



Progression Map: Scientific Skills

Research

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
To make comments and ask questions about aspects of their familiar world (such as the place where they live) or the natural world.	To begin to use simple secondary sources to find answers. To begin to find information to help me from books and computers with help	To use simple secondary sources to find answers. To find information to help me from books and computers with help.	To begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.	To recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.	To begin to recognise which secondary sources will be most useful to research their ideas.	To recognise which secondary sources will be most useful to research their ideas.

Questioning and Planning

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
To show curiosity about objects, events and people	To ask simple questions about the world around us. To begin to recognise that they can be answered in different ways.	To ask questions about the world around us. To recognise that they can be answered in different ways..	To ask some relevant questions and use different types of scientific enquiries to answer them.	To ask relevant questions and use different types of scientific enquiries to answer them.	To begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.	To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
			To begin to explore everyday phenomena and the relationships between living things and familiar environments.	To explore everyday phenomena and the relationships between living things and familiar environments.	To begin to explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and	To explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and

To questions why things happen

To begin to develop their ideas about functions, relationships and interactions.

To begin to raise their own questions about the world around them.

To begin to develop their ideas about functions, relationships and interactions.

To raise their own questions about the world around them.

relationships and interactions more systematically

To begin to recognise some more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.

To begin to recognise scientific ideas change and develop over time.

To begin to select the most appropriate ways to answer science questions using different types of scientific enquiry.

interactions more systematically.

To recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.

To recognise scientific ideas change and develop over time.

To select the most appropriate ways to answer science questions using different types of scientific enquiry.

Observing, Measuring and Pattern Seeking

EYFS

Year 1

Year 2

Year 3

Year 4

Year 5

Year 6

To use senses to explore the world around them.

To closely observe what animals, people and vehicles do.

To begin to observe closely, using simple equipment.

To use simple observations and ideas to suggest answers to questions.

To observe closely, using simple equipment.

To use simple observations and ideas to suggest answers to questions.

To begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.

To begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.

To start to use help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.

To make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.

To look for naturally occurring patterns and relationships and decide what data to collect to identify them.

To use help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.

To begin to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.

To begin to identify patterns that might be found in the natural environment.

To begin to make their own decisions about what observations to make, what measurements to use and how long to make them for and whether to repeat them

To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.

To identify patterns that might be found in the natural environment.

To make their own decisions about what observations to make, what measurements to use and how long to make them for and whether to repeat them

To make links and notice patterns and their experiences.

To observe simple changes over time and, with guidance, begin to notice patterns.

To begin say what I am looking for and what I am measuring.

To begin know how to use simple equipment safely.

To observe simple changes over time and, with guidance, begin to notice patterns.

To say what I am looking for and what I am measuring.

To know how to use simple equipment safely.

To use simple measurements and equipment with support (e.g. hand lenses and egg timers)

To use simple measurements and equipment with increasing independence (e.g. hand lenses and egg timers).

To learn to use new equipment appropriately with support (e.g. data loggers).

To learn to use new equipment appropriately (e.g. data loggers).

To begin to choose the most appropriate equipment and explain how to use it accurately.

To choose the most appropriate equipment and explain how to use it accurately.

To begin see a pattern in my results.

To see a pattern in my results.

To begin interpret data and find patterns.

To interpret data and find patterns.

To begin to choose from a selection of equipment.

To choose from a selection of equipment.

To start to select equipment on my own.

To select equipment on my own.

To start to make a set of observations and say what the interval and range are.

To make a set of observations and say what the interval and range are.

To be able to read mm, cm, m, ml, l, °C with support.

To be able to read mm, cm, m, ml, l, °C

To begin to observe and measure accurately using standard units including time in minutes and seconds.

To observe and measure accurately using standard units including time in minutes and seconds.

To begin to take accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm²V, km/h, m per sec, m/ sec
Graphs – pie, line

To make accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm²V, km/h, m per sec, m/ sec
Graphs – pie, line, bar

Investigating

EYFS

Year 1

Year 2

Year 3

Year 4

Year 5

Year 6

To find ways to solve problems / find new ways

To perform simple tests with support.

To perform simple tests.

To set up some simple practical enquiries,

To set up simple practical enquiries,

To begin to use test results to make predictions

To use test results to make predictions to set

to do things / test their ideas. To engage in open-ended activity.

To begin use prior understanding to predict the outcomes of an investigation with support.
To begin to discuss my ideas about how to find things out.

To begin use prior understanding to predict the outcomes of an investigation
To discuss my ideas about how to find things out.

comparative tests.
To use prior understanding to predict the outcomes of an investigation.
To begin to recognise which independent, dependent and controlled variables are necessary to test my ideas.
To begin to think of more than one variable factor.

comparative tests
To use prior understanding to hypothesise the outcomes of an investigation.
To recognise which independent, dependent and controlled variables are necessary to test my ideas.
To think of more than one variable factor.

to set up further comparative tests.
To begin to make informed predictions and justify them using scientific knowledge.
To begin to recognise when and how to set up comparative tests and explain which variables need to be controlled and why.

up further comparative tests
To make informed predictions and justify them using scientific knowledge.
To recognise when and how to set up comparative tests and explain which variables need to be controlled and why.

Recording and Reporting Findings

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
To choose the resources they need for their chosen activities	To gather and record data with some adult support, to help in answering questions To begin to record simple data. To begin to record and communicate	To gather and record data to help in answering questions To record simple data. To record and communicate their findings in a range of ways.	To gather, record, and begin to classify and present data in a variety of ways to help in answering questions.	To gather, record, classify and present data in a variety of ways to help in answering questions.	To begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.	To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.

their findings in a range of ways.

To show my results in a simple table that my teacher has provided.

To show my results in a table that my teacher has provided

To begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables

To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables

To begin to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

To begin to report and present findings from enquiries.

To report and present findings from enquiries.

To begin to use notes, simple tables and standard units and help to decide how to record and analyse their data.

To use notes, simple tables and standard units and help to decide how to record and analyse their data.

To begin to decide how to record data from a choice of familiar approaches.

To decide how to record data from a choice of familiar approaches.

To begin to record results in tables and bar charts.

To record results in tables and bar charts.

To begin to choose how best to present data.

To choose how best to present data

Conclusions

EYFS

Year 1

Year 2

Year 3

Year 4

Year 5

Year 6

<p>To answer how and why questions about their experiences.</p> <p>To make observations of animals and plants and explain why some things occur, and talk about changes.</p> <p>To build up vocabulary that reflects the breadth of their experience</p> <p>Understanding.</p>	<p>To begin to talk about what they have found out and how they found it out</p> <p>To begin to say what happened in my investigation.</p> <p>To begin to say whether I was surprised at the results or not.</p> <p>To begin to say what I would change about my investigation.</p>	<p>To talk about what they have found out and how they found it out.</p> <p>To say what happened in my investigation.</p> <p>To say whether I was surprised at the results or not.</p> <p>To say what I would change about my investigation.</p>	<p>To begin to use results to draw simple conclusions, hypothesise for new values, suggest improvements and raise further questions.</p> <p>To begin to use straightforward scientific evidence to answer questions or to support their findings.</p> <p>To begin to look for changes, patterns, similarities and differences in their data in order to draw simple</p>	<p>To use results to draw simple conclusions, hypothesise for new values, suggest improvements and raise further questions.</p> <p>To use straightforward scientific evidence to answer questions or to support their findings.</p> <p>To look for changes, patterns, similarities and differences in their data in order to draw simple</p>	<p>To begin to 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 begin to identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>To begin to draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific</p>	<p>To 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 identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>To draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific</p>
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conclusions, with support.

To begin to identify new questions arising from the data, make new predictions and find ways of improving what they have already done, with support.

To begin to identify a pattern in my results.
To begin to identify what I discovered, linking cause and effect.

To begin to answer questions from what I have discovered.

conclusions and answer questions, with support.

To identify new questions arising from the data, make new predictions and find ways of improving what they have already done, with support.

To identify a pattern in my results.
To identify what I discovered, linking cause and effect.

To answer questions from what I have discovered.

knowledge and understanding to explain their findings

To begin to use test results to make predictions to set up further comparative tests

To begin to look for different causal relationships in their data and identify evidence that refutes or supports their ideas.

To begin to use test results to make predictions to set up further comparative tests.

To use their results to identify when further tests and observations are needed

To begin to separate opinion from fact.

knowledge and understanding to explain their findings

To use test results to make predictions to set up further comparative tests

To look for different causal relationships in their data and identify evidence that refutes or supports their ideas.

To use test results to make predictions to set up further comparative tests.

To use their results to identify when further tests and observations are needed

To separate opinion from fact.

To begin to draw conclusions and identify scientific evidence.
 To begin to use simple models (e.g. flow charts, classification tree)
 To know which evidence proves a scientific point.

To draw conclusions and identify scientific evidence.
 To use simple models (e.g. flow charts, classification tree)
 To know which evidence proves a scientific point.

Identifying, Grouping and Classifying

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
To answer how and why questions about their experiences.	To identify and classify with some support. To begin to observe and identify, compare and describe.	To identify and classify To observe and identify, compare and describe.	To begin to identify differences, similarities or changes related to simple scientific ideas and processes.	To identify differences, similarities or changes related to simple scientific ideas and processes.	To begin to use and develop keys and other informational records to identify, classify and describe living things and materials.	To use and develop keys and other informational records to identify, classify and describe living things and materials.
To develop ideas of grouping, sequences, cause and effect To know about similarities and differences in relation to places, objects, materials and living things	To begin to use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.	To use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.	To begin to talk about criteria for grouping, sorting and classifying and use simple keys To begin to compare and group according to behaviour or properties, based on testing.	To talk about criteria for grouping, sorting and classifying and use simple keys To compare and group according to behaviour or properties, based on testing.		

Vocabulary

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	properties		prediction		line graph	angle of incidence
	observe		measurement		relationship	angle of reflection
	test		enquiry		outlier	refraction
	magnifying glass		independent variable			spectrum
	object		dependent variable			translucent
	record		controlled variable			medium
	equipment		comparative test			periscope
			theory			
			hypothesis			