



Foreword

Introduction

Information for teachers

Education and awareness is essential to achieve the change in attitudes and behaviours needed to reach sustainability.

The 'Make your water mark!' Watersaver education program has been designed to make the process of learning about water conservation and Gold Coast City Council's initiatives to reduce water consumption as easy, interesting and straight-forward as possible.

By starting at the grass roots of our community – our children – at schools, we can have a positive impact on a sustainable water future. Our environment and access to a unique water-based lifestyle attracts huge tourist numbers and new residents. Visitor and population growth calls for planning to ensure our future is on tap.

Gold Coast City Council is responsible for the delivery of water, recycled water, trade waste and wastewater services to consumers of the Gold Coast.

As a leader in water planning, management and use, Gold Coast City Council has worked to achieve the right balance between our traditional water storages, such as dams, to include innovative practices such as recycled water use, water tanks and dual water-use housing developments.

Above all, this education program aims to promote awareness about the value of water conservation and promote long-term behavioural change among your students.



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Acknowledgments



Overview

Introduction

Information for teachers

The 'Make your water mark!' Watersaver education program has been individually tailored for early childhood, primary, middle and senior levels. (Early childhood and Primary school material is available as a separate resource from Gold Coast City Council).

Each concept will build on what students have learnt in previous years.

This program aims to promote positive changes in behaviour and highlight future workforce opportunities in water-related fields.

These water units use an 'inquiry-based' approach to teaching and learning. Students formulate questions that become the basis for student-planned investigations to form the context for developing scientific explanations.

Materials include key water topics for the city of the Gold Coast:

- The water cycle.
- How our water cares for us.
- Saving water.
- School water audit.
- Drought.
- From catchment to tap.
- Changing the way we use water.

The program is designed to assist with achieving effective behavioural change. Such initiatives are essential to ensure the sustainable development of the region and to maintain water balance over the long-term. It focuses on South East Queensland water issues, but includes how water is a significant environmental issue on a local, national and global level.

** The State Government's South-East Queensland Water Strategy influences water management and infrastructure, therefore some of the strategies in this education kit may change. We recommend that you visit the Queensland Water Commission website: www.qwc.qld.gov.au for the latest information on water management in Queensland.*



Program benefits and about this curriculum resource

Introduction

Information for teachers

The program includes:

- Access to the first 'regionally focused' water curriculum of its kind in South East Queensland.
- Informative case studies and water conservation strategies relevant to the Gold Coast.
- Hands on learning - students can visit local areas that form part of the discussions in lesson plans.
- Content is specific to the Gold Coast.
- Access to water facilities for excursions.
- Exposure to local and State Government guest speakers.

The Watersaver education program materials have been developed by teachers for teachers through collaboration and research with Griffith University.

Units consist of easy-to-use lesson plans, activity sheets and additional information to support teachers in a practical delivery.

The curriculum material is relevant, fresh and includes local case studies and water conservation strategies specific to the Gold Coast.



Structure

Introduction

Information for teachers

The curriculum materials in this resource package have been organised into the following sections :

Middle school: Year 7 to Year 9

Secondary school: Year 10 to Year 12

The 5Es teaching and learning model

Scientific phenomena are explored through hands-on investigations as students use their prior knowledge and literacy to develop explanations, understanding and investigative skills. Learning and teaching progress through the 5 E's model (Bybee, 1997).

Engage

To create student interest and stimulate curiosity. Open questions, writing, drawing and discussion so that teachers can extend and challenge students with future learning experiences.

Explore

To conduct hands-on investigations to experience scientific phenomena. Students collect evidence by observing and measurement, testing ideas, discussing and questioning. This allows students to acquire experiences they can use to make sense of new concepts or skills.

Explain

Patterns and relationships within observations are identified and discussed by students. Current scientific explanations are used to extend understanding. Writing, drawing and mapping is used to clarify ideas and explanations and to develop

understanding. Formative assessment is used for teacher and student feedback about investigation skills and conceptual understandings.

Elaborate

Plan and conduct an open investigation to apply, clarify, extend and consolidate new conceptual understanding and skills. Reports of student investigation are used by the teacher to assess outcomes.

Evaluate

Students are provided with an opportunity to review and reflect on their learning and comprehension skills. A product is produced by students to re-examine their conceptual understanding. Evidence from this lesson can be used by teachers to assess how students have achieved outcomes.



Assessment

Introduction

Information for teachers

Gold Coast City Council units include ongoing assessments to enhance learning. Different types of assessments are emphasised in each phase.

ENGAGE	Engage students and elicit prior knowledge Diagnostic assessment
EXPLORE	Provide hands-on experience of the phenomenon Formative assessment
EXPLAIN	Develop scientific explanations for observations and represent developing conceptual understanding Consider current scientific explanations Formative assessment
ELABORATE	A student-planned investigation to extend understanding to a new context or make connections to additional concepts Summative assessment of the investigating outcomes
EVALUATE	Students re-examine their understanding and reflect on their learning journey - teachers collect evidence about the outcomes Summative assessment of the conceptual outcomes

Cooperative learning

When working in teams, students are able to share their knowledge, ideas and experiences. Through discussion, they share differing points of view, contribute to problem solving, develop skills in sharing, leading, communicating, building trust and dealing with conflict management. This helps students at school, work, in family and personal relationships.