Links to curriculum

By Doaa George

Year 7	Year 8	Year 9	Year 10
Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world.	Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world.	Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community.	Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community.
Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge.	Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge.	Formulate questions or hypotheses that can be investigated scientifically.	Formulate questions or hypotheses that can be investigated scientifically.
Science knowledge can develop through collaboration and connecting ideas across the disciplines of science.	Science knowledge can develop through collaboration and connecting ideas across the disciplines of science.	Plan, select and use appropriate investigati on methods, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods.	Plan, select and use appropriate investigati on methods, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods.
Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed.	Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed.	People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions.	People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions.
In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task.	In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task.	Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed.	Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data.

Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate.	Chemical change involves substances reacting to form new substances.	Analyse patterns and trends in data, including describing relationships between variables and identifying inconsistencies.	Different types of chemical reactions are used to produce a range of products and can occur at different rates.
Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions.	Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate.	Use knowledge of scientific concepts to draw conclusions that are consistent with evidence.	Analyse patterns and trends in data, including describing relationships between variables and identifying inconsistencies.
Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method.	Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions.	Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data.	Use knowledge of scientific concepts to draw conclusions that are consistent with evidence.
Use scientific knowledge and findings from investigations to evaluate claims.	Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method.	Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations.	Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data.
Communicate ideas, findings and solutions to problems using scientific language and representations using digital technologies as appropriate.	Use scientific knowledge and findings from investigations to evaluate claims.		Critically analyse the v alidity of information in secondary sources and evaluate the approaches used to solve problems.
	Communicate ideas,		Communicate

	findings and solutions to problems using scientific language and representations using digital technologies as appropriate.		scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations.

	Guidance				
Stage	Demonstrated inquiry	Prescribed inquiry	Structured inquiry	Guided inquiry	Open inquiry
Formulate, question and predict	No question	Provided question	Sharpened question	Learner selects	Learner poses questions
Plan	No planning	Provided procedure	Discussion with teacher	Guided during planning	Learner determines plans
Conduct	Teacher conducts	Conducting and recording method told	Sharpened plan and conduct	Guided during conducting and recording	Learner conducts and records
Process and analyse	Teacher analyses	Analysis method told	Discussed analysis	Guided analysis	Learner analyses data studying trends
Reason, solve and link back	No problem solving	Teacher provides reasoning and links	Discussed reasoning and conclusion	Guided reasoning and formulating conclusion	Learner reasons to formulate conclusions
Communicate and justify	No conclusion	Teacher writes conclusion	Student writes	Guided justification and findings	Learner justifies findings and conclusions