In this programme Amaroo Environmental Education Centre implements elements of the Australian Curriculum for Science. The students will examine the structural features and adaptations that assist animals to survive in their environment.

The underlying theme for this program is to value and understand the need for biodiversity in the environment. Students engage in activities that highlight the special features of animals which determine their interactions with the environment. This programme is delivered at Amaroo Environmental Education Centre, Kleinton and is a full school day in length.

The sequence of lessons on the following pages outlines both the activities undertaken by the Amaroo teacher and suggested activities to be conducted by the teacher in their school.

**Synopsis of Program:**

**Session overviews:**

**Topics include:**

- Creature adaptations

**Activities include:**

- Discussion on Adaptations: definition/functions/examples/structural /behavioural - differences
- Clay modeling: creation of an animal reflecting structural features
- Examination of bird beaks and the variety of ways they assist birds to feed, followed by a simulation game
- Examining insects set in resin and hypothesizing about structural features.
- Discussion about camouflage and protective mechanisms using pictorial charts
- Examination of skulls, bones, quills etc from Amaroo’s display cabinet
- Examination of animal specimens from the museum noting adaptations
- Classification of water creatures using a dichotomous key

**Conclusion:** Reflect upon and explain how structural and behavioural adaptations help animals to survive in different environments
Amaroo Environmental Education Centre

Teaching Sequence

<table>
<thead>
<tr>
<th>Topic</th>
<th>Lesson Objectives</th>
<th>Creature Features - Lesson outlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-engagement or “The Hook” (HoT; SC; DU; AE)</td>
<td>Students will:</td>
<td>Prior to their visit, the class will receive photographs of various creature adaptations. They are to decide what creature they think they belong to and what their purpose may be. Read “The Best Beak In Boonaroo Bay” by Narelle Oliver if available from your library.</td>
</tr>
<tr>
<td>Differentiating structural and behavioural adaptations (SR; HoT; LD)</td>
<td>Students will:</td>
<td>Ways of classifying animals are discussed eg: vertebrates, invertebrates, birds, fish, mammals, amphibians, reptiles Using clay, students create an animal reflecting structural features</td>
</tr>
<tr>
<td>Comparing different adaptations in similar organisms (SR; LD)</td>
<td>Students will:</td>
<td>Students will discuss and define examples of adaptations-structural and behavioural. Best beak: Following discussion about adaptations, the students will be shown actual bird beaks, similarities of these to ‘people’ utensils and the ‘Best Beak’ game is played.</td>
</tr>
<tr>
<td>Investigating Camouflage Exploring adaptations in animals (SR; LD; HoT; SC)</td>
<td>Students will:</td>
<td>Students view and discuss protective mechanisms charts. In groups, students will use ey eupes to closely examine a variety of insects set in resin. They are to note particular adaptations (features/colour etc) of the insects and suggest the purpose of these.</td>
</tr>
</tbody>
</table>

Lessons in these boxes should be taught/facilitated by the class teacher in the school setting.

Lessons in these boxes will be taught by the Amaroo teacher as part of your program.

It is suggested that pre/post work may be conducted on these objectives.

Pedagogical Key: Based on Amaroo EECs Pedagogical Framework

The Amaroo EEC teachers deliver this program utilising a variety of Pedagogical Strategies which are based on the four dimensions of Productive Pedagogies plus the 5th Pedagogy: Pedagogy and Place - Learning Beyond the Classroom. Each pedagogy is abbreviated in [ ] according to this key.

Pedagogy and Place – Learning Beyond the Classroom

Learning by Doing [LbD]

Intellectual Quality Deep understanding [DU]

Higher-order thinking [HoT] Substantive Conversation [SC]

Connectedness Problem based Curriculum [PbC]

Supportive Classroom Environment Academic Engagement [AE] Self Regulation [SR]
## Teaching Sequence

### Exploring adaptations in animals

Students will:
- Understand that evidence of animals with adaptations can be collected.

Students will examine animal specimens from the Queensland Museum and using stimulus cards discuss answers relating to features of these creatures.

### Animal Identification

Students will:
- Understand that creature features are used to identify animals

Students use an iPad app involving a key to identify various water creatures by the process of selection/elimination

### Animal Classification

Students will:
- Apply their knowledge of animal features to classify them into the 5 vertebrate groups

Using various photographs and headings of the 5 vertebrate groups as discussed earlier in the day, students classify their animals according to their features

### Suggested Assessment Tasks:
- Using the photographs of the insects, students identify structural adaptations that enable survival in its environment and pose questions for other students to answer.
- Use scientific language to explain particular adaptations they encountered on their excursion and the relationship to the particular environment that the creature lives in
Cross Curriculum Priority Link: Sustainability addresses the ongoing capacity of Earth to maintain life.

Organising Idea: Systems OI.1 All life forms, including human life, are connected through ecosystems on which they depend for their well-being and survival.

Australian Curriculum References for this program:

Year 5 Science - Content Descriptions
Science Understandings
Biological Science
- Living things have structural features and adaptations that help them to survive in their environment (ACSSU043)

Science Inquiry Skills
Questioning and Predicting
- With guidance, pose clarifying questions and make predictions about scientific investigations (ACSI231)