

		KNOWLEDGE AND UNDERSTANDING				SKILLS - WORKING SCIENTIFICALLY			
		PHYSICAL WORLD	EARTH AND SPACE	LIVING WORLD	CHEMICAL WORLD				
STAGE 4	OUTCOMES	A student: <ul style="list-style-type: none"> describes the action of unbalanced forces in everyday situations (SC4-10PW) discusses how scientific understanding and technological developments have contributed to finding solutions to problems involving energy transfers and transformations (SC4-11PW) 	A student: <ul style="list-style-type: none"> describes the dynamic nature of models, theories and laws in developing scientific understanding of the Earth and solar system (SC4-12ES) explains how advances in scientific understanding of processes that occur within and on the Earth influence the choices people make about resource use and management (SC4-13ES) 	A student: <ul style="list-style-type: none"> relates the structure and function of living things to their classification, survival and reproduction (SC4-14LW) explains how new biological evidence changes people's understanding of the world (SC4-15LW) 	A student: <ul style="list-style-type: none"> describes the observed properties and behaviour of matter, using scientific models and theories about the motion and arrangement of particles (SC4-16CW) explains how scientific understanding of, and discoveries about, the properties of elements, compounds and mixtures relate to their uses in everyday life (SC4-17CW) 	<p>QUESTIONING AND PREDICATING: A student identifies questions and problems that can be tested or researched and makes predictions based on scientific knowledge (SC4-4WS)</p> <p>PLANNING INVESTIGATIONS: A student collaboratively and individually produces a plan to investigate questions and problems (SC4-5WS)</p> <p>CONDUCTING INVESTIGATIONS A student follows a sequence of instructions to safely undertake a range of investigation types, collaboratively and individually (SC4-6WS)</p> <p>PROCESSING AND ANALYSING DATA AND INFORMATION: A student processes and analyses data from a first-hand investigation and secondary sources to identify trends, patterns and relationships, and draw conclusions (SC4-7WS)</p> <p>PROBLEM SOLVING: A student selects and uses appropriate strategies, understanding and skills to produce creative and plausible solutions to identified problems (SC4-8WS)</p> <p>COMMUNICATING: A student presents science ideas, findings and information to a given audience using appropriate scientific language, text types and representations (SC4-9WS)</p>			
	KNOWLEDGE & UNDERSTANDING	PW1: Change to an object's motion is caused by unbalanced forces acting on the object. (ACSSU117)	ES1: Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales. (ACSSU153)	LW1: There are differences within and between groups of organisms; classification helps organise this diversity. (ACSSU111)	CW1: The properties of the different states of matter can be explained in terms of the motion and arrangement of particles. (ACSSU151)				
		PW2: The action of forces that act at a distance may be observed and related to everyday situations.	ES2: Scientific knowledge changes as new evidence becomes available. Some technological developments and scientific discoveries have significantly changed people's understanding of the solar system.	LW2: Cells are the basic units of living things and have specialised structures and functions. (ACSSU149)	CW2: Scientific knowledge and developments in technology have changed our understanding of the structure and properties of matter.				
		PW3: Energy appears in different forms, including movement (kinetic energy), heat and potential energy, and causes change within systems. (ACSSU155)	ES3: Scientific knowledge influences the choices people make in regard to the use and management of the Earth's resources.	LW3: Multicellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce. (ACSSU150)	CW3: Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques. (ACSSU113)				
	PW4: Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations. (ACSHE120, ACSHE135)	ES4: Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management. (ACSHE121, ACSHE136)	LW4: Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world. (ACSHE119, ACSHE134)	CW4: In a chemical change, new substances are formed, which may have specific properties related to their uses in everyday life.					
			LW5: Science and technology contribute to finding solutions to conserving and managing sustainable ecosystems.						
STAGE 5	OUTCOMES	A student: <ul style="list-style-type: none"> applies models, theories and laws to explain situations involving energy, force and motion (SC5-10PW) explains how scientific understanding about energy conservation, transfers and transformations is applied in systems (SC5-11PW) 	A student: <ul style="list-style-type: none"> describes changing ideas about the structure of the Earth and the universe to illustrate how models, theories and laws are refined over time by the scientific community (SC5-12ES) explains how scientific knowledge about global patterns of geological activity and interactions involving global systems can be used to inform decisions related to contemporary issues (SC5-13ES) 	A student: <ul style="list-style-type: none"> analyses interactions between components and processes within biological systems (SC5-14LW) explains how biological understanding has advanced through scientific discoveries, technological developments and the needs of society (SC5-15LW) 	A student: <ul style="list-style-type: none"> explains how models, theories and laws about matter have been refined as new scientific evidence becomes available (SC5-16CW) discusses the importance of chemical reactions in the production of a range of substances, and the influence of society on the development of new materials (SC5-17CW) 	<p>QUESTIONING AND PREDICATING: A student develops questions or hypotheses to be investigated scientifically (SC5-4WS)</p> <p>PLANNING INVESTIGATIONS: A student produces a plan to investigate identified questions, hypotheses or problems, individually and collaboratively (SC5-5WS)</p> <p>CONDUCTING INVESTIGATIONS: A student undertakes first-hand investigations to collect valid and reliable data and information, individually and collaboratively (SC5-6WS)</p> <p>PROCESSING AND ANALYSING DATA AND INFORMATION: A student processes, analyses and evaluates data from first-hand investigations and secondary sources to develop evidence-based arguments and conclusions (SC5-7WS)</p> <p>PROBLEM SOLVING: A student applies scientific understanding and critical thinking skills to suggest possible solutions to identified problems (SC5-8WS)</p> <p>COMMUNICATING: A student presents science ideas and evidence for a particular purpose and to a specific audience, using appropriate scientific language, conventions and representations (SC5-9WS)</p>			
	KNOWLEDGE & UNDERSTANDING	PW1: Energy transfer through different mediums can be explained using wave and particle models. (ACSSU182)	ES1: Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community. (ACSHE157, ACSHE191)	LW1: Multicellular organisms rely on coordinated and interdependent internal systems to respond to changes in their environment. (ACSSU175)	CW1: Scientific understanding changes and is refined over time through a process of review by the scientific community.				
		PW2: The motion of objects can be described and predicted using the laws of physics. (ACSSU229)	ES2: The theory of plate tectonics explains global patterns of geological activity and continental movement. (ACSSU180)	LW2: Conserving and maintaining the quality and sustainability of the environment requires scientific understanding of interactions within the cycling of matter and the flow of energy through ecosystems.	CW2: The atomic structure and properties of elements are used to organise them in the Periodic Table. (ACSSU186)				
		PW3: Scientific understanding of current electricity has resulted in technological developments designed to improve the efficiency in generation and use of electricity.	ES3: People use scientific knowledge to evaluate claims, explanations or predictions in relation to interactions involving the atmosphere, biosphere, hydrosphere and lithosphere. (ACSHE160, ACSHE194)	LW3: Advances in scientific understanding often rely on developments in technology, and technological advances are often linked to scientific discoveries. (ACSHE158, ACSHE192)	CW3: Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed. (ACSSU178)				
	PW4: Energy conservation in a system can be explained by describing energy transfers and transformations. (ACSSU190)		LW4: The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence. (ACSSU185)	CW4: Different types of chemical reactions are used to produce a range of products and can occur at different rates and involve energy transfer. (ACSSU187)					
ASSESSMENT	<p>STANDARDS: The Board of Studies <i>K–10 Curriculum Framework</i> is a standards-referenced framework that describes, through syllabuses and other documents, the expected learning outcomes for students. Standards in the framework consist of three interrelated elements:</p> <ul style="list-style-type: none"> outcomes and content in syllabuses showing what is to be learned stage statements that summarise student achievement samples of work on the Board's Assessment Resource Centre (ARC) website which provide examples of levels of achievement within a stage. <p>Syllabus outcomes in Science and Technology contribute to a developmental sequence in which students are challenged to acquire new knowledge, understanding and skills.</p>			<p>ASSESSMENT: Assessment is an integral part of teaching and learning. Well-designed assessment is central to engaging students and should be closely aligned to the outcomes within a stage. Effective assessment increases student engagement in their learning and leads to enhanced student outcomes. <i>Assessment for Learning, Assessment as Learning and Assessment of Learning</i> are three approaches to assessment that play an important role in teaching and learning. The Board of Studies Years K–10 syllabuses particularly promote Assessment for Learning as an essential component of good teaching.</p> <p>Assessment for learning:</p> <ul style="list-style-type: none"> enables teachers to use information about students' knowledge, understanding and skills to inform their teaching teachers provide feedback to students about their learning and how to improve. 			<p>Assessment as learning:</p> <ul style="list-style-type: none"> involves students in the learning process where they monitor their own progress, ask questions and practise skills students use self-assessment and teacher feedback to reflect on their learning, consolidate their understanding and work towards learning goals. <p>Assessment of learning:</p> <ul style="list-style-type: none"> assists teachers to use evidence of student learning to assess student achievement against learning goals and standards. <p>Further advice on programming and appropriate assessment practice in relation to the Science syllabus is contained in Science Years K–10: Advice on Programming and Assessment. This support document provides general advice on assessment as well as strategies to assist teachers in planning education programs.</p>		