Our Scientific Adventure

Working Scientifically Skills Progression

Asking questions

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Show curiosity about the world around them. Ask 'how' and 'why' questions to find out more. Notice and ask questions about differences. Listen attentively and respond to what they hear with relevant questions.	Asking simple questions and recognising that they can be answered in different ways•		Asking relevant questions and using different types of scientific enquiries to answer them•		Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary•	
I can explore the natural world around me. I can begin to ask questions about things that interest me to find out more. I can notice and talk about change. I can listen carefully to the person who is talking and ask questions linked to what they have said.	I can ask a few simple questions about the world around us I can begin to use some different types of enquiry to answer questions	I can ask simple questions about the world around us I can begin to use some different types of enquiry to answer questions	I can ask some relevant questions about the world around me I can use some different types of enquiry to answer questions I am beginning to decide which type of enquiry is best to answer my question	I can ask relevant questions about the world around us I can use different types of scientific enquiry to answer questions I am beginning to decide which type of enquiry is best to answer my question	I am beginning to explore ideas and ask my own questions about scientific phenomena I am beginning to plan different types of scientific enquiry to answer questions I am beginning to decide which variables to control	I can explore ideas and ask my own questions about scientific phenomena I can plan different types of scientific enquiry to answer questions I can decide which variables to control



Making predictions

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Begin to show an understanding of cause and effect (that changing something may effect something else). **Start to think about what might happen next.**	**Make simple predictions from questions posed**		**Make predictions that is usually supported by scientific knowledge** **Use results to make new predictions for new values•**		**Make predictions that use supporting scientific evidence** **Use test results to make predictions to set up further comparative and fair tests•**	
I can suggest what might happen next.						

Setting up tests

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Respond to new experiences. **Solve real problems.** **Explore and sort materials.** **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.**	**Performing simple tests•** **Identifying and classifying•**		**Setting up simple practical enquiries, comparative tests and fair tests**		**Choosing appropriate scientific enquiries to answer a question including controlling variables**	
I explore the natural world and solve real problems. I have my own ideas.	I can begin to perform simple tests I can begin to discuss my ideas	I can perform simple tests I can discuss my ideas	I can set up some simple practical enquiries, including comparative and fair tests I am beginning to help decide which variables to keep the same (control variables) and which to change (independent variable)	I can set up some simple practical enquiries, including comparative and fair tests I can help decide which variables to keep the same (control variables) and which to change (independent variable)	I can sometimes set up a range of comparative and fair tests I am beginning to explain which variables need to be controlled and why (control and independent variables) I am beginning to choose an appropriate outcome to measure (dependent variable) I am beginning to suggest improvements to my test, giving reasons	I can set up a range of comparative and fair tests I can explain which variables need to controlled and why (control and independent variables) I can choose an appropriate outcome to measure (dependent variable) I can suggest improvements to my test, giving reasons

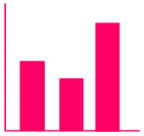
Observing and measuring

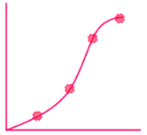
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use all their senses in hands-on exploration of natural materials. Explore the world around them, making observations and drawing pictures of animals and plants. Realise their actions have an effect on the world. Understand some important processes and changes in the natural world around them. Develop their small motor skills so that they can use a range of small tools.	**Observing closely, using simple equipment•**		**Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers•**		**Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate•**	
I can use all my senses and look closely. I notice similarities, differences and change. I can use materials and tools safely and confidently.	I can begin to say what I saw in an investigation I can measure with non-standard units and can begin to use simple standard units I can use simple equipment I can observe changes over time	I can say what I saw in an investigation I can say what I am looking for and what I am measuring I can measure with non-standard units and can begin to use simple standard units	I can make systematic and careful observations I can make suggestions on what to observe I am starting to decide how long to collect observations for I am beginning to take accurate measurements using standard units, e.g.	I can make systematic and careful observations I can make suggestions on what to observe I am starting to decide how long to collect observations for I can take accurate measurements using standard units, e.g.	I can make accurate and precise measurements I can decide what to observe, how long to observe for I am beginning to decide whether to repeat observations I can take accurate and precise measurements using standard units, **N**, g, kg, mm, cm, mins,	I can make accurate and precise measurements I can decide what to observe, how long to observe for I am beginning to decide whether to repeat observations I can take accurate and precise measurements using standard units, **N**, g, kg, mm, cm, mins,

		I can use simple equipment I can observe changes over time I can begin to notice patterns	mm, cm, m, ml, l, °C, seconds minutes I can identify which equipment to use and use new equipment I can look for patterns and relationships	mm, cm, m, ml, l, °C, seconds minutes I can identify which equipment to use and use new equipment I can look for patterns and relationships	secs, cm²V, km/h, m per sec, m/ sec I can select equipment on my own and explain how to use it accurately	secs, cm²V, km/h, m per sec, m/ sec I can select equipment on my own and explain how to use it accurately

Recording data

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use drawing to represent their ideas. **Return to and build on their previous learning, refining ideas and developing their ability to represent them.**	**Gathering and recording data to help in answering questions•**		**Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables•** **Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions•**		**Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs•**	
I can create simple representations of people and objects.	I am beginning to collect simple data I am beginning to record data in a table my teacher has provided I can begin to communicate my findings in a variety of ways	I can collect simple data. I can record data in a table my teacher has provided. I can communicate my findings in a variety of ways.	I am beginning to collect data in a variety of ways, including labelled diagrams, bar charts and tables. I am beginning to help decide how to record data	I can collect data in a variety of ways, including labelled diagrams, bar charts and tables. I can help decide how to record data.	I am beginning to record complex data using scientific diagrams and labels, classification keys, tables, bar and line graphs I am beginning to choose the most appropriate way to present my data with some guidance	I can record complex data using scientific diagrams and labels, classification keys, tables, bar and line graphs I can choose the most appropriate way to present my data independently





Interpreting and communicating results (including identifying and classifying)

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate. **Offer their own ideas, using recently introduced vocabulary.**	**Using observations and ideas to suggest answers to questions•**		**Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions•** **Using results to draw simple conclusions•** **Using straightforward scientific evidence to answer questions or to support their findings•** **Identify differences, similarities or changes related to simple scientific ideas and processes**		**Reporting and presenting findings from enquiries including conclusions, causal relationships in oral and written forms such as displays and other presentations•**	
I learn and use new science words. I can talk about things like plants, animals, seasons and changing materials.	I can begin to talk about what I have found out I can begin to explain how I carried out my enquiry I can begin to suggest simple changes to my enquiry I can begin to identify a variety of objects, materials and living things	I can talk about what I have found out I can explain how I carried out my enquiry I can suggest simple changes to my enquiry I can identify a variety of objects, materials and living things. I can compare, sort and group a range of objects,	I am beginning to communicate findings using simple scientific language I am beginning to draw simple conclusions based on the results of my enquiry I am beginning to answer my questions using the results of my enquiry I am beginning to use my findings to make new predictions, suggest improvements	I can communicate findings using simple scientific language I can draw simple conclusions based on the results of my enquiry I can answer my questions using the results of my enquiry I can my findings to make new predictions, suggest improvements and think of new questions	I am beginning to communicate findings using detailed scientific language I am beginning to draw scientific, causal conclusions using the results of an enquiry to justify my ideas I am beginning to distinguish opinion and facts I am beginning to use my findings to make predictions	I can communicate findings using detailed scientific language I can draw scientific, causal conclusions using results of enquiry to justify my ideas I can explain my conclusion using scientific knowledge and understanding I can distinguish opinion and facts I can use my findings to make predictions

	I can begin to compare, sort and group a range of object, materials and living things	materials and living things.	and think of new questions I am beginning to think of cause and effect in my explanations I am beginning to talk about and identify differences and similarities in scientific phenomena I am beginning to identify simple changes related to simple scientific phenomena	I can begin to think of cause and effect in my explanations I can talk about and identify differences and similarities scientific phenomena I can identify simple changes related to simple scientific phenomena	and set up further enquiries I can begin to use abstract models to explain my ideas I am beginning to use keys and other information records to classify and describe living things, materials and other scientific phenomena I am beginning to develop my own keys and other information records to classify and describe I am beginning to identify changes related to scientific phenomena	and set up further enquiries I can begin to use abstract models to explain my ideas I can use keys and other information records to classify and describe living things, materials and other scientific phenomena I can develop my own keys and other information records to classify and describe I can identify changes related to scientific phenomena

Evaluating

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			Use results to suggest improvements and raise further questions•		**Report and present explanations of and a degree of trust in results in oral and written presentations•**	
			I am beginning to use my findings to make new predictions, suggest improvements and think of new questions	I am beginning to use my findings to make new predictions, suggest improvements and think of new questions	I am beginning to suggest improvements to my test, giving reasons I am beginning to evaluate my investigation using the words validity and reliability with some support I am beginning to explain the application my results could have	I can suggest improvements to my test, giving reasons I can evaluate my investigation using the words validity and reliability independently most of the time

Secondary sources and research

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore and talk about the world around them, referring back to things they have learnt from stories and non-fiction texts.	**Use simple secondary sources to find answers.**		**Recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations**		**Recognise which secondary sources will be most useful to research ideas** **Identify scientific evidence that has been used to support or refute ideas or arguments•**	
I can explore and talk about the natural world using what I know from stories and non-fiction texts.	I can begin to find information to help me from books, computers and other familiar sources	I can find information to help me from books, computers and other familiar sources	I can begin to decide when research will help in my enquiry I am beginning to carry out simple research on my own	I can begin to decide when research will help in my enquiry I can carry out simple research on my own	I am beginning to recognise which secondary source will most useful to my research I can begin to carry out research independently	I can recognise which secondary source will be most useful to my research I can carry out research independently