
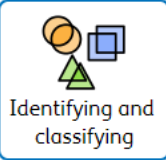

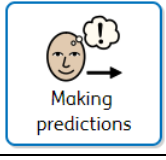
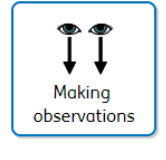

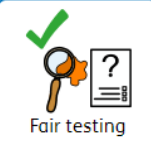
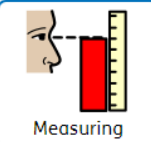
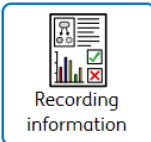
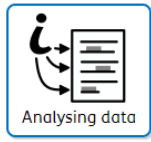
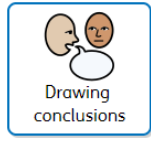




## Working Scientifically Skills Progression Map (Disciplinary Knowledge)

Skill	Year Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 Asking questions	Being curious and starting to ask questions about the world around them	Use everyday language/begin to use simple scientific words to ask or answer a scientific question.	Suggest ideas, ask simple questions and know that they can be answered / investigated in different ways including simple secondary sources, such as books and video clips.	Use prior knowledge when posing questions independently, about the world around them. Independently use a range of questions stems eg. why, how, when etc.	Suggest relevant questions and know that they could be answered in a variety of ways, including using secondary sources such as ICT, books, articles etc. Answer questions using straight forward scientific evidence.	Raise different types of scientific questions, and hypotheses based on scientific experiences or prior knowledge.	Pose/select the most appropriate line of enquiry to investigate scientific questions based on prior knowledge or scientific experience. Understand that secondary resources may be necessary to answer a question if practical work cannot.
 Identifying and classifying	Can identify and classify objects that they observe with the support from adults through questioning	Sort and group objects, materials and living things, according to simple observational features and criteria given.	Decide how to group materials based on a criterion, living things and objects, noticing changes over time and beginning to see patterns.	Talk about criteria for grouping, sorting and categorising, beginning to see patterns and relationships.	Identify similarities/differences/changes when talking about scientific processes. Use and begin to create simple keys.	Use and develop keys to identify, classify and describe living things and materials.	Identify and explain patterns seen in the natural environment and during scientific investigations.
 Research	To be able to select books based on a scientific theme eg. weather, materials, animals etc.	To be able to select relevant information based on a scientific theme from secondary sources that have been provided.	To be able to use simple secondary sources which have been provided to find answers, e.g. books, videos, photographs or people.	To begin to select relevant secondary sources from a selection provided to help answer questions around a scientific theme.	To recognise when and how secondary sources (e.g. books, internet, experts, diagrams) might help answer questions that cannot be answered through practical investigations.	To begin to develop a research method to answer a specific question and select the relevant secondary sources to support this.	To recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.
 Making predictions	To observe the world around them and answer questions about what might happen next.	Begin to say what might happen in an investigation.	Begin to make predictions based on own experiences and some scientific knowledge.	Make predictions and begin to give reasons for them based on own experiences and some scientific knowledge.	Make predictions and give reasons for them using simple scientific vocabulary.	Make predictions and give a reason using scientific vocabulary and scientific knowledge.	Make predictions and give a reason using scientific vocabulary and base predictions on findings from previous investigations and research.
 Making observations	Discuss what they can see, touch, smell, hear or taste Use simple equipment to help them make observations eg. magnifying glass.	Observe objects, materials and living things and describe what they see using scientific vocabulary.	Observe something closely and describe changes over time using simple equipment such as magnifying glass, metre stick etc.	Begin to make decisions about what to observe during an investigation and how this will be done.	Make systematic and careful observations.	Plan and carry out comparative and fair tests, making systematic and careful observations.	Make their own decisions about which observations to make, using test results and observations to make predictions or set up further comparative or fair tests.

 <p>Performing investigations</p>	Can perform a simple test with adult support and can describe and explain what they have done verbally	Follow instructions to complete a simple test individually or in a group.	Do things in the correct order when performing a simple test independently and begin to recognise when something is unfair.	Discuss possible enquiry methods and describe a fair test.	Make decisions about different enquiries, including recognising when a fair test is necessary and begin to identify variables.	Plan a range of science enquiries, including comparative and fair tests.	Select and plan the most suitable line of enquiry, explaining which variables need to be controlled and why, in a variety of comparative and fair tests.
 <p>Fair testing</p>	Begin to understand the importance of repeating a line of enquiry through adult questioning eg. Do all stones sink?	Begin to suggest why a test may be unfair.	To be able to identify why a test is unfair and make suggestions how to make it fair.	Begin to recognise the different variables and explain what a fair test is.	To recognise when a simple fair test is needed and with help, decides how to set up a fair test and control variables.	Recognise when and how to set up comparative and fair tests and identify the variables.	To be able to design a fair test and recognise the controls variables where necessary (e.g. explains which variables need to be controlled and why).
 <p>Measuring</p>	Begin to take measurements of size using non-standard units eg. multilink cubes or Lego blocks.	To begin to understand that measurements involving numbers help scientists to make conclusions. Adults to model this to the children in group investigations. Independently use non-standard units to measure results.	With adult support, begin to use simple equipment such as rulers to take measurements, and independently use tallies to count the number of times.	Begin to use a range of simple equipment with support to make accurate measurements using standard units (m, cm, °C, kg, g, ml).	To independently make accurate measurements using standard units (e.g. cm, m, °C, N, g, kg, ml), using a range of simple equipment, e.g. rulers, measuring cylinder and thermometers.	To be able to take measurements, in standard units, using a range of scientific equipment, with increasing accuracy and precision.	To take measurements, in standard units, using a range of scientific equipment, with increasing accuracy and precision and take repeat readings when appropriate.
 <p>Recording information</p>	Begin to use diagrams and labels to show what they have observed.	Begin to record simple data in charts with support and modelling.	Gather data using simple charts and tables such as tally charts.	Record their findings using scientific language and present in note form, writing frames, diagrams, tables and charts.	Choose appropriate ways to record and present information, findings and conclusions for different audiences (e.g. displays, oral or written explanations).	Record data and results of increasing complexity using scientific diagrams, labels, classification keys, tables, bar and line graphs and models.	Choose the most effective approach to record and report results, linking to mathematical knowledge.
 <p>Analysing data</p>	Verbally explain what they have recorded.	Use every day or simple scientific language to ask and/or answer a question on given data.	Identify simple patterns and/or relationships using simple comparative language.	Gather, record and use data in a variety of ways to answer a simple question.	Identify, with help, changes, patterns, similarities and differences in data to help form conclusions. Use scientific evidence to support their findings.	Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas.	Identify and explain causal relationships in data and identify evidence that supports or refutes their findings, selecting fact from opinion.
 <p>Drawing conclusions</p>	Answer simple questions about what they have found out.	Talk about their findings and explain what they found out with support and modelling.	Use simple scientific language to explain what they have found out.	Draw, with help, a simple conclusion based on evidence from an enquiry or observation.	Use recorded data to make predictions, pose new questions and suggest improvements for further enquiries.	Use a simple mode of communication to justify their conclusions on a hypothesis. Begin to recognise how scientific ideas change over time.	Identify validity of conclusion and required improvement to methodology. Discuss how scientific ideas develop over time.