Progression of skills through the Science Curriculum at Adelaide Heath Academy

Our Intent

The science curriculum at Adelaide Heath Academy aims to ensure that all pupils:

- Successfully develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- Develop independent enquiry skill that help them to answer scientific questions about the world around them
- Develop the emotional intelligence to be able to discuss and debate the implications of science, today and for the future.
- Effectively communicate their ideas and understanding about Science through various methods, including discussion, written work and presentation.
- Develop resilience to enable them to become capable problem solvers.

	Lower Primary	**Upper Primary**	**Lower High School**	**Upper High School**
Asking Questions and planning Fair and Comparative Tests	Asking simple questions and recognising that they will be answered in different ways. Performing simple tests. Pupils will: a explore the world around them, leading them to ask some simple scientific questions about how and why things happen; b begin to recognise ways in which they might answer scientific questions;	Asking relevant questions and using different types of scientific enquiries to answer them. Setting up simple practical enquiries, comparative and fair tests. Pupils will: a start to raise their own relevant questions about the world around them; b start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions;	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Pupils will: a independently, raise their own relevant questions about the world around them in response to a range of scientific experiences; b with support, make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions;	Planning a variety of scientific enquiries to answer questions, including recognising dependent, independent and controlling variables. Pupils will: a Create hypothesis to be investigated using knowledge and scientific theories b make their own decisions about what observations to make, what measurements to take and how long to make them for, and whether to repeat them

	c ask people questions and use simple secondary sources to find answers; d carry out simple practical tests, using simple equipment; e experience different types of scientific enquiries, including practical activities; f talk about the aim of scientific tests they are working on. g with support, suggest what might happen	c recognise when a fair test is necessary; d help decide how to set up a fair test, making decisions about what observations to make, how long to make them for and the type of simple equipment that might be used; e set up and carry out simple experiment with support. f Make simple predictions	c explore and talk about their ideas, raising different kinds of scientific questions; d ask their own questions about scientific phenomena; e select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; f plan, set up and carry out comparative and fair tests to answer questions, including recognising and controlling variables where necessary; g make reasonable predictions and give reasons for them;	c provide a full detailed method, suitable to investigate a hypothesis d Using test results to make predictions to set up further comparative and fair tests. e use their test results to identify when further tests and observations may be needed; f Consider the implicating of variables that will not be controlled
Observing and Measuring during investigations	Observing closely, using simple equipment. Pupils will: a observe the natural and humanly constructed world around them; b observe changes over time; c use simple measurements and equipment; d make careful observations, sometimes using equipment	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment. Pupils will: a make systematic and careful observations; b observe changes over time;	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Pupils will: a Follow a given method with some independence b With and without support, take measurements using a range of scientific equipment	Independently take accurate measurements, using a range of scientific equipment. Appropriately highlighting anomalous results Pupils will: a choose the most appropriate equipment to make measurements and explain how to use it accurately;

	to help them observe carefully.	c use a range of equipment, including thermometers and data loggers; d ask their own questions about what they observe; e where appropriate, take accurate measurements using standard units using a range of equipment.	with increasing accuracy and precision; c make careful and focused observations; d know the importance of taking repeat readings and take repeat readings where appropriate. e decide which equipment will be needed to collect the appropriate data	b Independently take precise measurements using a range of scientific equipment c understand the importance of taking repeat readings and take repeat readings where appropriate. d Independently gather sufficient data to draw a conclusion from e Be able to adapt methods and apparatus of an investigation where problems arise
Classifying, Recording and Presenting Data	Gathering and recording data to help in answering questions. Pupils will: a use simple features to compare objects, materials and living things; b decide how to sort and classify objects into simple groups with some help; c record and communicate findings in a range of ways with support; d sort, group, gather and record data in a variety of ways to help in answering questions such as in simple sorting diagrams,	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Pupils will: a talk about criteria for grouping, sorting and classifying; b group and classify things; c collect simple data from their own observations and measurements;	Recording data and results. Using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Pupils will: a independently group, classify and describe living things and materials; b use and develop keys and other information records to identify, classify and describe living things and materials; c decide how to record data from a choice of familiar approaches; d with support, record data and results of increasing complexity using scientific diagrams and	Recording data and results with increasing complexity. Drawing scientifically accurate diagrams Pupils will: a Independently draw more complicated results tables allowing for an experiment to be repeated and averages recorded b decide on the type of chart to draw based on its purpose and the nature of the data c Present complex data using scientific diagrams, scatter graphs, line graphs.

	pictograms, tally charts, block diagrams and simple tables.	d present data in a variety of ways to help when answering questions; e use, read and spell scientific vocabulary with growing confidence	labels, classification keys, tables, and bar graphs	
Drawing Conclusions, Noticing Patterns and Presenting Findings	Using their observations and ideas to suggest answers to questions. Pupils will: a notice links between cause and effect with support; b begin to notice patterns and relationships with support; c begin to draw simple conclusions; d identify and discuss differences between their results; e use simple and scientific language; f talk about their findings	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Pupils will: a draw simple conclusions from their results; b make predictions for future experiments c suggest improvements to investigations; d raise further questions which could be investigated;	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results. Pupils will: a notice patterns; b draw conclusions based in their data and observations; c use their scientific knowledge and understanding to explain their findings; d read, spell and pronounce scientific vocabulary correctly; e look for different causal relationships in their data; f independently report and present their conclusions to others in oral and written forms.	Reporting and presenting findings from enquiries, including conclusions, relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. a Independently and accurately draw a line of best fit to display a trend. b Express linear relationships between variables (eg 'when _____ doubles ____ also doubles') c discuss the degree of trust they will have in a set of results;

		e first talk about, and then go on to write about, what they have found out;		d develop skills and confidence to create full, written investigation reports
Considering the wider scientific community, considering ethics and using Scientific Evidence and Secondary Sources of Information	Discussing how developments in science have impacted our lives. Pupils will: a Know the names of some famous scientists b Discuss what life was like before and after certain scientific developments	Using straightforward scientific evidence to answer questions or to support their findings. Considering the impact of the development of Science. Pupils will: a make links between their own science results and other scientific evidence; b use straightforward scientific evidence to answer questions or support their findings; c Research a famous scientist	Using scientific evidence to answer questions or to support their findings. Pupils will: a identify similarities, differences, patterns and changes relating to simple scientific ideas and processes; b recognise when and how secondary sources might help them to answer questions that will not be answered through practical investigations. c talk about how scientific ideas have developed over time. d Use secondary sources to obtain information e Independently research a famous scientist and discuss how their work has impacted our lives	Identifying scientific evidence that has been used to support or refute ideas or arguments. Pupils will: a use primary and secondary sources evidence to justify ideas; b identify evidence that refutes or supports their ideas; c recognise where secondary sources will be most useful to research ideas and begin to separate opinion from fact; d use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas; e debate ethical decisions made by scientists, such as the testing of drugs on animals