ACE Learning Progression Grid : Scientific Enquiry

Main Strand	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Questioning, enquiring and making predictions	- Ask questions about why things happen and how things work.	- Ask simple questions. - Recognise that questions can be answered in different ways.		- Ask relevant questions. - Make predictions and begin to explain, including oral and written predictions.		- Asks questions and offers own ideas for enquiry which have a clear Scientific purpose. - Make accurate predictions and explain the reasons for chosen prediction.	
Planning a fair test and choosing equipment	- Choose the resources they need for their chosen activities. - Say when they do or not need help.	- Suggests ideas for an investigation. - Suggests next steps to follow in a plan.		- Use different types of scientific enquiry to answer questions. - Set up simple practical enquiries, comparative and fair tests.		- Plan different types of scientific enquiries to answer questions (including recognising and controlling variables where necessary).	
Observing and measuring	- Know about similarities and differences in relation to places, objects, materials (changing states of matter) and living things. - Make observations of animals and plants. - Explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. - Select and use	- Observe closely using simple equipment. - Perform simple tests. - Identify and classify.		- Make systematic and careful observations and where appropriate, take accurate measurements using standard units. - Use a range of equipment including thermometers and data loggers.		- Take measurements, using a range of scientific equipment with increasing accuracy and precision, taking repeat readings when appropriate.	

	technology for particular purposes.			
Recording and reporting findings	- Represent their own ideas, thoughts and feelings though design and technology, art, music, dance, role play and stories.	- Gather and record data to help in answering questions.	- 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.	- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
Concluding	- Talk about the features of their own immediate environment and how environments might vary from one another. - Explain why some things occur and talk about changes.	- Use their observations and ideas to suggest answers to questions.	- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. - Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. - Identify differences, similarities or changes related to simple scientific ideas and processes. - Use straightforward scientific evidence to answer questions or to support their findings.	- Use test results to make predictions to set up further comparative and fair tests. - Report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. - Identify scientific evidence that has been used to support or refute ideas or arguments.

Skills Vocabulary

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Choose, help, same, different, look, explore, think, explain	Previous vocabulary plus: Question, answer, equipment, gather, measure, record, results, identify, sort, group, test, explore, observe, compare, describe, similar, similaritites, different, differences, record, diagram, chart, describe		Previous vocabulary plus: Relevant questions, predict, scientific enquiry, comparative test, fair test, systematic observation, careful observation, accurate measures, equipment, record, classify, present, explain, explanation, results, conclusion, similarities, differences		Previous vocabulary plus: Scientific purpose, plan, variable, precision, repeat readings, scientific diagram, label, classification key, tables, scatter graph, bar graph, line graph, causal relationship, degree of trust, support, refute argument,	

Curriculum end points- what are we trying to achieve? **Children are naturally curious. Science at primary school should nurture this curiosity and allow them to ask questions and develop the skills they need to answer those questions. Our aim is for Science to help pupils to investigate problems, learn how science works and discover why science matters in the world!**		
EYFS (linked to ELG number)	**KS1**	**KS2**
Managing Self (ELG 04): *Manage their own basic hygiene and personal needs, including dressing, going to the toilet and* ***understanding the importance of healthy food choices****.* **The Natural World (ELG 15):** *Explore the natural world around them, making observations and drawing pictures of animals and plants; 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; Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.*	We want our children to be able to: • ask their own questions about what they notice • use different types of scientific enquiry to gather and record data, using simple equipment where appropriate, to answer questions: • observing changes over time • noticing patterns • grouping and classifying things • carrying out simple comparative tests • finding things out using secondary sources of information *and to* • communicate their ideas, what they do and what they find out in a variety of ways.	By the end of KS2, we want our children to be able to: • describe and evaluate their own and others' scientific ideas related to topics using evidence from a range of sources • ask their own questions about the scientific phenomena that they are studying, and select the most appropriate ways to answer these questions, recognising and controlling variables where necessary (i.e. observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests, and finding things out using a wide range of secondary sources) • use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate • record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • draw conclusions, explain and evaluate their methods and findings, communicating these in a variety *of* ways *and*

		• raise further questions that could be investigated, based on their data and observations.