Teacher Program Overview
Bear Essentials – Year Eleven + Twelve

Program Duration: 45 minutes
Minimum Participants: 10 students **Maximum Participants:** 35 students

Program Overview:

During this program, students will attend Sea World's Polar Bear Shores exhibit to investigate the specialised body processes and mechanisms that Polar bears use to cope with and ultimately dominate wild Arctic ecosystems. In doing so, students will be able to relate the concept of homeostasis to the maintenance of the Polar bear's internal environment in response to a changing and challenging external environment. In alignment with the Australian Curriculum and the Queensland Senior Biology Syllabus, students will make connections between how Polar bears' structural, physiological and behavioural adaptations relate to their ability to maintain homeostasis. Specifically, students will explore the thermoregulatory and osmoregulatory mechanisms utilised by Polar bears to sustain internal conditions within tolerance limits. This program will incite discussion about human impacts, such as climate change and pollution, that are altering the Arctic environment and students will be guided to consider how these changes interrupt the nervous and hormonal pathways and metabolic activity necessary for homeostasis in Polar bears. Finally, students will be encouraged to reflect on personal habits and use critical thinking skills to design action for sustainability at an individual level and on a global scale to help conserve the Polar bear species.

Alignment with the Australian Curriculum:

BIOLOGY

Science Understanding	
Homeostasis	Homeostasis involves a stimulus-response model in which change in external or internal environmental conditions is detected and appropriate responses occur via negative feedback; in vertebrates, receptors and effectors are linked via a control centre by nervous and/or hormonal pathways (ACSBL110)
	Changes in an organism's metabolic activity, in addition to structural features and changes in physiological processes and behaviour, enable the organism to maintain its internal environment within tolerance limits (ACSBL111)
	Hormones alter the metabolism of target cells, tissues or organs by increasing or decreasing their activity; in animals, most hormones are produced in endocrine glands as a result of nervous or chemical stimulation, and travel via the circulatory or lymph system to the target cells, tissues or organs (ACSBL113)
	Endothermic animals have varying thermoregulatory mechanisms that involve structural features, behavioural responses and physiological and homeostatic mechanisms to control heat exchange and metabolic activity (ACSBL114)
	Animals, whether osmoregulators or osmoconformers, and plants, have various mechanisms to maintain water balance that involve structural features, and behavioural, physiological and homeostatic responses (ACSBL115)

Science as a Human Endeavour	
	People can use scientific knowledge to inform the monitoring, assessment and evaluation of risk (ACSBL106)
	Science can be limited in its ability to provide definitive answers to public debate; there may be insufficient reliable data available, or interpretation of the data may be open to question (ACSBL107)
	Scientific knowledge can be used to develop and evaluate projected economic, social and environmental impacts and to design action for sustainability (ACSBL109)

Alignment with the Queensland Senior Syllabus:

BIOLOGY

Understanding Biology	• Recall ideas, concepts and theories of biology. • Describe biological ideas, concepts and theories applied to a range of situations. • Apply and link ideas, concepts and theories to explain phenomena in a range of situations.
	Key Concepts • Multicellular organisms are functioning sets of interrelated systems. • Organisms live an interdependent existence in environments to which they are adapted. • A variety of mechanisms results in continual change at all levels of the natural world. • There are processes that maintain dynamic equilibrium at all organisational levels.
	Key Ideas • Energy required by all living things is obtained in different ways. • The set of systems comprising an organism enables it to function in its environment. • All systems are interrelated and interdependent. • Systems of the body work together to maintain a constant internal environment. • Malfunctioning in one system or part of a system may affect the whole organism. • The external features and internal functioning of organisms together enable an organism to obtain its needs. • Abiotic and biotic factors in an environment influence the size of populations

cont. Understanding Biology	and the composition of communities. • Human actions have significant impacts on interactions within an environment. • An organism has adaptations specific to its environment. • Living things employ a variety of reproductive strategies.
Evaluating Biological Issues	• Recognise relevant past and present scientific and social issues.
Attitudes & Values	• Understand that science is a human endeavour and has limitations. • Appreciate the contribution of Biology to local, national and international issues. • Develop respect and appreciation for the natural world and minimise human impact on the environment.

Teacher Program Schedule
Bear Essentials – Year Eleven + Twelve

Time	
9.15am	**Arrival**
	The school will arrive promptly at 9:15am and will be met by a Marine Education Officer on the lawn next to the flagpoles out the front of Sea World.
9.20am	**Park Entry**
	The Marine Education Officer will lead the school group through the admissions gate to Polar Bear Shores for the education program.
9.30am	**Education Program**
	This program is approximately 45 minutes, and will finish by 10:30am at the latest. Please note: selection of this program will prevent the school group from seeing the morning *Fish Detectives Sea Lion Show*.
10.30am	**Program Conclusion**
	At the conclusion of this session, students will be free to enjoy the park for the rest of the day, at the teacher's discretion.

Teacher Program Overview
Dolphin Descendants – Year Eleven and Twelve

Program Duration: 45 minutes
Minimum Participants: 10 students **Maximum Participants:** N/A

Program Overview:

Aligning to the Australian Curriculum and the Queensland Syllabus for Senior Biology, this program explores the theory of evolution by investigating the history and development of Bottlenose dolphin species. Students will be introduced to Sea World's dolphins, where they've come from, how they are cared for and how genetic diversity is addressed when the dolphins breed. Reproduction in wild dolphin populations will be discussed, with students considering the potential causes and consequences of reduced genetic diversity. Students will deduce that variation in phenotypic expression of genes in a species will lead to certain individuals being selected for or against and that isolation of populations also influences the process of natural selection. Students will be guided back in time to establish evidence of Bottlenose dolphin evolution through consideration of the fossil record, anatomical features and geographical distribution of present species and their ancestors. Selection processes and drivers of speciation in dolphins will be investigated and case studies will be discussed to address what defines a group as a unique species. Students will then classify Bottlenose dolphins from kingdom to species to determine their relatedness to other organisms. Finally, students will hypothesise how anthropogenic activity can alter environments to a point where no individuals in a population are equipped to cope with this change. Students will consider what human threats impact dolphins and what actions can be taken to help conserve the future of these animals.

Alignment with the Australian Curriculum:

BIOLOGY

Science Understanding	
Describing Biodiversity	Biological classification is hierarchical and based on different levels of similarity of physical features, methods of reproduction and molecular sequences (ACSBL016)
	Biological classification systems reflect evolutionary relatedness between groups of organisms (ACSBL017)
	Most common definitions of species rely on morphological or genetic similarity or the ability to interbreed to produce fertile offspring in natural conditions – but, in all cases, exceptions are found (ACSBL018)
DNA, Genes and the Continuity of life	Variations in the genotype of offspring arise as a result of the processes of meiosis and fertilisation, as well as a result of mutations (ACSBL084)
Continuity of Life on Earth	Life has existed on Earth for approximately 3.5 billion years and has changed and diversified over time (ACSBL088)
	Comparative genomics provides evidence for the theory of evolution (ACSBL089)
	Natural selection occurs when selection pressures in the environment confer a selective advantage on a specific phenotype to enhance its survival and reproduction; this results in changes in allele frequency in the gene pool of a population (ACSBL090)
	In additional to environmental selection pressures, mutation, gene flow and genetic drift can contribute to changes in allele frequency in a population gene pool and results in micro-evolutionary change (ACSBL091)

conti. Continuity of Life on Earth	Speciation and macro-evolutionary changes result from an accumulation of micro-evolutionary changes over time (ACSBL093)
	Differing selection pressures between geographically isolated populations may lead to allopatric speciation (ACSBL094)
	Populations with reduced genetic diversity face increased risk of extinction (ACSBL095)
Science as a Human Endeavour	
Models and theories are contested and refined or replaced when new evidence challenges them, or when a new model or theory has greater explanatory power (ACSBL069)	
Scientific knowledge can be used to develop and evaluate projected economic, social and environmental impacts and to design action for sustainability (ACSBL074)	

Alignment with the Queensland Senior Syllabus:

BIOLOGY

Understanding Biology	• Recall ideas, concepts and theories of biology. • Describe biological ideas, concepts and theories applied to a range of situations. • Apply and link ideas, concepts and theories to explain phenomena in a range of situations.
	Key Concepts • Organisms live an interdependent existence in environments to which they are adapted. • A variety of mechanisms results in continual change at all levels of the natural world. • There are mechanisms by which characteristics of individuals in one generation are passed on to the next generation
	Key Ideas • Abiotic and biotic factors in an environment influence the size of populations and the composition of communities. • Human actions have significant impacts on interactions within an environment. • An organism has adaptations specific to its environment. • Human understanding of the mechanisms of reproduction and DNA structure and function have led to intervention in natural processes. • Theories of evolution by natural selection can be used to explain speciation and changes in organisms through time.

conti. Understanding Biology	• Evidence shows that organisms and ecosystems change through time. • In most organisms coded instructions within the DNA molecule account for their inherited characteristics. • During reproduction DNA is passed from parent(s) to offspring. • The genetic variations within a population determine its long-term survival. • Evolutionary processes acting on the gene pools of populations have given rise to diversity of organisms. • Humans group organisms in a variety of ways to make sense of diversity and to aid communication.
Evaluating Biological Issues	• Recognise relevant past and present scientific and social issues.
Attitudes and Values	• Understand that science is a human endeavour and has limitations. • Appreciate the contribution of Biology to local, national and international issues. • Develop respect and appreciation for the natural world and minimise human impact on the environment.

Teacher Program Schedule
Dolphin Descendants – Year Eleven and Twelve

Time	
10.30am	**Arrival and Park Entry**
	It is recommended that the group arrive before 10:30am. Entry into the park is through admissions gate number 6.
11.00am	**Affinity Dolphin Show**
	The school group will head to Dolphin Beach at 11:00am for the 11:15am *Affinity Dolphin Show*
11.35am	**Education Program**
	The school group is to remain behind in the stadium on completion of the show and a Marine Education Officer, who will deliver the *Dolphin Descendants* program, will meet them. This program is approximately 45 minutes, and will finish by 12:20pm at the latest.
12.20pm	**Program Conclusion**
	At the conclusion of this session, students will be free to enjoy the park for the rest of the day, at the teacher's discretion.

Teacher Program Overview
Ever Changing Environment – Year Eleven and Twelve

Program Duration: 45 minutes
Minimum Participants: 10 students **Maximum Participants:** 35 students

Program Overview:

This program allows students to consolidate their understanding of climate change with a focus on how it is affecting the survival of wild Polar bears. *Ever Changing Environments* aligns with the Australian Curriculum for Senior Earth Sciences and Geography and the Queensland Syllabus for Senior Geography. To understand the current state of our global climate, students will first be introduced to the science behind the naturally occurring greenhouse effect, a necessity to life on Earth, by creating a diagram showing the involvement of solar energy, Earth's atmosphere and the Earth's various land surfaces. Students will review how the Earth has naturally gone through periods of warming and cooling in the past and how scientists have detected these changes by methods including the collection of ice cores and coral cores. Students will postulate how humans are creating an enhanced greenhouse effect and an unprecedented period of warming (climate crisis) through a variety of activities such as deforestation, farming and the burning of fossil fuels. The contribution of natural and artificial greenhouse gases to climate change will be considered, as well as identifying the human activities responsible for increasing quantities of these gases in the atmosphere. Students will hypothesise the consequences of climate change on ocean temperatures, ocean currents and global weather patterns, permafrost and sea ice and will relate these changes to the survival of Polar bears. Discussions will finalise with examples of management strategies, including local initiatives, that aim to lessen human induced climate change and students will consider the social, economic and environmental benefits and costs of these options. Lastly, students will be asked to pledge actions they can personally take to reduce their ecological footprint.

Alignment with the Australian Curriculum:

EARTH SCIENCES

Science Understanding	
Energy for atmospheric and hydrologic processes	The net transfer of solar energy to Earth's surface is influenced by its passage through the atmosphere, including impeded transfer of ultraviolet radiation to Earth's surface due to its interaction with atmospheric ozone, and by the physical characteristics of Earth's surface, including albedo (ACSES048)
	Most of the thermal radiation emitted from Earth's surface passes back out into space but some is reflected or scattered by greenhouse gases back toward Earth; this additional surface warming produces a phenomenon known as the greenhouse effect (ACSES049)
	The behaviour of the global oceans as a heat sink, and Earth's rotation and revolution, cause systematic ocean currents; these are described by the global ocean conveyer model (ACSES051)
	The interaction between Earth's atmosphere and oceans changes over time and can result in anomalous global weather patterns, including El Nino and La Nina (ACSES052)

The cause and impact of global climate change	Natural processes (for example, oceanic circulation, orbitally-induced solar radiation fluctuations, the plate tectonic supercycle) and human activities contribute to global climate changes that are evident at a variety of time scales (ACSES104)
	Human activities, particularly land-clearing and fossil fuel consumption, produce gases (including carbon dioxide, methane, nitrous oxide and hydrofluorocarbons) and particulate materials that change the composition of the atmosphere and climatic conditions (for example, the enhanced greenhouse effect) (ACSES105)
	Climate change affects the biosphere, atmosphere, geosphere and hydrosphere; climate change has been linked to changes in species distribution, crop productivity, sea level, rainfall patterns, surface temperature and extent of ice sheets (ACSES106)
	Geological, prehistorical and historical records provide evidence (for example, fossils, pollen grains, ice core data, isotopic ratios, indigenous art sites) that climate change has affected different regions and species differently over time (ACSES107)
	Climate change models (for example, general circulation models, models of El Nino and La Nina) describe the behaviour and interactions of the oceans and atmosphere; these models are developed through the analysis of past and current climate data, with the aim of predicting the response of global climate to changes in the contributing components (for example, changes in global ice cover and atmospheric composition) (ACSES108)
Science as a Human Endeavour	
Development of complex models and/or theories often requires a wide range of evidence from multiple individuals and across disciplines (ACSES038)	
Advances in science understanding in one field can influence other areas of science, technology and engineering (ACSES039)	
The use of scientific knowledge is influenced by social, economic, cultural and ethical considerations (ACSES040)	
The use of scientific knowledge may have beneficial and/or harmful and/or unintended consequences (ACSES041)	
Scientific knowledge can enable scientists to offer valid explanations and make reliable predictions (ACSES042)	
ICT and other technologies have dramatically increased the size, accuracy and geographic and temporal scope of data sets with which scientists work (ACSES091)	
Models and theories are contested and refined or replaced when new evidence challenges them, or when a new model or theory has greater explanatory power (ACSES092)	
The acceptance of scientific knowledge can be influenced by the social, economic and cultural context in which it is considered (ACSES093)	
People can use scientific knowledge to inform the monitoring, assessment and evaluation of risk (ACSES094)	
Science can be limited in its ability to provide definitive answers to public debate; there may be insufficient reliable data available, or interpretation of the data may be open to question (ACSES095)	

International collaboration is often required when investing in large scale science projects or addressing issues for the Asia-Pacific region (ACSES096)	
Scientific knowledge can be used to develop and evaluate projected economic, social and environmental impacts and to design action for sustainability (ACSES043; ACSES097)	
GEOGRAPHY	
Geographical Knowledge and Understanding	
Nature, extent, causes and consequences of land cover change	The relationship between land cover change and climate change and the long-term impact of climate change on land cover. (ACHGE071)
	The impacts of land cover change on local and regional environments. (ACHGE072)
Climate Change	The causes, rate and projected impacts of global climate change. (ACHGE075)
	The interrelationships between land cover change and climate change, for example, the impacts of land cover loss on surface reflectivity (albedo) and the process of natural carbon sequestration. (ACHGE076)
	The effects of climate change on land cover, for example, vegetation, ice sheets, glaciers and coral reefs. (ACHGE077)
	A local initiative designed to address the effects of global climate change on land cover. (ACHGE078)
Geographical Inquiry and Skills	
Observing, questioning and planning	Formulates geographical inquiry questions (ACHGE054)
Reflecting and responding	Proposes individual and collective action taking into account environmental, social and economic factors; and predicts the outcomes of the proposed action (ACHGE064)

Alignment with the Queensland Senior Syllabus:

GEOGRAPHY

Knowledge	• Geographical facts, concepts and key ideas, and explanations of the relationships between people and their environments • Characteristics of natural and cultural phenomena across a range of scales • Processes that affect the location, distribution and arrangement of geographical elements on earth • Processes geographers use to investigate environmental and spatial aspects of human decision making • The impact of people on the environment • The impact of the environment on quality of life • Equity issues as they apply to Geography

conti. Knowledge	*Living With Climate Change* • The earth's climate system is influenced by a range of systems (atmosphere, biosphere, hydrosphere, and lithosphere) that have observable processes. • The earth's climate system has demonstrably changed on both global and regional scales since the pre-industrial era, with some of these changes attributable to human activities. These changes can be mapped and observed through a number of indicators: concentration of greenhouse gases, weather (temperatures, temperature range, hot days/heat index, cold/frost days, precipitation, frequency of drought). • Human activities have increased the atmospheric concentrations of greenhouse gases and aerosols since the pre-industrial era. • Key biophysical indicators of climate change are sea level changes, duration of ice cover on rivers and lakes, Arctic Sea ice extent and thickness, non-polar glaciers, snow cover, permafrost, El Niño events, growing season, plant and animal ranges, breeding, flowering, migration and coral reef bleaching. • The projected rate and magnitude of climate change can be lessened by reducing greenhouse gas emissions. There is a range of strategies: reducing energy use from fossil fuel sources, carbon trading, sequestration, land use, better forestry practices, and fuel cell technology. • Adaptation is a necessary strategy at all scales to complement the reduction of greenhouse gas emissions — involving risk assessment and management. • Grassroots strategies have been successful in drawing attention to climate change, such as "think globally, act locally". • Cooperation between governments can result in the removal of barriers preventing the introduction of low emission technology (Kyoto Protocol, Asia Pacific Summit).
Analytical processes	• Break information into parts by identifying and explaining patterns or the steps in a process. • Identify relationships. • Suggest causes for some of these relationships.
Decision-making processes	• Recognise the environmental, social, economic and political implications of an issue. • Examine alternative proposals, strategies, solutions and plans. • Make a judgment/decision about the alternatives. • Justify this decision.
Research and communication	• Gathering and recording information and primary data from sources and settings. • Establishing the currency, validity and reliability of information.

Affective objectives	• An attitude of concern for the quality of environments, the condition of human life and the biosphere as a life support system. • A willingness to relate to the environment and to participate in actions that ensure a sustainable future. • A willingness to challenge existing attitudes and values in environmental, social, cultural and economic issues. • The ability to clarify and develop personal values in relation to environmental, social and cultural questions, issues and problems. • An interest in learning as a lifelong process.

Teacher Program Schedule
Ever Changing Environment – Year Eleven and Twelve

Time	
9.15am	**Arrival**
	The school will arrive promptly at 9:15am and will be met by a Marine Education Officer on the lawn next to the flagpoles out the front of Sea World.
9.20am	**Park Entry**
	The Marine Education Officer will lead the school group through the admissions gate to Polar Bear Shores for the education program.
9.30am	**Education Program**
	This program is approximately 45 minutes, and will finish by 10:30am at the latest. Please note: selection of this program will prevent the school group from seeing the morning *Fish Detectives Sea Lion Show*.
10.30am	**Program Conclusion**
	At the conclusion of this session, students will be free to enjoy the park for the rest of the day, at the teacher's discretion.

Teacher Program Overview
Marine Investigators – Year Eleven and Twelve

Program Duration: 45 minute lecture + 1hr snorkel program (inclusive of 20 minutes in-water time)
Minimum Participants: 8 students, 1 teacher **Maximum Participants:** 44 students, 4 teachers

Program Overview:

During this program students will explore the biodiversity of species on a reef ecosystem, observing physical characteristics and adaptations to gain an understanding of biological classification. Evidence of relationships and interactions between species, such as predation, competition and mutualism, will also be sought to demonstrate the interdependence between these organisms and their environment. *Marine Investigators* aligns with the Australian Curriculum and the Queensland Syllabus for Senior Biology, as well as the Queensland Syllabi for Marine Science and the Authority-registered subject, Aquatic Practices, with a particular focus on practical snorkelling and ecological surveying skills. A 45-minute session at Shark Bay's underwater viewing gallery will provide students with an opportunity to observe the relationships and various physical and behavioural adaptations exhibited by reef animals, necessary for surviving the challenges of a reef environment. Through the Tropical Reef snorkelling program, which is inclusive of 20 minutes in the water, students will practice basic snorkelling skills in a safe, controlled environment. Equipped with an underwater slate, students will snorkel above a pre-set transect to record data at various points to gain an understanding of ecological techniques for coral surveying. It is recommended that students bring an underwater camera to record footage or images of the mobile vertebrate species in the pool, which can later be reviewed for species identification, classification and relative abundance estimates; however Sea World can provide electronic images for the same purposes. Upon conclusion of the program, students can continue learning through completion of a self-guided activity sheet provided in conjunction with the underwater data sheet. This program can be used to collect data for a class project or assessment task or can be suitable for skill development prior to fieldwork in a natural setting.

Alignment with the Australian Curriculum:

BIOLOGY

Science Understanding	
Describing Biodiversity	Biodiversity includes the diversity of species and ecosystems; measures of biodiversity rely on classification and are used to make comparisons across spatial and temporal scales (ACSBL015)
	Biological classification is hierarchical and based on different levels of similarity of physical features, methods of reproduction and molecular sequences (ACSBL016)
	Biological classification systems reflect evolutionary relatedness between groups of organisms (ACSBL017)
	Ecosystems are diverse, composed of varied habitats and can be described in terms of their component species, species interactions and the abiotic factors that make up the environment (ACSBL019)
	Relationships and interactions between species in ecosystems include predation, competition, symbiosis and disease (ACSBL020)
	In addition to biotic factors, abiotic factors including climate and substrate can be used to describe and classify environments (ACSBL021)

Ecosystem Dynamics	Species or populations, including those of microorganisms, fill specific ecological niches; the competitive exclusion principle postulates that no two species can occupy the same niche in the same environment for an extended period of time (ACSBL023)
	Human activities (for example, over-exploitation, habitat destruction, monocultures, pollution) can reduce biodiversity and can impact on the magnitude, duration and speed of ecosystem change (ACSBL028)
Science as a Human Endeavour	
	Scientific knowledge can enable scientists to offer valid explanations and make reliable predictions (ACSBL013)
	Scientific knowledge can be used to develop and evaluate projected economic, social and environmental impacts and to design action for sustainability (ACSBL014)
Science Inquiry Skills	
	Identify, research and construct questions for investigation; propose hypotheses; and predict possible outcomes (ACSBL001)
	Design investigations, including the procedure/s to be followed, the materials required, and the type and amount of primary and/or secondary data to be collected; conduct risk assessments; and consider research ethics, including animal ethics (ACSBL002)
	Conduct investigations, including using ecosystem surveying techniques, safely, competently and methodically for the collection of valid and reliable data (ACSBL003)

Alignment with the Queensland Senior Syllabus:

BIOLOGY

Understanding Biology	• Recall ideas, concepts and theories of biology. • Describe biological ideas, concepts and theories applied to a range of situations. • Apply and link ideas, concepts and theories to explain phenomena in a range of situations.
	Key Concepts • Organisms live an interdependent existence in environments to which they are adapted. • A variety of mechanisms results in continual change at all levels of the natural world. • There are mechanisms by which characteristics of individuals in one generation are passed on to the next generation.
	Key Ideas • Different types of multicellular organisms have different roles in an environment. • The external features and internal functioning of organisms together enable an organism to obtain its needs. • Abiotic and biotic factors in an environment influence the size of populations and the

conti. Understanding Biology	composition of communities. • Human actions have significant impacts on interactions within an environment. • Different organisms perform different interdependent roles in an ecosystem. • An organism has adaptations specific to its environment. • Theories of evolution by natural selection can be used to explain speciation and changes in organisms through time. • Evidence shows that organisms and ecosystems change through time. • The genetic variations within a population determine its long-term survival. • Evolutionary processes acting on the gene pools of populations have given rise to diversity of organisms. • Humans group organisms in a variety of ways to make sense of diversity and to aid communication.
Investigating Biology	• Identify and formulate questions and hypotheses for investigations and research. • Design, manage and carry out experimental and non-experimental investigations. • Develop skills and processes required to collect, organise, interpret, model and present primary and secondary data. • Make judgments and draw conclusions pertaining to the validity of an investigation.
Evaluating Biological Issues	• Recognise relevant past and present scientific and social issues. • Justify decisions and develop future scenarios based on the interpretation and analysis of current information.
Attitudes & Values	• Understand that science is a human endeavour and has limitations • Demonstrate collegiality and cooperation. • Retain a commitment to scientific reasoning, openness to new ideas, intellectual honesty, and respect for evidence. • Appreciate the contribution of Biology to local, national and international issues. • Develop respect and appreciation for the natural world and minimise human impact on the environment.
MARINE SCIENCE	
Knowledge and Understanding	• Define and describe marine science concepts. • Explain marine systems using concepts and models. • Apply understandings to marine environments, issues and problems.
	Marine Biology • Marine environments support an abundance of diverse life, which is classified according to a range of characteristics. • Marine organisms are shaped by their environments and interactions. • The marine environment consists of dynamic and complex relationships between

conti. Knowledge and Understanding	organisms and ecosystems.
	Conservation and Sustainability • Gathering and interpreting scientific information is necessary to make informed decisions on sustainability.
	Marine Research Skills • Safety is a primary concern in marine research skills. • Boating, snorkelling and field techniques enable engagement with marine environments.
Investigation and Analysis	• Formulate questions, hypotheses and plans for marine investigations. • Collect primary data using marine research skills. • Analyse and interpret marine information to identify and explain relationships, trends and patterns.
Evaluation and Communication	• Evaluate marine information to draw conclusions, and make decisions and recommendations. • Justify conclusions, decisions and recommendations about marine environments, issues and problems.
AQUATIC PRACTICES	
Knowing and Understanding	• Describe concepts and ideas in aquatic contexts • Explain concepts and ideas in aquatic contexts • Demonstrate skills in aquatic contexts.
	Environmental – Ecosystems • Aquatic ecosystems include biotic and abiotic components. • Aquatic habitats are the places where organisms live. • Particular organisms are suited to aquatic ecosystems and habitats.
	Recreational – Entering the Aquatic Environment • People engage with the aquatic environment in different ways.
	Recreational – Aquatic Activities • Specialised skills are required to safely participate in aquatic activities.
	Safety and Management Practices – First Aid and Safety • The aquatic environment poses particular threats.
	Safety and Management Practices – Management Practices • Working with others is essential when working in aquatic environments. • Completion of aquatic activities requires a range of management skills.
Analysing and Applying	• Analyse information, situations and relationships in aquatic contexts. • Apply knowledge, understanding and skills in aquatic contexts. • Use language conventions and features appropriate to aquatic contexts to communicate ideas and information, according to purpose.

Planning and Evaluating	• Generate plans and procedures for activities in aquatic contexts. • Evaluate the safety and effectiveness of activities in aquatic contexts. • Make recommendations for activities in aquatic contexts.

Additional Information:

- An additional fee per person will be charged for participation in the Tropical Reef Snorkel program
- To be eligible for the Tropical Reef Snorkel program, students, school staff and any accompanying adults must meet the program's participation criteria and must each have a signed copy (by students' guardians where necessary) of the program waiver form to deliver to the Marine Education Officer upon entry into Sea World.
- Tropical Reef Snorkel program participants must bring swimmers and a towel
- Cameras are permitted in the Tropical Reef Lagoon but camera extension poles are not – please note, Sea World and its staff are not responsible for the security and/or well-being of any participant's personal belongings

Teacher Program Schedule
Marine Investigators – Year Eleven and Twelve

Time	
8.50am	**Arrival**
	The school will arrive promptly at 8:50am and will be met by a Marine Education Officer on the lawn next to the flagpoles out the front of Sea World.
9.00am	**Park Entry**
	The Marine Education Officer will lead the school group through the admissions gate to Shark Bay for the education program.
9.15am	**Education Program**
	A 45-minute lesson will serve to provide educational content and technical instruction for the snorkelling program.
10.15am	**Snorkelling program/s**
	The first group of up to 12 snorkelling participants (inclusive of teachers) are delivered to the Shark Bay briefing room for commencement of the Tropical Reef Snorkel program. This component of *Marine Investigators* runs for 50 minutes to an hour and involves: • 15 minutes for a safety briefing and time to get changed; • 20 minute snorkel • 15 minutes to get changed back into dry clothes If there are over 12 participants, collection times for subsequent programs will be at half hourly intervals: 10:15 am 10:45 am 11:15 am 11:45am Teachers should be dispersed between groups as necessary. The collection point for subsequent groups will be under the umbrella at the entry to the Tropical Reef Lagoon at Shark Bay.
11.15am	**Program Conclusion (approximate)**
	If there is only one snorkel program, the session will conclude at approximately 11:15am and students will be free to enjoy the park for the rest of the day, at the teacher's discretion. In the instance of multiple snorkelling programs, the final group will conclude approximately 1 hour after their snorkel collection time.

Teacher Program Overview
The Hunger Games – Year Eleven and Twelve

Program Duration: 45 minutes
Minimum Participants: 10 students **Maximum Participants:** 100 students

Program Overview:

Aligning with the Australian Curriculum and Queensland Syllabus for Senior Biology, this program builds on the students' understanding of interactions and interdependence between marine organisms and the abiotic components of their environment. During this program students will observe the captivating inhabitants of Shark Bay to construct a food web summarising the roles of and relationships in a marine ecosystem, including predation, competition, symbiosis and disease. This information will be inserted into a biomass pyramid as a means of demonstrating energy transfer and the carrying capacity of the modelled ecosystem. Students will consider how the carrying capacity of a population is affected by both the abiotic factors of the environment and the number of organisms above and below a species in the biomass pyramid. The concept of keystone species will be defined using sharks as an example and students will investigate their niche in the ecosystem to demonstrate how they are more significant than their relative abundance or biomass would suggest. Students will articulate the various threats posed to sharks due to human activity and will hypothesise how a reduction in shark numbers can alter the biodiversity of the entire ecosystem. Students will reflect on the importance of protecting sharks, despite the negative way sharks are often viewed by the public, and will identify personal and collective management strategies that could be employed to protect sharks specifically and ecosystems in general.

Alignment with the Australian Curriculum:

BIOLOGY

Science Understanding	
Describing Biodiversity	Ecosystems are diverse, composed of varied habitats and can be described in terms of their component species, species interactions and the abiotic factors that make up the environment (ACSBL019)
	Relationships and interactions between species in ecosystems include predation, competition, symbiosis and disease (ACSBL020)
Ecosystem Dynamics	The biotic components of an ecosystem transfer and transform energy originating primarily from the sun to produce biomass, and interact with abiotic components to facilitate biogeochemical cycling, including carbon and nitrogen cycling; these interactions can be represented using food webs, biomass pyramids, water and nutrient cycles (ACSBL022)
	Species or populations, including those of microorganisms, fill specific ecological niches; the competitive exclusion principle postulates that no two species can occupy the same niche in the same environment for an extended period of time (ACSBL023)
	Keystone species play a critical role in maintaining the structure of the community; the impact of a reduction in numbers or the disappearance of keystone species on an ecosystem is greater than would be expected based on their relative abundance or total biomass (ACSBL024)

cont. Ecosystem Dynamics	Ecosystems have carrying capacities that limit the number of organisms (within populations) they support, and can be impacted by changes to abiotic and biotic factors, including climatic events (ACSBL025)
	Human activities (for example, over-exploitation, habitat destruction, monocultures, pollution) can reduce biodiversity and can impact on the magnitude, duration and speed of ecosystem change (ACSBL028)
Science as a Human Endeavour	
Scientific knowledge can be used to develop and evaluate projected economic, social and environmental impacts and to design action for sustainability (ACSBL014)	

Alignment with the Queensland Senior Syllabus:

BIOLOGY

Understanding Biology	• Recall ideas, concepts and theories of biology. • Describe biological ideas, concepts and theories applied to a range of situations. • Apply and link ideas, concepts and theories to explain phenomena in a range of situations.
	Key Concepts • Organisms live an interdependent existence in environments to which they are adapted. • A variety of mechanisms results in continual change at all levels of the natural world. • There are processes that maintain dynamic equilibrium at all organisational levels.
	Key Ideas • Energy required by all living things is obtained in different ways. • Different types of multicellular organisms have different roles in an environment. • Abiotic and biotic factors in an environment influence the size of populations and the composition of communities. • Energy and matter move within ecosystems. • Human actions have significant impacts on interactions within an environment. • Different organisms perform different interdependent roles in an ecosystem. • Evidence shows that organisms and ecosystems change through time.

Evaluating Biological Issues	• Recognise relevant past and present scientific and social issues.
Attitudes and Values	• Understand that science is a human endeavour and has limitations. • Appreciate the contribution of Biology to local, national and international issues. • Develop respect and appreciation for the natural world and minimise human impact on the environment.

Teacher Program Schedule
The Hunger Games – Year Eleven and Twelve

Time	
9.15am	**Arrival**
	The school will arrive promptly at 9:15am and will be met by a Marine Education Officer on the lawn next to the flagpoles out the front of Sea World.
9.20am	**Park Entry**
	The Marine Education Officer will lead the school group through the admissions gate to Shark Bay for the education program.
9.30am	**Education Program**
	This program is approximately 45 minutes, and will finish by 10:30am at the latest. Please note: selection of this program will prevent the school group from seeing the morning *Fish Detectives Sea Lion Show*.
10.30am	**Program Conclusion**
	At the conclusion of this session, students will be free to enjoy the park for the rest of the day, at the teacher's discretion.

Teacher Program Overview
What's in the Water? – Year Eleven and Twelve

Program Duration: 45 minute lecture + 1.5 hour water testing program
Minimum Participants: 5 students **Maximum Participants:** 24 students

Program Overview:

During this program, students will investigate how water, with all its unique properties, is an extremely significant abiotic factor affecting the health of ocean life. *What's in the Water?* addresses relevant chemical, oceanographic and environmental concepts from the Australian Curriculum for Senior Chemistry and the Queensland Syllabi for Senior Chemistry, Marine Science and Aquatic Practices. Students will use technical equipment to identify, measure and compare water quality parameters in a closed aquarium setting and an open, natural system, and will discuss the acceptable ranges of these parameters required for marine life to thrive. Through observations of aquaria, students will become informed as to the processes involved in maintaining water quality in a closed, aquarium system and they will consider the human impacts that can introduce variability in oceanic water quality. Students will learn about the chemical reactions contributing to ocean acidification as a result of climate change and warming oceans and what consequences (and subsequent chemical reactions) may arise for organisms with calcium carbonate skeletons such as coral reefs. This program can provide data for a class project or assessment task or can be utilised for skill development and to discuss experimental design prior to fieldwork in a natural setting.

Alignment with the Australian Curriculum:

CHEMISTRY

Science Understanding	
Aqueous Solutions and Acidity	Water is a key substance in a range of chemical systems because of its unique properties, including its boiling point, density in solid and liquid phases, surface tension, and ability to act as a solvent (ACSCH061)
	The presence of specific ions in solutions can be identified using analytical techniques based on chemical reactions, including precipitation and acid-base reactions (ACSCH064)
	The solubility of substances in water, including ionic and molecular substances, can be explained by the intermolecular forces between species in the substances and water molecules, and is affected by changes in temperature (ACSCH065)
	The pH scale is used to compare the levels of acidity or alkalinity of aqueous solutions; the pH is dependent on the concentration of hydrogen ions in the solution (ACSCH066)
Chemical Equilibrium Systems	Acid-base indicators are weak acids or bases where the acidic form is of a different colour to the basic form (ACSCH101)
Science Inquiry Skills	
Identify, research, construct and refine questions for investigation; propose hypotheses; and predict possible outcomes (ACSCH040; ACSCH074)	
Conduct investigations, including measuring pH and the rate of formation of products, identifying the products of reactions, and testing solubilities, safely, competently and methodically for the collection of valid and reliable data (ACSCH042)	

Represent data in meaningful and useful ways, including using appropriate graphic representations and correct units and symbols; organise and process data to identify trends, patterns and relationships; identify sources of random and systematic error; identify anomalous data; estimate the effect of error on measured results; and select, synthesise and use evidence to make and justify conclusions (ACSCH043)
Science as a Human Endeavour
Science is a global enterprise that relies on clear communication, international conventions, peer review, and reproducibility (ACSCH048)
Development of complex models and/or theories often requires a wide range of evidence from multiple individuals and across disciplines (ACSCH049)
Advances in science understanding in one field can influence other areas of science, technology and engineering (ACSCH050)
The use of scientific knowledge is influenced by social, economic, cultural and ethical considerations (ACSCH051)
The use of scientific knowledge may have beneficial and/or harmful and/or unintended consequences (ACSCH052)
Scientific knowledge can enable scientists to offer valid explanations and make reliable predictions (ACSCH053)
Scientific knowledge can be used to develop and evaluate projected economic, social and environmental impacts and to design action for sustainability (ACSCH054; ACSCH088)

Alignment with the Queensland Senior Syllabus:

CHEMISTRY

Knowledge and Conceptual Understanding	• Recall and interpret concepts, theories and principles of Chemistry. • Describe and explain processes and phenomena of Chemistry.
	Key Concept • Specific criteria can be used to classify chemical reactions. *Key Idea* • Acid-base reactions involve transfer of protons from donors to acceptors.
	Key Concept • Specialised qualitative and quantitative techniques are used to determine the quantity, composition and type of reaction. *Key Ideas* • Specialised techniques and instrumentation are used in chemical analysis. • Qualitative and quantitative testing may be used to determine the composition or type of material.
	Key Concept • Chemical reactions are influenced by the conditions under which they take place and, being reversible, may reach a state of equilibrium.

conti. Knowledge and Conceptual Understanding	*Key Idea* • Chemical reactions occur at different rates and changing the nature of the reactants, temperature, or concentration, or introducing a catalyst, may alter these.
Investigative Processes	• Conduct and appraise chemical research tasks. • Operate chemical equipment and technology safely.
Evaluating and Concluding	• Determine, analyse and evaluate the chemical interrelationships involved in Chemistry. • Predict chemical outcomes and justify chemical conclusions and recommendations.
Attitudes & Values	• Retain openness to new chemical ideas, and develop intellectual honesty, integrity, collegiality, cooperation and respect for evidence and ethical conduct. • Develop a level of sensitivity to the implications of chemistry for individuals and society and understand that chemistry is a human endeavour with consequent limitations. • Develop a thirst for chemical knowledge, become flexible and persistent learners and appreciate the need for lifelong learning.
MARINE SCIENCE	
Knowledge and Understanding	• Define and describe marine science concepts. • Explain marine systems using concepts and models. • Apply understandings to marine environments, issues and problems.
	Oceanography • The world's oceans are involved in the dispersal and cycling of all matter. • The world's oceans and global climate are inextricably linked. • The marine environment consists of dynamic and complex relationships between organisms and ecosystems.
	Conservation and Sustainability • Human activities can affect the marine environment in a variety of ways. • Sustainable management practices are essential for the protection of marine resources. • Gathering and interpreting scientific information is necessary to make informed decisions on sustainability.

Investigation and Analysis	• Formulate questions, hypotheses and plans for marine investigations. • Collect primary data using marine research skills. • Analyse and interpret marine information to identify and explain relationships, trends and patterns.
Evaluation and Communication	• Evaluate marine information to draw conclusions, and make decisions and recommendations. • Justify conclusions, decisions and recommendations about marine environments, issues and problems.
AQUATIC PRACTICES	
Knowing and Understanding	• Describe concepts and ideas in aquatic contexts • Explain concepts and ideas in aquatic contexts • Demonstrate skills in aquatic contexts.
	Environmental – Ecosystems • Aquatic ecosystems include biotic and abiotic components. • The condition of aquatic ecosystems varies as a result of the biotic and abiotic components
	Environmental – Conservation and Sustainability • Marine and freshwater pests and threats, including pollution, impact on aquatic environments.
	Environmental – Citizen Science • The scientific method involves asking questions about the natural world and collecting data systematically to address the question.
	Commercial – Aquaculture, Aquaponics and Aquariums • Water quality is essential for animal/plant production.
	Safety and Management Practices – Management Practices • Working with others is essential when working in aquatic environments. • Completion of aquatic activities requires a range of management skills.
Analysing and Applying	• Analyse information, situations and relationships in aquatic contexts. • Apply knowledge, understanding and skills in aquatic contexts. • Use language conventions and features appropriate to aquatic contexts to communicate ideas and information, according to purpose.
Planning and Evaluating	• Generate plans and procedures for activities in aquatic contexts. • Evaluate the safety and effectiveness of activities in aquatic contexts. • Make recommendations for activities in aquatic contexts.

Additional Information:

- A maximum number of 12 students can participate in the water quality testing component of this program at a time. In the instance of higher numbers (up to 24 students), a second practical session can be scheduled.
- A small additional fee per student will be charged for participation in the water-testing component of the *What's in the Water?* program.
- To be eligible for participation in the water-testing component of the *What's in the Water?* program, students, school staff and any accompanying adults must meet the program's participation criteria and must each have a signed copy (by students' guardians where necessary) of the program waiver form to deliver to the Marine Education Officer upon entry into Sea World.

Teacher Program Schedule
What's in the Water? – Year Eleven and Twelve

Time	
9.15am	**Arrival**
	The school will arrive promptly at 9:15am and will be met by a Marine Education Officer on the lawn next to the flagpoles out the front of Sea World.
9.20am	**Park Entry**
	The Marine Education Officer will lead the school group through the admissions gate to Shark Bay for the education program.
9.30am	**Education Program**
	A 45-minute lesson will serve to provide educational content and technical instruction for the practical water-testing component of this program.
10.15am	**Water Quality-Testing Program/s**
11.45am	**Program Conclusion (approximate)**
	If there is only one water quality-testing session, this program will conclude at approximately 11:45am and students will be free to enjoy the park for the rest of the day, at the teacher's discretion. In the instance of a second water quality testing session, the final group will conclude at approximately 1:30pm.

Teacher Program Overview and Schedule
How To Train A Seal

Program Duration: 45 minutes
Minimum Participants: 10 students **Maximum Participants:** N/A

Program Overview:

This program enables students to gain a firsthand understanding of how Sea World's animals are cared for. Based at Seal Theatre, *How to Train a Seal* aligns to the content of TAFE courses including Certificate II and III in Animal Studies, Certificate III in Captive Animals and Certificate III in Companion Animal Services. This program presents an in depth look at the care and management of seals and sea lions which will reinforce students' learning and help them understand the level of care required by these animals. Students will be provided with detailed information relevant to their course, covering topics such as conditioning, enrichment, feeding, hygiene, health checks and housing of animals in human care. Students will discover what it is like to work in the animal care industry and what is required to be part of an effective animal handling team. If available, a marine mammal trainer will deliver a short talk about training and caring for the seals and sea lions housed at Sea World with a potential seal training demonstration included. To conclude, students will consider the contribution of human care facilities like Sea World to the understanding, protection and conservation of wild animal populations.

Alignment with TAFE Program:

CERTIFICATE II IN ANIMAL STUDIES

Relevant Course Units	
ACMSPE310A	Provide basic care of mammals
ACMGAS202A	Participate in workplace communications
ACMGAS203A	Complete animal care hygiene routines
ACMGAS204A	Feed and water animals
ACMGAS205A	Assist in health care of animals
ACMGAS201A	Work in the animal care industry

CERTIFICATE III IN ANIMAL STUDIES

Relevant Course Units	
ACMGAS303A	Plan for and provide nutritional requirements for animals
ACMINF301A	Comply with infection control policies and procedures in animal work
ACMGAS301A	Maintain and monitor animal health and wellbeing
ACMGAS203A	Complete animal care hygiene routines
ACMGAS302A	Provide enrichment for animals
ACMGAS204A	Feed and water animals
ACMGAS306A	Assist with conditioning animals
ACMGAS205A	Assist in health care of animals

CERTIFICATE III IN CAPTIVE ANIMALS

Relevant Course Units	
ACMCAN304A	Prepare and maintain animal housing
ACMGAS301A	Maintain and monitor animal health and wellbeing
ACMGAS303A	Plan for and provide nutritional requirements for animals

ACMGAS302A	Provide enrichment for animals
ACMCAN302A	Prepare and present information to the public
ACMGAS306A	Assist with conditioning animals
CERTIFICATE III IN COMPANION ANIMAL SERVICES	
Relevant Course Units	
ACMGAS301A	Maintain and monitor animal health and wellbeing
ACMGAS203A	Complete animal care hygiene routines
ACMINF301A	Comply with infection control policies and procedures in animal work
ACMCAS301A	Work effectively in the companion animal industry
ACMGAS302A	Provide enrichment for animals
ACMGAS303A	Plan for and provide nutritional requirements for animals
ACMGAS306A	Assist with conditioning animals

Program Schedule

Time	
9.45am	**Arrival and Park Entry**
	It is recommended that the group arrive before 9:45am. Entry into the park is through admissions gate number 6.
10.00am	**Fish Detectives Sea Lion Show**
	The school group should head to Sea Lion Theatre by 10:00am for the 10:15am *Fish Detectives Sea Lion Show*
11.35am	**Education Program**
	The school group is to remain behind in the stadium on completion of the show and a Marine Education Officer, who will deliver the *How to Train a Seal* program, will meet them. This program is approximately 45 minutes, and will finish by 11:20am at the latest. Please note: selection of this program will prevent the school group from seeing the morning *Affinity Dolphin Show*.
11.20pm	**Program Conclusion**
	At the conclusion of this session, students will be free to enjoy the park for the rest of the day, at the teacher's discretion.

Teacher Program Overview and Schedule
Environmental Issues

Year Level: All
Program Duration: 45 minutes
Min. Participants: 10 students **Max. Participants:** 100 students

Program Overview:

Set in the underwater viewing gallery of Shark Bay, this program introduces students to the numerous ways humans are interconnected to the oceans and their inhabitants. Students of all year levels will engage in inquiry-based learning activities to discover how fishing activity, shark nets, marine debris and pollution are all contributing to loss of biodiversity and what actions can be taken personally and collectively to live sustainably and reduce our ecological footprint.

Additional Information:

**Program is not curriculum aligned*

Program Schedule

Time	
9.15am	**Arrival**
	Meet Marine Education Officer on lawn next to flagpoles out front of Sea World
9.20am	Park entry and transfer to Shark Bay
9.30am	**Education Program**
	Please note: selection of this program will prevent school from seeing morning Fish Detectives Sea Lion Show
10.30am	**Program Conclusion**
	At the conclusion of this session, students will be free to enjoy the park for the rest of the day, at the teacher's digression.

Teacher Program Overview and Schedule
Getting Smart About Sharks

Year Level: All
Program Duration: 45 minutes
Min. Participants: 10 students **Max. Participants:** 100 students

Program Overview:

During this interactive program, students of all ages will learn about the amazing biology and ecology of sharks. Students will discover the variety of marine habitats where sharks live, what roles they occupy in their habitats and how they are equipped to survive in their environment. Specific adaptations covered will address how sharks move, hunt, protect themselves, rest and breathe. Students will consider how some human activities are threatening the survival of sharks and will discuss actions that can be taken individually and globally to help with conservation of these animals.

Additional Information:

**Program is not curriculum aligned*

Program Schedule

Time	
9.15am	**Arrival**
	Meet Marine Education Officer on lawn next to flagpoles out front of Sea World
9.20am	Park entry and transfer to Shark Bay
9.30am	**Education Program**
	Please note: selection of this program will prevent school from seeing morning Fish Detectives Sea Lion Show
10.30am	**Program Conclusion**
	At the conclusion of this session, students will be free to enjoy the park for the rest of the day, at the teacher's digression.

Teacher Program Overview and Schedule
In Depth With Dolphins

Year Level: All
Program Duration: 45 minutes
Min. Participants: 10 students **Max. Participants:** n/a

Program Overview:

During this interactive program, students of all ages will learn about the amazing biology and ecology of sharks. Students will discover the variety of marine habitats where sharks live, what roles they occupy in their habitats and how they are equipped to survive in their environment. Specific adaptations covered will address how sharks move, hunt, protect themselves, rest and breathe. Students will consider how some human activities are threatening the survival of sharks and will discuss actions that can be taken individually and globally to help with conservation of these animals.

Additional Information:

**Program is not curriculum aligned*

Program Schedule

Time	
10.30am	**Arrival**
	Advised latest entry time to park
11.00am	**Affinity Dolphin Show**
	Group to arrive at Dolphin Beach for 11:15am Affinity Dolphin Show
11.35am	**Education Program**
	Please note: selection of this program will prevent school from seeing morning Fish Detectives Sea Lion Show
12.20pm	**Program Conclusion**
	At the conclusion of this session, students will be free to enjoy the park for the rest of the day, at the teacher's digression.

Teacher Program Overview and Schedule
Paws, Claws and Roars

Year Level: All
Program Duration: 45 minutes
Min. Participants: 10 students **Max. Participants:** 35 students

Program Overview:

This interactive program provides a broad overview of Polar bear biology and ecology for students of all ages. Students will learn where Polar Bears live, what role they occupy in their habitat and how they are equipped to survive in their environment. Specific adaptations covered will address how Polar bears move, hunt, protect themselves and maintain body temperature. Students will consider how some human activities are threatening Polar bears' survival and will discuss actions that can be taken individually and globally to help with conservation of this species.

Additional Information:

**Program is not curriculum aligned*

Program Schedule

Time	
9.15am	**Arrival**
	Meet Marine Education Officer on lawn next to flagpoles out front of Sea World
9.20am	Park entry and transfer to Polar Bear Shores
9.30am	**Education Program**
	Please note: selection of this program will prevent school from seeing morning Fish Detectives Sea Lion Show
10.30am	**Program Conclusion**
	At the conclusion of this session, students will be free to enjoy the park for the rest of the day, at the teacher's digression.

Teacher Program Overview and Schedule
The Real Deal With Seals

Year Level: All
Program Duration: 45 minutes
Min. Participants: 10 students **Max. Participants:** n/a

Program Overview:

During this interactive program, students of all ages will learn about the fascinating biology and ecology of seals. Students will discover the variety of marine habitats where seals live, what roles they occupy in their habitats and how they are equipped to survive in their environment. Specific adaptations covered will address how seals move, hunt, protect themselves, rest, breathe and maintain body temperature. When available, a marine mammal trainer will deliver a short talk about training and animal care usually involving a brief training session with a seal. Students will consider how some human activities are threatening the survival of seals and will discuss actions that can be taken individually and globally to help with conservation of these animals.

Additional Information:

**Program is not curriculum aligned*

Program Schedule

Time	
9.45am	**Arrival**
	Advised latest entry time to park
10.00am	***Fish Detectives Sea Lion Show***
	Group to arrive at the Sea Lion Theatre for 10:15am F*ish Detectives Sea Lion Show*
10.35am	**Education Program**
	Please note: selection of this program will prevent school from seeing morning *Affinity Dolphin Show*
11.20pm	**Program Conclusion**
	At the conclusion of this session, students will be free to enjoy the park for the rest of the day, at the teacher's digression.