



An introduction to the 'Turning on the Tap' Teaching Resource

Who can use this resource?

This teaching resource is designed for primary and intermediate teachers of Year 5-8 students. The content is particularly relevant for Wellington, New Zealand.

Overall purpose

'Turning on the tap' is an in-depth, integrated unit of work which comprehensively explores the issues associated with using tap water. Its guided approach allows even inexperienced teachers of environmental education/education for sustainability to teach the concepts of water conservation, water treatment and environmental action. The resource was commissioned by Greater Wellington Regional Council (GW) to encourage students to understand where their tap water comes from and make informed decisions about how they use it.

How to use this resource

This unit of work is an integrated term's work for the curriculum areas of Science, Social Science, Health and Technology. Mathematics and English objectives are also included in many activities. The resource can be taught throughout your timetable and over several subject areas; e.g. section five contains many mathematics objectives and could be delivered during your maths class time.

If you are limited for time you can select activities based on the suggestions on the term plan on page 7. Section three and four are particularly relevant for those visiting the water treatment plants. Ideally the resource should be taught in full for maximum comprehension of the concepts involved.

Structure and content of the resource

The *Turning on the tap* resource is comprised of six sections:

Section One: Water as a resource

This section examines the students' knowledge and experiences with water. Students gain an understanding that water is a precious resource. Differences in water use around the world are also investigated.

Section Two: The water cycle

This section includes activities based around the natural water cycle and how water changes state and moves around the environment.

Section Three: How water gets to our taps

This section explores how water is delivered from water collection areas to our taps.

Section Four: Water treatment: Te Marua or Wainuiomata

This section examines the water treatment process inside a water treatment plant. A key part of this section is a visit to one of the Greater Wellington's water treatment plants (*either Te Marua or Wainuiomata*).



Section Five: How much water are we using?

Students measure how much water is used at school on a daily basis and explore how it is used.

Section Six: Making change

This section provides students with an opportunity to use their new knowledge and understanding to make informed decisions about how they use water. Students identify the priorities for change and organise action for the environment to reduce their use of tap water.

The New Zealand curriculum

Each activity in the resource has a curriculum link to at least one of the learning areas. Major curriculum links are listed in black, minor links are listed underneath in grey.

Suggested success criteria are also given. Teachers can adjust these according to the needs and abilities of their students.

As well as clear links to specific learning areas, the resource also incorporates the values, key competencies and principles from the current New Zealand curriculum. Particular emphasis is placed on the following values: ecological sustainability, innovation, curiosity, inquiry, equity, community and participation. All key competencies are explored in this unit of work.

Timing for activities

Each activity is designed to take approximately 45 minutes, unless otherwise stated.

Level of activities

Although the resource is designed for year 5-8 students, it is aimed primarily at year 6-7 students. Every attempt has been made to cater for a range of abilities and levels within each activity. If using the activities with year 5 or year 8 students, you may need to adapt the learning intentions, success criteria and learning experiences to better suit your students' requirements.

Teaching and learning approach

Education for Sustainability (Efs)/Environmental education

The resource aligns with current thinking and effective pedagogy for Education for Sustainability (Efs). At the time of writing, the Guidelines for Environmental Education in New Zealand Schools (1999) offer a format for environmental education programmes. The concepts, areas and dimensions in the guidelines are incorporated in this unit.

The *'Turning on the Tap'* resource is based on the Framework for Developing Action Competence in Education for Sustainability. This framework describes six aspects that lead to action competence and that develop the key competencies of the New Zealand Curriculum. They are: connectedness, experiences, reflection, knowledge, a vision of a sustainable future and action taking for responsibility.

For details see:

<http://efs.tki.org.nz/Efs-in-the-curriculum/Taking-action/Action-competence>



Curriculum links – achievement objectives

	L3	L4
Science	<p>Planet Earth and Beyond Earth Systems Appreciate that water, air, rocks and soil and life forms make up our planet and recognise these are also Earth's resources</p> <p>Interacting Systems Investigate the water cycle and its effect on climate, landforms and life</p>	<p>Planet Earth and Beyond Earth Systems Appreciate that water, air, rocks and soil and life forms make up our planet and recognise these are also Earth's resources</p> <p>Interacting Systems Investigate the water cycle and its effect on climate, landforms and life</p>
	<p>Nature of Science Investigating in science Build on prior experiences, working together to share and examine their own and others' knowledge</p> <p>Ask questions, find evidence, explore simple models and carry out appropriate investigations to develop simple explanations</p> <p>Participating and contributing Use their growing science knowledge when considering issues of concern to them</p> <p>Explore various aspects of an issue and make decisions about possible actions</p>	
Social Sciences	<p>Social Studies</p> <p>Understand how people view and use places differently</p> <p>Understand how people make decisions about access to and use of resources</p>	<p>Social Studies</p> <p>Understand how producers and consumers exercise their rights and meet their responsibilities</p> <p>Understand how people participate individually and collectively in response to community challenges</p>
Mathematics	<p>Statistics Statistical Investigation Conduct investigations using the statistical enquiry cycle: gathering, sorting, and displaying multivariate category and whole number data and simple time-series data to answer questions: identifying patterns and trends in context within and between data sets</p>	<p>Statistics Statistical Investigation Plan and conduct investigations using the statistical enquiry cycle: gathering, sorting, and displaying multivariate category, measurement and time series data to detect patterns, variations, relationships and trends</p>
	<p>Geometry and Measurement Measurement Use linear scales and whole numbers of metric units for length, area, volume and capacity, weight (mass), angle, temperature, and time</p> <p>Shape - Represent objects with drawings and models</p>	<p>Geometry and Measurement Measurement Use appropriate scales, devices and metric units for length, area, volume and capacity, weight (mass), angle, temperature, and time</p>



Curriculum links – achievement objectives

	L3	L4
Technology	<p>Technological Practice Planning for practice Undertake planning to identify the key stages and resources required to develop an outcome. Revisit planning to include reviews of progress and identify implications for subsequent decision making</p> <p>Brief development Describe the nature of an intended outcome, explaining how it addresses the need or opportunity. Describe the key attributes that enable development and evaluation of an outcome</p>	<p>Technological Practice Planning for practice Undertake planning that includes reviewing the effectiveness of past actions and resourcing, exploring implications for future actions and accessing of resources and consideration of stakeholder feedback, to enable the development of an outcome</p> <p>Brief development Justify the nature of an intended outcome, in relation to the need or opportunity. Describe the key attributes identified in stakeholder feedback, which will inform the development of an outcome and its evaluation</p>
	<p>Nature of Technology Characteristics of technology Understand how society and environments impact on and are influenced by technology in historical and contemporary contexts and that technological knowledge is validated by successful function</p>	<p>Nature of Technology Characteristics of technology Understand how technological development expands human possibilities and how technology draws on knowledge from a wide range of disciplines</p>
Health	<p>A: Personal Health and Physical Development A3 Safety management Identify risks and their causes and describe safe practices to manage these</p> <p>Healthy communities and Environments: <i>People and the environment</i> Plan and implement a programme to enhance an identified social or physical aspect of their classroom or school environment</p>	<p>A: Personal Health and Physical Development A3 Safety management Access and use information to make and action safe choices in a range of contexts</p>
English	<p>Listening, Reading and Viewing Processes and strategies – Ideas</p>	<p>Listening, Reading and Viewing Processes and strategies – Ideas</p>