**Molesworth Environment Centre: Biodiversity**

The Biodiversity program at Molesworth Environment Centre can be adapted to fit your year group and class program. Most areas of study focus on native Tasmanian plants and animals, as well as human influence on biodiversity. The excursion usually consists of discussion time at the environment centre, and a field based activity such as bushwalk or pond/creek study.

Examples of study areas can include:

* **Habitats** – bushwalks through varying forest and woodland communities; looking for animal homes and evidence of native animals; discussion of human impacts on habitats; change in habitats over time.
* **Animal features and adaptations** – using the stuffed animal collection at MEC we talk through the physiological and behavioural adaptations animals have to help them survive in their habitats.
* **Life cycles** – discussion of different types of life cycles and the ways different organisms raise their offspring; bushwalk to pond or forest to investigate invertebrates; use computer microscope to have a close look at invertebrates in various stages of their life cycles. Discuss similarities and differences between humans and other species. Plant lifecycles can also be included.
* **Living and non-living** – discussion in environment centre about classification of living and non-living things. Identification of needs of living things and a bushwalk to investigate living and non-living aspects of the ecosystem.

**Science Scope and Sequence: Foundation to Year 6**

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|  |  | **Foundation Year** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Science Understanding** | **Biological Sciences** | Living things have basic needs, including food and water | Living things have a variety of external features  Living things live in different places where their needs are met | Living things grow, change and have offspring similar to themselves | Living things can be grouped on the basis of [observable](http://www.australiancurriculum.edu.au/Glossary?a=S&t=observable) features and can be distinguished from non-living things | Living things, including plants and animals, depend on each other and the [environment](http://www.australiancurriculum.edu.au/Glossary?a=S&t=environment) to survive. | Living things have structural features and [adaptations](http://www.australiancurriculum.edu.au/Glossary?a=S&t=adaptations) that help them to survive in their [environment](http://www.australiancurriculum.edu.au/Glossary?a=S&t=environment) | The growth and survival of living things are affected by the physical conditions of their [environment](http://www.australiancurriculum.edu.au/Glossary?a=S&t=environment) |
| Science as a Human Endeavour | **Nature and**  **development**  **of science** | Science involves exploring and observing the world using the senses |  | | Science involves making predictions and describing patterns and relationships | |  | |
| **Use and**  **influence of**  **science** |  | People use science in their daily lives, including when caring for their environment and living things | | Science knowledge helps people to understand the effect of their actions | |  | |
| Science Inquiry Skills | **Questioning and Predicting** | Respond to questions about familiar objects and events | Respond to and pose questions, and make predictions about familiar objects and events | |  | |  | |
| **Planning and Conducting** | Explore and make observations by using the [senses](http://www.australiancurriculum.edu.au/Glossary?a=S&t=senses) |  | |  | |  | |
| **Processing and analysing data and information** | Engage in discussions about observations and use methods such as drawing to represent ideas | Through discussion, compare observations with predictions | |  | |  | |
| **Communicating** | Share observations and ideas | Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play | |  | |  | |

**Elaborations**

**Foundation level**

1. **Recognising the needs of living things in a range of situations such as pets at home, plants in the garden or plants and animals in bushland.**
2. **Sharing observations with others and communicating their experiences.**
3. **Exploring and observing using hearing, smell, touch, seeing and taste.**
4. **Using sight, hearing, touch, taste and smell so that students can gather information about the world around them.**
5. **Taking part in informal and guided discussions relating to students’ observations.**
6. **Working in groups to describe what students have done and what they have found out.**

Year 1

1. **Recognising common features of animals such as head, legs and wings.**
2. **Describing the use of animal body parts for particular purposes such as moving and feeding.**
3. **Exploring different habitats in the local environment such as the beach, bush and backyard.**
4. **Recognising that different living things live in different places such as land and water.**
5. **Exploring what happens when habitats change and some living things can no longer have their needs met.**
6. Identifying ways that science knowledge is used in the care of the local environment such as animal habitats, and suggesting changes to parks and gardens to better meet the needs of native animals.
7. **Discussing or representing what was discovered in an investigation.**
8. **Engaging in whole class or guided small group discussions to share observations and ideas.**

Year 2

1. Recognising that living things have predictable characteristics at different stages of development.
2. Exploring different characteristics of life stages in animals such as egg, caterpillar and butterfly.
3. **Recognising that many living things rely on resources that may be threatened, and that science understanding can contribute to the preservation of such resources.**
4. **Using the senses to explore the local environment to pose interesting questions, make inferences and predictions.**
5. **Thinking about ‘What will happen if...?’ type questions about everyday objects and events.**
6. **Comparing and discussing, with guidance, whether observations were expected.**
7. **Presenting ideas to other students, both one-to-one and in small groups.**

Year 3

1. **Recognising characteristics of living things such as growing, moving, sensitivity and reproducing.**
2. **Understanding the biotic and abiotic features of an ecosystem.**
3. **Making predictions about change and events in our environment.**
4. Understanding classifications of animals based on their features. Discussion of groups of animals and generating ideas about what group they belong.
5. Understanding why classification of animals is important to scientists.

Year 4

1. **Investigate life cycles of Tasmanian native plants and/or animals.**
2. **Investigating the roles of living things in a habitat, for instance producers, consumers or decomposers.**
3. **Observing and describing predator-prey relationships.**
4. **Predicting the effects when living things in feeding relationships are removed or die out in an area.**
5. **Recognising that interactions between living things may be competitive or mutually beneficial.**
6. Considering methods of waste management and how they can affect the environment.
7. **Exploring how science has contributed to a discussion about an issue such as loss of habitat for living things or how human activity has changed the local environment.**

Year 5

1. **Explaining how particular adaptations help survival such as nocturnal behaviour, silvery coloured leaves of dune plants.**
2. **Discuss physiological and behavioural characteristics of the native animal collection at Molesworth in relation to adaptation to environment.**
3. Describing and listing adaptations of living things suited for particular Australian environments.

Year 6

1. **Examine and describe the abiotic components of contrasting ecosystems and how this affects the organisms that live there.**
2. **Predict what might happen to the survival changes of organisms within that habitat if environmental conditions changed.**
3. **Consider human impact on the survival of living things within an ecosystem.**
4. Considering the effects of physical conditions causing migration and hibernation.

The Science Understandings and Elaborations that have been highlighted are currently explored in the Tasmanian Biodiversity program at Molesworth.

If you would like to cover the Science Understandings and Elaborations that are not highlighted, please contact the Coordinator at the Molesworth Environment Centre.

**The Molesworth Biodiversity program relates to the following cross curriculum Sustainability Organising Ideas**

Systems

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| OI.1 | The biosphere is a dynamic system providing conditions that sustain life on Earth. |
| OI.2 | All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival. |
| OI.3 | Sustainable patterns of living rely on the interdependence of healthy social, economic and ecological systems. |

Futures

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| OI.6 | The sustainability of ecological, social and economic systems is achieved through informed individual and community action that values local and global equity and fairness across generations into the future. |
| OI.7 | Actions for a more sustainable future reflect values of care, respect and responsibility, and require us to explore and understand environments. |
| OI.8 | Designing action for sustainability requires an evaluation of past practices, the assessment of scientific and technological developments, and balanced judgments based on projected future economic, social and environmental impacts. |
| OI.9 | Sustainable futures result from actions designed to preserve and/or restore the quality and uniqueness of environments. |