Hamilton Academy

Science: progression of skills

Purpose of study: A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

(Science programmes of study: key stages 1 and 2 (publishing.service.gov.uk)

Our curriculum is building on the skills learned in our Early Years	
• Knows that living things live, grow and die • Knows about similarities and differences in relation to objects, materials and living things • Can make observations of animals and plants and explain why some things occur and talk about changes • Knows about the environment and livings are influenced by human activity • Can describe some actions which people in their own community do that helps to maintain the area they live in • Knows the properties of some materials and can suggest some of the purposes they are used for • Create simple representations of events, people and objects	• Answer how and why questions about their experiences • Choose the resources they need for their chosen activities • Make links and notice patterns in their experience • Use their senses to explore the world around them • Find ways to solve problems/find new ways to do things/test their ideas • Take a risk, engage in new experiences and learn by trial and error • Engage in open-ended activity

PROGRESSION IN SCIENCE SKILLS HROUGH THE FULL RANGE OF SCIENTIFIC ENQUIRIES						
	YEAR 1	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**	**YEAR 6**
RANGE OF SCIENTIFIC ENQUIRIES	• observation over time • identification, classification and grouping • pattern seeking	• observation over time • identification, classification and grouping • pattern seeking	• observation over time • identification, classification and grouping • pattern seeking • fair testing • explore and research	• observation over time • identification, classification and grouping • pattern seeking • fair testing • explore and research	• observation over time • identification, classification and grouping • pattern seeking • fair testing • explore and research	• observation over time • identification, classification and grouping • pattern seeking • fair testing • explore and research

BY FOLLOWING THE SCIENCE CYCLE WE WILL: **ASK A QUESTION** **EXPLORE THE POSSIBILITIES** **SHARE OUR RESULTS** **ASK ANOTHER QUESTION**	• Through discussion I can ask simple questions and recognise that they can be answered in different ways.	• I can ask simple questions and recognise that they can be answered in different ways.	• With support, I can ask relevant questions and use different types of enquiry to answer them.	• I can ask relevant questions and use different types of enquiry to answer them.	• With guidance, I can plan different types of enquiry to answer questions.	• I can select and plan the most appropriate type of scientific enquiry to answer specific questions.
	• With help, I can observe closely using simple equipment. • I can use observations to talk about what I have found out.	• I can observe closely using simple equipment. • I can use observations and ideas to suggest answers to questions.	• I can make careful observations.	• I can make systematic and careful observations.	**Observations will be incorporated within specific scientific enquiries*	**Observations will be incorporated within specific scientific enquiries*
	• With support, I can perform simple tests. • Through discussion, I can use simple features to compare objects, materials and living things. • With help, I can decide how to sort and group objects, materials and living things.	• I can perform simple tests. • I can use simple features to compare objects, materials and living things. • I can decide how to sort and group objects, materials and living things.	• With guidance, I can set up simple practical enquiries, comparative and fair tests.	• I can independently set up simple practical enquiries, comparative and fair tests.	• Through discussion, I can recognise and control variables where necessary.	• I can identify and explain which variables need to be controlled.
	N/A	N/A	• I can take increasingly accurate measurements using a thermometer.	• can take accurate measurements, using standard units, using a range of equipment, including thermometers.	• With support, I can take measurements with increasing accuracy using a range of scientific equipment, taking repeat readings when necessary.	• I can select and use the most appropriate equipment to take measurements accurately.
	• I understand that data loggers can be used to take measurements.	• With support, I can use a data logger to measure light, temperature and sound.	• I can use data loggers to take simple measurements.	• I can use data loggers to take a range of measurements.	• I can use data loggers in a range of scientific enquiries.	• I can plan an investigation to include the use of data loggers.
	• With help, I can gather data to help answer questions. • With help, I can record data to help answer questions.	• I can gather data to help answer questions. • I can record data to help answer questions	• I can gather, record, classify and present data in different ways to answer questions. • With support, I can record my findings in different ways, including: using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.	• I can select the most appropriate way to gather, record, classify and present data to answer questions. • I can select the best way to record my findings, including: using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.	• I can record data and results in a variety of ways, including: scientific diagrams and labels; classification keys; tables; scatter graphs; bar graphs; line graphs.	• I can independently select the most appropriate way to record data and results from the following: scientific diagrams and labels; classification keys; tables; scatter graphs; bar graphs; line graphs.

	N/A	N/A	• With guidance, I can present findings from enquiries in different ways, including: oral and written explanations, displays or presentations of results and conclusions.	• I can select the most appropriate way to present findings from enquiries, including: oral and written explanations, displays or presentations of results and conclusions.	• I can report and present findings from enquiries in oral and written forms, such as displays and other presentations.	• I can select the most appropriate way to report and present my findings with clarity and appropriate scientific language.
	• With support, I can talk about my findings and answer related questions.	• I can talk about my findings, share my ideas and answer questions about my enquiries.	• Through discussion, I can use my results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	• I can use my results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	• Through discussion, I can identify how reliable my results are, linking them to causal relationships in my conclusions. • Through discussion, I can use test results to make predictions to set up further comparative and fair tests.	• In my conclusions, I can explain how reliable my results are and the causal relationships • I can use my test results to make predictions for further comparative and fair tests.
	N/A	N/A	• I can use simple scientific evidence to answer questions or support my findings from enquiries. • Through discussion, I can identify differences, similarities or changes related to simple scientific ideas and processes.	• I can identify the most straightforward scientific evidence to answer questions or support my findings from enquiries. • I can identify differences, similarities or changes related to simple scientific ideas and processes.	• I can identify scientific evidence that has been used to support or refute ideas or arguments.	• I can identify a range of scientific evidence to support and refute ideas or arguments.