



Teacher Program Overview

Bear Essentials – Year 8 and 9

Program Duration: 1 Hour

Location: Polar Bear Shores

Minimum Participants: 10 Students

Maximum Participants: 35 Students

Program Overview:

During this program, students will investigate the specialised body systems Polar bears are equipped with to survive in the harsh environment of the Arctic Circle. This program aligns with the Australian Curriculum primarily through the Biological Sciences strand of Science and secondarily through the Physical Sciences strand. Polar bear anatomy and biology will be examined and compared with humans in relation to the specialised functioning of organs in their digestive, sensory, and reproductive systems. The overall role each body system plays in the survival of Polar bears will be considered with reference to how these systems are challenged by the rapidly changing environment the bears occupy. Energy storage, transfer and transformation will be a secondary theme within this program, referred to in the contexts of chemical energy stored by the bears in preparation for famine and the energy transfers and transformations causal of altering the bears' environments through climate change. Given the conservation status of Polar Bears, this program will conclude with a discussion about how humans are contributing to climate change and students will identify solutions to conserve energy and minimise impacts at an individual and global scale.

**This Program is suitable for both Year 8 and Year 9 students learning via either Version 8.4 or Version 9 of the Australian Curriculum. Please see the following guides for the relevant alignment to the Australian Curriculum (version of choice).*

Program Schedule

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

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 discretion of school staff.

****Please note that participation in this program will prevent the school group from seeing the morning Seal Guardian Presentation***

Program Mapping

Bear Essentials – Year 8 and 9

Alignment with the Australian Curriculum V8.4 – Year 8 and 9	
SCIENCE	
Science Understanding	
Biological Sciences	<p>Multi-cellular organisms contain systems of organs carrying out specialised functions that enable them to survive and reproduce (ACSSU150)</p> <p>Multi-cellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment (ACSSU175)</p>
Physical Sciences	<p>Energy appears in different forms, including movement (kinetic energy), heat and potential energy, and energy transformations and transfers cause change within systems (ACSSU155)</p>
Science as a Human Endeavour	
Use and Influences of Science	<p>Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations (ACSHE135)</p> <p>Values and needs of contemporary society can influence the focus of scientific research (ACSHE228)</p>
General Capabilities:	
<ul style="list-style-type: none"> • Critical and Creative Thinking • Intercultural Understanding 	<ul style="list-style-type: none"> • Literacy • Ethical Understanding
Cross- Curriculum Priorities:	
<ul style="list-style-type: none"> • Sustainability 	

**See Version 9 on the next page.*

Alignment with the Australian Curriculum V9.0 – Year 8 and 9

SCIENCE

Science Understanding

Biological Sciences	<p>Analyse the relationship between structure and function of cells, tissues and organs in a plant and an animal organ system and explain how these systems enable survival of the individual (AC9S8U02)</p> <p>Describe the form and function of reproductive cells and organs in animals and plants, and analyse how the processes of sexual and asexual reproduction enable survival of the species (AC9S9U02)</p>
Physical Sciences	<p>Classify different types of energy as kinetic or potential and investigate energy transfer and transformations in simple systems (AC9S8U05)</p> <p>Apply the law of conservation of energy to analyse system efficiency in terms of energy inputs, outputs, transfers and transformations (AC9S9U05)</p>

Science as a Human Endeavour

Nature and Development of Science	Investigate how cultural perspectives and world views influence the development of scientific knowledge (AC9S8H02)
Use and Influences of Science	<p>Examine how proposed scientific responses to contemporary issues may impact on society and explore ethical, environmental, social and economic considerations (AC9S8H03)</p> <p>Analyse the key factors that contribute to science knowledge and practices being adopted more broadly by society (AC9S9H03)</p> <p>Examine how the values and needs of society influence the focus of scientific research (AC9S9H04)</p>

Science Inquiry

Questioning and Predicting	Develop investigable questions, reasoned predictions and hypotheses to explore scientific models, identify patterns and test relationships (AC9S8I01) & (AC9S9I01)
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General Capabilities:

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|---|---|
| <ul style="list-style-type: none"> • Critical and Creative Thinking • Intercultural Understanding | <ul style="list-style-type: none"> • Literacy • Ethical Understanding |
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Cross- Curriculum Priorities:

- Sustainability