pose further questions and make predictions for what they might observe. The results are information, such as measurements or observations, that have been collected during an investigation. A conclusion is an explanation of what has been discovered using evidence collected using correct, precise terminology.</p>

## Gather and Record Data

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
With support, gather and record simple data in a range of ways (data tables, diagrams, Venn diagrams). Data can be recorded and displayed in different ways, including tables, pictograms and drawings.	Use a range of methods (tables, charts, diagrams and Venn diagrams) to gather and record simple data with some accuracy. Data can be recorded and displayed in different ways, including tables, charts, pictograms and drawings.	Gather and record findings in a variety of ways (diagrams, tables, charts and graphs) with increasing accuracy. Data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions.	Gather, record, classify and present observations and measurements in a variety of ways (pictorial representations, timelines, diagrams, keys, tables, charts and graphs). Data can be recorded and displayed in different ways, including tables, charts, graphs, keys and labelled diagrams.	Gather and record data and results of increasing complexity, selecting from a range of methods (scientific diagrams, labels, classification keys, tables, graphs and models). Data can be recorded and displayed in different ways, including tables, bar and line charts, classification keys and labelled diagrams.	Choose an appropriate approach to record accurate results, including scientific diagrams, labels, timelines, classification keys, tables, models and graphs (bar, line and scatter), linking to mathematical knowledge. Data can be recorded and displayed in different ways, including tables, bar and line charts, scatter graphs, classification keys and labelled diagrams.