

Year 4

Our Coasts



This module aims to introduce students to concepts of coastal ecology, mangrove habitat and human impact on the coast through ocean and marine pollution. Students will be involved in a discussion on surface tension and the density of oil and water and why they do not mix.

Students will be involved in demonstrations of the importance of mangroves to the coastal habitat, how different oils form different layers when mixed with water, and how to clean up an oil spill.



Activity Sheets.....

Activity sheets have been developed covering topics such as the mangrove habitat, its inhabitants and marine pollution. Experiments have been developed as an educational tool to further explain the concepts of density and surface tension.



Learning Outcomes....

This module satisfies the following Science, Health and Physical Education and SOSE syllabus learning outcomes:

Science:

EB 3.1, 2.2, 3.2, 4.2

LL 3.1, 3.2, 3.3, 4.2, 4.3

NPM 4.1

Time Allowance: 1.5 hours in the classroom.

SOSE: PS 4.1, 2.2, 3.2, 4.2, 4.3

SRP 3.1

HPE: PH 2.5, 3.5, 4.5

Year 6/7

How Alumina is Made From Bauxite

This module aims to show students how bauxite undergoes a number of physical and chemical changes in the process of being made into alumina. Most steps of the industrial process will be demonstrated using practical experiments in which children can participate.



Photographs relating the demonstrations to plant equipment will also be shown and the importance of the bauxite/alumina/aluminium industry to Gladstone, Queensland and Australia will be discussed.

A tour of QAL may be organised to follow on from this module.



Activity Sheets.....

Activity sheets have been developed to assist in teaching the students about bauxite and the process that is used at QAL to extract the alumina from it. An experiment has been developed to further explain the process of growing crystals.



Learning Outcomes....

This module satisfies the following Science and SOSE syllabus learning outcomes:

Science:

SS 3.3

NPM 3.2, 3.3, 4.2, 4.3

Time Allowance: 1.5 hours in the classroom, 1 hour for tour (school to provide bus).

SOSE:

SRP 4.1

PS 3.1, 4.1

Year 7

Water & Air Quality



This module aims to introduce students to concepts of water parameters to be measured for monitoring for environmental impact. Students will be shown a demonstration of monitoring equipment and how it is used at QAL as well as discussing the potential impacts of water pollution.

The module also introduces students to concepts of air quality monitoring including demonstrations of air quality monitoring, deposition gauges and how TEOM (dust monitor) operate. Discussions will be hosted on Electro Static Precipitators, multi-cones and baghouse as methods of controlling dust emissions (e.g. calciner project at QAL). Tools used by QAL to prevent particular emissions will also be identified.

Activity Sheets....

Activity sheets have been developed for this subject to assist in explaining air and water pollution, global warming and their effects on the environment. A household pollution activity has also been developed to educate students on their impact on the environment.



Learning Outcomes

This module satisfies the following Science, Health and Physical Education, Technology and SOSE syllabus learning outcomes:

Science:

EB 2.3, 3.3

SS 2.3, 3.3, 4.3

NPM 3.3, 4.3

Time Allowance: 1.5 hours in the classroom

Tech: S 3.1

SOSE: PS 3.1, 4.1, 4.5

HPE: PH 2.5, 3.5, 4.5

Teachers' information kit



Bringing environment, science and safety into the classroom!



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Year 4/5

What's the Risk?

This module aims to increase childrens' awareness of safety by outlining different situations and solutions, in addition to providing information on accident prevention and to practice the precautions to take. Students will be involved in discussions about accident prevention, safety scenarios and personal protective equipment.

Activity Sheet.....

Two activity sheets have been developed to teach students about everyday safety hazards in a fun and educational manner. As a great tool to introduce them to the 'what' and 'why' of safety, the use of visual illustrations and examples enable students to identify what is and is not safe, in addition to introducing the thought process of assessing dangerous situations.



Students will partake in demonstrations and role plays to emphasise the importance of safety equipment and how it protects them in many ways.

Learning Outcomes....

This module satisfies the following Health and Physical Education and Visual Arts syllabus learning outcomes:

- PH:
2.3, 3.3, 4.3, 5.3
Visual Arts:
3.1, 4.2

Time Allowance: 1.5 hours in the classroom and schoolyard



Year 5/6

Soil Science

This module aims to introduce students to concepts of soil science and gain practical experience with auguring and simple soil analysis. Students will discuss the importance of soil, soil layers and the human impact on soil.



Activity Sheets.....

Activity sheets have been constructed for this subject to assist in explain the importance of soil. The activity sheet is designed to assist students in activities they will undertake during the lesson. Fun and educational activities have also been developed to accompany this module.



Students will be involved in demonstrations of auguring and describing soil cores. This will be related to principles of land management such as vegetation growth and erosion control.

Learning Outcomes....

This module satisfies the following Science and SOSE syllabus learning outcomes:

- Science:
EB 2.3, 3.1, 4.1
LL 2.3, 3.3, SS 2.2
NPM 2.1, 3.1
- SOSE:
PS 2.2, 4.5

Time Allowance: 1.5 in the classroom and schoolyard.

Year 5/6

Solids, Liquids & Gases

This module aims to improve the students knowledge of matter and the form of solids, liquids and gases. A number of practical demonstrations will be conducted showing changes in matter and the properties of matter. Student and teacher participation in these demonstrations is encouraged.



As some of the demonstrations do not require any special equipment, they will be able to be used by students and teachers to further develop their own understanding and the understanding of others.

Activity Sheets.....

The activity sheets for this module covers chemistry in everyday life, solids, liquids and gases, and features interesting facts and activities to further explore the subjects within the module.



Learning Outcomes....

This module satisfies the following Science and Technology syllabus learning outcomes:

Science EC 4.2
NPM 3.1, 3.2, 3.3, 4.2
Time Allowance: 1.5 hours in the classroom.

Technology M 4.1

Year 4

What is a Scientist?

In this module we review the work of a Scientist and discuss the range of different types of science. Emphasis will be on chemistry and what a Chemist does with particular reference to skills used by Chemists at QAL.



The module demonstrates data collection, interpretation and handling processes. Combined data from the class will be analysed and interpreted.

The students will be divided into a number of small groups and will conduct an experiment that demonstrates scientific thought processes. They will use a range of techniques to sort items into different categories and describe them. Students will also have the opportunity to conduct a simple titration.

Activity Sheets.....

Activity sheets for this module have been designed to assist in explaining the function of a scientist and natural science. Ten activities and experiments have also been created.



Learning Outcomes....

This module satisfies the following Science syllabus learning outcomes:

Science: SS 2.2, 2.2, 3.2
NPM 2.1, 3.1
Time Allowance: 1.5 hours in the classroom.