Science course of study mapped to *Essential Learnings* — Ways of working

The circle (●) indicates the valued concepts, facts and procedures that students will have opportunities to know and understand in the unit of work.

	Units of work																
	Year 8									Year 9							
	Semester 1				Semester 2					Semester 1				Semester 2			
Ways of working **Students are able to:**	*Unit title*	Forensics	Understanding matter	Diversity of living things	Our place in the universe	The heat is on	The changing Earth	Machines	Living with and in water	Looking after the environment	Body systems	Cracked up	The birds and the bees	And then there was matter	Fun park physics	Managing natural ecosystems	Electricity	The chemical environment
• Identify problems and issues, formulate scientific questions and design investigations.		●				●		●	●	●	●				●	●	●	●
• Plan investigations guided by scientific concepts and design and carry out fair tests.		●						●	●				●			●		●
• Research and analyse data, information and evidence.		●	●		●	●	●		●	●	●	●	●	●	●	●	●	●
• Evaluate data, information and evidence to identify connections, construct arguments and link results to theory.		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●
• Select and use scientific equipment and technologies to enhance the reliability and accuracy of data collected in investigations.		●		●		●		●	●					●	●		●	●
• Conduct and apply safety audits and identify and manage risks.		●		●		●		●	●					●	●		●	●
• Draw conclusions that summarise and explain patterns, and that are consistent with the data and respond to the question.		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●
• Communicate scientific ideas, explanations, conclusions, decisions and data, using scientific argument and terminology, in appropriate formats.		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
• Reflect on different perspectives and evaluate the influence of people's values and culture on the applications of science.		●		●	●	●	●		●	●	●	●		●		●	●	●
• Reflect on learning, apply new understandings and justify future applications.		●			●	●					●				●	●		●

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Science course of study mapped to *Essential Learnings* — Knowledge and understanding

The circle (●) indicates the valued concepts, facts and procedures that students will have opportunities to know and understand in the unit of work.

Knowledge and understanding	Unit title	Year 8 Semester 1: Forensics	Understanding matter	Diversity of living things	Our place in the universe	Year 8 Semester 2: The heat is on	The changing Earth	Machines	Living with and in water	Looking after the environment	Year 9 Semester 1: Body systems	Cracked up	The birds and the bees	And then there was matter	Year 9 Semester 2: Fun park physics	Managing natural ecosystems	Electricity	The chemical environment
Science as a human endeavour **Responsible and informed decisions about real-world issues are influenced by the application of scientific knowledge.**																		
• Immediate and long-term consequences of human activity can be predicted by considering past and present events.							●		●	●						●		
• Responsible, ethical and informed decisions about social priorities often require the application of scientific understanding.				●		●			●	●	●					●	●	
• People from different cultures contribute to and shape the development of science.					●						●	●						
Earth and beyond **Events on earth and in space are explained using scientific theories and ideas, including the geological and environmental history of the earth and the universe.**																		
• Scientific ideas and theories offer explanations about the earth that extend to the origins of the universe.					●							●		●				
• Global patterns of change on earth and in its atmosphere can be predicted and modelled.					●		●					●						
• Geological evidence can be interpreted to provide information about past and present events.							●					●						
Energy and change **Forces and energy are identified and analysed to help understand and develop technologies and to make predictions about events in the world.**																		
• An unbalanced force acting on a body results in a change in motion.								●							●			
• Objects remain stationary or in constant motion under the influence of balanced forces.								●							●			
• Energy can be transferred from one medium to another.			●			●		●		●					●		●	
• Transfer of energy can vary according to the medium in which it travels.						●											●	
• Energy is conserved when it is transferred or transformed.						●									●	●	●	

The circle (●) indicates the valued concepts, facts and procedures that students will have opportunities to know and understand in the unit of work.

Knowledge and understanding (continued)

	Units of work																
	Year 8									Year 9							
	Semester 1				Semester 2					Semester 1				Semester 2			
Unit title	Forensics	Understanding matter	Diversity of living things	Our place in the universe	The heat is on	The changing Earth	Machines	Living with and in water	Looking after the environment	Body systems	Cracked up	The birds and the bees	And then there was matter	Fun park physics	Managing natural ecosystems	Electricity	The chemical environment
Life and living **Organisms interact with their environment in order to survive and reproduce.**																	
• The diversity of plants and animals can be explained using the theory of evolution through natural selection.			●								●	●					
• In ecosystems, organisms interact with each other and their surroundings.								●							●		
• Complex organisms depend on interacting body systems to meet their needs internally and with respect to their environment.			●							●							
• All the information required for life is a result of genetic information being passed from parent to offspring.												●					
• Changes in ecosystems have causes and consequences that may be predicted.								●							●		
Natural and processed materials **The properties of materials are determined by their structure and their interaction with other materials.**																	
• Changes in physical properties of substances can be explained using the particle model.		●						●									●
• Matter can be classified according to its structure.	●	●				●		●	●				●				●
• Chemical reactions can be described using word and balanced equations.													●				●
• Reaction rate is affected by various factors, including temperature, concentration and surface area.																	●

Science course of study mapped to *Essential Learnings* — Assessable elements

The circle (●) indicates the valued concepts, facts and procedures that students will have opportunities to know and understand in the unit of work.

Assessable elements	Unit title	Year 8 Semester 1: Forensics	Understanding matter	Diversity of living things	Our place in the universe	Year 8 Semester 2: The heat is on	The changing Earth	Machines	Living with and in water	Looking after the environment	Year 9 Semester 1: Body systems	Cracked up	The birds and the bees	And then there was matter	Year 9 Semester 2: Fun park physics	Managing natural ecosystems	Electricity	The chemical environment
Knowledge and understanding			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Investigating		●	●		●	●		●	●	●	●		●		●	●	●	●
Communicating		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Reflecting		●	●	●	●	●		●	●	●	●	●			●	●	●	●

