Flight and Feathers

A Science Programme for
Primary Students
at the **Royal Albatross Centre**

Programme Booklet for Teachers

2020

Programme Overview

Objective: To understand that birds are finely tuned flying machines, with the wing and flight style suited perfectly to the environment in which they live.

Programme Description: The programme will look at the adaptive features of birds and their mechanisms for flight. Students will look at the relationship between the shape of the wing and the type of flight. Observations of a variety of seabirds in flight from the viewing observatory will illustrate how the type of flight is related to their feeding, breeding and movement. And the students will have to decide if the design for airplane wings came from the study of birds in flight

Time:	2 hours
Age Focus:	Years 4-8
Cost:	$4/person
Curriculum Links:	**Science Level 2-4** Living World Achievement Objectives 1-4

Spend the day on Otago Peninsula

Trip on the Wild Side

Make the most of your bus trip and journey through time on the Otago Peninsula. Investigate how natural and social events have shaped the Peninsula environment in the past and may shape it in the future.

New Zealand Marine Studies Centre:

Connecting Programme - Supper in the Sea

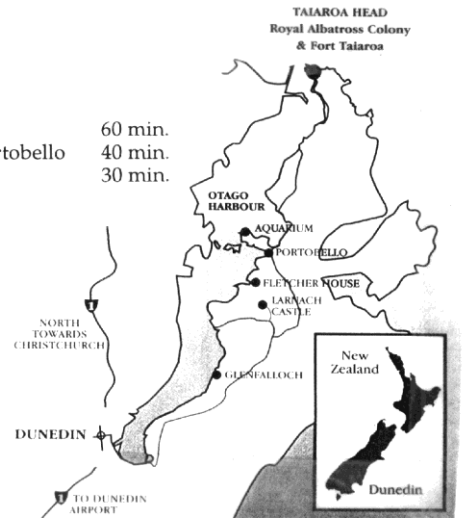
From seaweeds to seabirds and plankton to pigfish – this programme looks at ocean food chains and food webs. Find out who eats who and how human activities can affect the balance. 2 hours, $7/student.

For bookings contact Victoria Rosin, 479-5843 or email Victoria.rosin@otago.ac.nz.

Location

Travel Times (one way):

Dunedin to the Royal Albatross Centre, Taiaroa Head	60 min.
Dunedin to NZ Marine Studies Centre (Aquarium), Portobello	40 min.
Royal Albatross Centre to NZ Marine Studies Centre	30 min.



Programme Plan:

Time	Group A
	Arrive, meet guide at reception *please arrive 10 minutes early*
0	**Education Rm** (30 min) *What is a bird? (comparison of bird to cat)* *How do they fly? (flapping, soaring, gliding)* *Mechanisms of flight with demo* *Where do they go? (different wings for different jobs)*
30 min	**Observatory** (30 min) *Viewing of flight (Albatross, gulls, shags)* *Identification of species and wing types with silhouettes* *Toroa – flight path* *Weighted birds – difficulties of flight*
1 hour	**Cliff Viewing** (30 min) *shag viewing* *gull viewing* *act out gliding & flapping flight*
1.5 hours	**Education Rm** (30 min) *Series of activity stations to look at mechanisms of flight and how the birds are adapted for flight.*
2 hours	**Wrap up** (5 min) *Reviewing learning objectives*

Curriculum Links and Planning Guide

To be modified..

Science

Achievement Objectives	Specific Learning Outcomes	Activities
Living World L3.1 Distinguish between living things within a broad group on the basis of differences in external characteristics L3.2 Investigate special features of animals and plants and describe how these features help them to stay alive. L3.3 Explain using information from personal observations and library research, where and how a range of familiar plants and animals live.	Students will be able to: 1. Distinguish between 3 different species of birds using the Taiaroa Headland to roost and breed (Black-backed gulls, Otago Shags, Northern Royal Albatross) 2. Describe the different parts of an Albatross and their function and how these birds are suited for life at sea 3. Describe the lifestyle and lifecycle of an Albatross	At the Royal Albatross Centre: - Display Activity - Observatory Visit

Other Curriculum Areas

- English
- Arts
- Maths

Social Studies

Achievement Objectives	Specific Learning Outcomes	Activities
Place and Environment L2.1 How people's activities influence places and the environment and are influenced by them L3.1 How different groups view and use places and the environment L4.1 How places reflect past interactions of people with the environment	Students will be able to: 1.	At the Royal Albatross Centre: - Education Room Activity - Observatory Visit - Tour of Fort Taiaroa
Time, Continuity and Change L3.1 How the ideas and actions of people changed the lives of others L3.2 How the past is recorded and remembered in different ways	Students will be able to: 1.	At the Royal Albatross Centre: - Education Room Activities - Observatory Visit - Tour of Fort Taiaroa - Viewing of poutokomanawa (carved pole) - Viewing of models and photos
Resources and Economic Activities L2.1 How and why people manage resources L3.1 How and why people view and use resources differently and the consequences of this	Students will be able to: 1.	At the Royal Albatross Centre: - Education Room Activities - Observatory Visit

Tour Guidelines

1. **Supervisors**

- Ratio of 1 adult to 8 students is required for primary level.
- Role of supervisors is to:
  - ensure that the students act in a responsible manner.
  - assist the students with the activities.
  - keep the noise level down and the group together.

2. **Dress warmly**

- It is always windy and cold at Taiaroa Head.

3. **Arrive 10 Minutes Early**

- If you are late, the time of your visit may be cut short as the observatory time is fixed and other tours are scheduled immediately after yours.
- Please allow time for a toilet break before the programme begins.

4. **Group Size**

- Please note only 25 people are allowed in the observatory at once.
- Please organise your students and adult helpers into groups of 25 or less before arrival.

5. **Programme Length**

- The programme is 2 hours long (includes 15-30 minutes in the Richdale Observatory.
- Please plan to have morning or afternoon tea before or after the programme (not during).

6. **Lunch Areas**

- Areas suitable for lunch include:
  - Pilots Beach platform, just below the head land, is a great place to view fur seals but please do not approach or disturb them. Stick to the broadwalk and viewing platform. Please ensure students are quiet as penguins may be nesting under the platform – do not disturb. Beach may be closed at certain times.
  - grassy area to the east of the Royal Albatross Centre.

- Education Room maybe available if the weather is wet (please check availability with Royal Albatross Centre staff in advance).

7. Shop and Cafeteria

- Please keep children out of these areas unless they are planning to purchase something. Outside food is not permitted in the café.

8. Observatory

- Please keep students quiet while on the headland and observatory, we are under a permit with the Department of Conservation, the Albatross are sensitive to noise. During September to early November is the sensitive time of year, Albatross sightings are not guaranteed, but we may see birds on land, in flight or both.

9. No Smoking

- To reduce the fire risk to the colony, smoking is not permitted.

Pre-trip Preparation

In order to ensure that students get the most out of the programme we suggest that some pre- and post-trip work is done in the classroom prior to the visit to the Royal Albatross Centre.

1. Pre-trip Activities

Use the activities on the web site and the resources listed to introduce the students to albatross and the Taiaroa headland.

2. Background Information

Review the information provided in this booklet. Further information about albatross and the Taiaroa Headland site can be found on the web site and in the reference list

3. Work Sheets

Programme worksheets are available on web site. Due to limited time during the programme, we suggest that teachers use them to follow up the programme in the classroom.

4. Tour Guidelines

Please review the Tour Guidelines with your students and adult supervisors prior to the trip to the Royal Albatross Centre.

5. Teacher led activities at Taiaroa Head

Extend your visit to Taiaroa Head by exploring the headland. Simple identification guides will help you find other species of birds and mammals that use the headland.

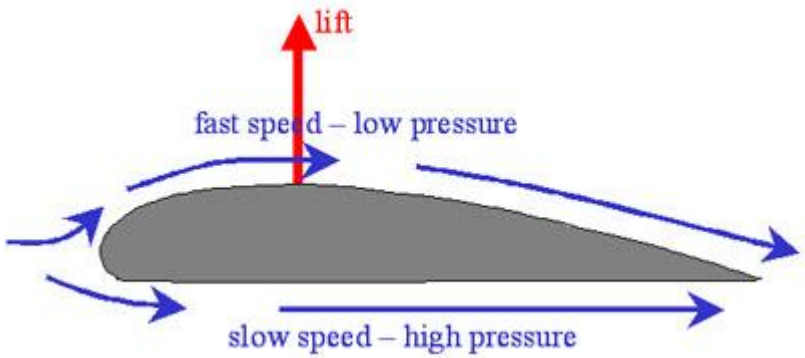
6. New Zealand Marine Studies Centre

Combine at the Royal Albatross Centre programme with a visit to the NZ Marine Studies Centre and Aquarium. Spend the morning at the Aquarium and the afternoon with the Albatross or vice versa. The programmes are complementary and together create a unique learning experience for your class.

Aerofoil Demonstration

The apparatus is set up with an aerofoil on the right side and a counterweight on the left side. A hair dryer, **see photograph above**, supplies a constant air stream that is aimed straight at the front of the aerofoil. The aerofoil should be placed with the curved surface on the top. As the air flows over the aerofoil, that side of the apparatus will lift up. The air must travel farther over the top of the airfoil, so it travels faster, **see diagram below**. This

creates an area of low pressure, so the unbalanced pressure from the bottom causes the aerofoil to lift. If the aerofoil is placed upside down, the motion will be down instead of up, thus proving the aerofoil (Bernoulli's) principle.



Resources

Royal Albatross Centre Activity Sheets
(download from www.school.albatross.org.nz/resources_home.htm)

Pre and Post Trip Assessment Activity

"Getting to know the Royal Albatross"

This activity can be done individually, in groups or as a class activity. We suggest you do it prior to the visit and then ask children to use a different colour pen to change or add to their answers after the visit. We would encourage teachers to send examples of the students work to the Royal Albatross Centre.

Toroa at Taiaroa Worksheets

These work sheets work well as a classroom follow-up to the Toroa at Taiaroa Programme and look at how the Taiaroa Headland site was used by the Maori, Europeans and the seabirds.

Food Web Card Game

"Gulp and Swallow"

This card game illustrates local food chains and where albatross fit in. And excellent resource for both the Royal Albatross Programme and the NZ Marine Studies Centre programme.

Create your own Albatross Mask

Colour template to construct an albatross face mask with beak.

Albatross Conservation Comic

"Yawn the Albatross"

This cartoon has information about the life of an albatross and how our fishing activities are affecting these birds.

Relevant Web Sites

https://albatross.org.nz/education/
The education part of the Royal Albatross Centre website. Lots of activities and information to download.

www.albatross.org.nz
The Royal Albatross Centre site with background information on the colony and history of Fort Taiaroa.

https://www.doc.govt.nz/nature/native-animals/birds/birds-a-z/albatrosses/royal-albatross-toroa/royal-cam/
Watch and observe the Royal Cam – live camera at an albatross.

www.wikipedia.org/wiki/Bird_flight
Basic mechanics of bird flight

Maybe just one or two of the ones below??
www.savethealbatross.net
Save the Albatross campaign by RSPB and Birdlife International.

www.forestandbird.org.nz/Marine/albatross.asp
Facts about the threatened albatross species and information on the campaign to prevent albatross deaths in the fishing industry.

wwf.org.nz/index.php/new_zealand_conservation/species/seabirds/
World Wide Fund for Nature site with information on conservation issues surrounding albatross.

www.oceanwings.co.nz/albatross
A tourism operation in Kaikoura. Has a conservation section and information on what birds (including albatross) can be seen.

www.kcc.org.nz/birds/albatross.asp
Kiwi conservation club site. Information on albatross and their threats.