



# SCIENCE 7-10 CURRICULUM OVERVIEW

TERM 1

TERM 2

TERM 3

TERM 4

	Year 7 STEM	Year 8 STEM	Year 9	Year 10		
WEEK 1	<b>Unit 1: STEM Superheroes</b>	<b>Unit 1: Grapes, Ground and Growth</b>  Students will discover the chemical changes used and minerals that influence the wine industry across the year and the mathematical impact on the population.	<b>Unit 1: TED Talk</b>  Students will investigate an area of science that is of particular interest to them and deliver a TED Talk style presentation, where they will share their scientific passion with others	<b>Unit 1: Periodic table</b>  Students research the development of the periodic table as a way of organising elements based on their atomic structure and properties. They examine how scientific understanding of the atomic model has been refined over time and explain the role of technology in advancing this model. Students examine the role that Mark Oliphant had in the Manhattan Project and recognise how society affects the development of science.		
WEEK 2	Students will investigate STEM qualities through investigating local and international STEM Superheroes					
WEEK 3						
WEEK 4				<b>Unit 2: Responding to change</b>  Students explore how the requirements for life (for example oxygen, nutrients, water and removal of waste) are provided through the coordinated function of body systems such as the respiratory, circulatory, digestive, nervous and excretory systems. They learn how our internal body systems are interdependent in responding to changes in the environment through models flow diagrams and simulations.		
WEEK 5	<b>Unit 2: The Local Environment</b>					
WEEK 6					<b>Unit 2: Global Systems and Climate Change</b>	
WEEK 7	Students will investigate local environment to develop and refine Dichotomous Keys before investigating Bees and their impact on the Environment				Students will use models of energy flow between the geosphere, biosphere, hydrosphere and atmosphere to explain patterns of global change	
WEEK 8				<b>Unit 3: Interdependence and ecosystems</b>  Students explore the interactions between the interdependent biotic and abiotic components of ecosystems. Using an inquiry approach students learn First Nations peoples' knowledge and practices of maintaining and sustaining ecosystems and apply this to conserving an Australian ecosystem that is under threat of extinction.		
WEEK 9						
WEEK 10						
WEEK 11						
WEEK 1	<b>Unit 3: Running a Business</b>  Students will develop their financial literacy and awareness of algebraic concepts through developing a business	<b>Unit 2: Geology in Action</b>  Students explore the rock cycle, plate tectonics and probability to investigate an important industry to the South Australian economy. Developing an understanding of the advancements in mining using robotics, artificial intelligence and other digital technologies.	<b>Unit 4: Atoms</b>  Students learn that the particles that make up matter are atoms. Students discover the subatomic particles form the structure of atoms and build models of atoms to observe their similarities and differences. Students learn how the nucleus of unstable atoms can release alpha and beta particles and gamma radiation. They learn how carbon-14 dating confirms the presence of First Nations peoples' on the Australian continent for more than 60,000 years.	<b>Unit 3: Origins of the universe</b>  Students understand that the universe consists of a variety of features, including galaxies, stars and planetary systems. They gain an awareness of First Nations peoples' knowledge of celestial bodies and how it is used to predict recurring seasonal events. Through physical modelling, students explore the evolution of the universe and stars as well as understand that light from stars provides information about their composition and relative motions.		
WEEK 2						
WEEK 3						
WEEK 4						
WEEK 5						
WEEK 6						<b>Unit 4: Forces and motion</b>
WEEK 7			<b>Unit 4: Product Design</b>			Students predict and describe the motion of objects using Newton's laws. Students investigate how the laws of physics can be applied to explain the effectiveness of hunting with spear throwers in First Nations cultures. Students investigate variables such as mass, dimensions and force by designing and conducting a fair test to approximate the motion of an object thrown by a spear thrower.
WEEK 8			Students will use three dimensional design to develop an innovative product design		<b>Unit 5: Changes in matter</b>  Students describe examples of important chemical reactions through observed changes, word equations and symbolic equations. They learn that chemical reactions involve rearranging atoms to form new substances and that, during chemical reactions, combustion, through firestick farming, to return mass is not created or destroyed. Students learn that First Nations peoples use their knowledge of nutrients to the soil and reduce the risk of wildfires.	
WEEK 9						
WEEK 10						
WEEK 1	<b>Unit 5: Our Place in Space</b>	<b>Unit 3: Powering South Australia</b>  Students will investigate the algebraic patterns and linear relationships of securing different energy types and transformations for the people of South Australia.	<b>Unit 6: Earth Cycles</b>  Students will represent the carbon cycle and examine how key processes including combustion, photosynthesis and respiration rely on interactions between Earth's spheres (the geosphere, biosphere, hydrosphere and atmosphere	<b>Unit 5: Energy in systems</b>  Students discover energy is central to all sciences, that energy can neither be created nor destroyed and is always conserved in all its interactions in a system. They examine systems to observe how energy transfers or transformations leads to its dissipation and unavailability for doing useful work, where students quantify the changes using simple calculations.		
WEEK 2	Students will explore our place in space and design a mission to Mars based on their understanding of measurement and coding.					
WEEK 3						
WEEK 4						
WEEK 5						
WEEK 6				<b>Unit 7: Energy transfer</b>  Students investigate and explain the 3 processes through which heat energy is transferred. Students identify and describe the patterns associated with simple everyday physical phenomena involving heat. Students use particle and wave models to explain energy transfer through different media. Students gain an appreciation of the clothing technologies and culturally important methods used by First Nations peoples to survive in cold wet climates.	<b>Unit 6: Reactions and rates</b>  Students recognise and respect the extensive knowledge that First Nations peoples have developed and perfected over time using chemical and physical processes to detoxify plant products suitable for consumption. They explore types of chemical reactions including synthesis, decomposition and displacement, and explain how these reactions are used to produce useful products such as fuels and metals. Using this knowledge, students elaborate on the impact that these processes have on the environment.	
WEEK 7						
WEEK 8	<b>Unit 6: Illuminate</b>	<b>Unit 4: Illuminate</b>				
WEEK 9	Students will design and develop showpieces for the Illuminate festival, grounded in STEM	Students will design and develop showpieces for the Illuminate festival, grounded in STEM				
WEEK 10						
WEEK 1	<b>Unit 7: Forces and Simple Machines</b>  Students will design and develop a machine to complete a task using their understanding of Forces	<b>Unit 5: Living Better</b>  Students will explore the advancements in technologies that impact human physiology and draw conclusions using statistical knowledge.	<b>Unit 8: Energy waves</b>  Students use models of sound and light to explain the transfer of energy through different media and identify and describe features of the wave and particle models to explain the behaviour of sound and light. Students have opportunities to develop an appreciation of how First Nations peoples' knowledge of sound propagation through different mediums influences the design of technologies including sound instruments, herding and signalling devices.	<b>Unit 7: Genetics</b>  Students investigate how the transmission of heritable characteristics from one generation to the next involves genetic information stored in the genome. Students learn about the function of DNA, genes, chromosomes, and the genome. They compare the roles of mitosis and meiosis and explain how genetic information is passed onto offspring. Students explore First Nations peoples' knowledge of heredity as evidenced by the strict adherence to kinship and family structures, especially marriage laws.		
WEEK 2						
WEEK 3						
WEEK 4						
WEEK 5						
WEEK 6			<b>Unit 8: Personal Passion Project</b>		<b>Unit 9: Science storytelling</b>  Students investigate how science communicators can engage an audience and share scientific knowledge in various formats. They compare the types of texts used in science communication and consider the ethics of summarising or suppressing of information sharing. They are challenged to create science communication for a general audience using science storytelling schema.	<b>Unit 8: Diversity of living things</b>  Students develop an understanding of how the diversity of life on Earth can be explained by the theory of evolution by natural selection. Through inquiry, they investigate how First Nations peoples' long habitation has led to the development of some structural and physiological adaptations favourable to specific environments. Students investigate how genetic characteristics relate to survival and reproductive rates.
WEEK 7			Students are to complete a project based on what they are passionate about			
WEEK 8						
WEEK 9						

\*Please note: The Unit order may alter due to facility and resource availability