

Evaluating the product

» Lesson overview

In this lesson, students work in teams to evaluate their product and to plan a Waterwise promotional event.

» Lesson objectives

In this lesson, students:

- evaluate their product as a team and as individuals
- plan a Waterwise event to showcase their promotional products
- gather feedback from the participants at the event
- conduct a second home water use audit of the families of class members
- analyse the data from the second home water use audit and identify the changes that have occurred over the course of the unit
- complete their personal reflection (Resource 10) to demonstrate what they have learned in this unit.

» Equipment

For the class

- one enlarged copy or overhead transparency of 'Designing the product' (Resource 8)
- one enlarged copy or overhead transparency of 'Water usage and attitude survey' (Resource 9)
- one enlarged copy or overhead transparency of 'My personal reflections on water journeys' (Resource 10)
- additional resources for the creation of the products
- butcher's paper or overhead transparency

For each team

- the partly completed copy of 'Designing the product' (Resource 8)

For each student

- student journal
- one copy of 'Water usage and attitude survey' (Resource 9)
- one copy of 'My personal reflections on water journeys' (Resource 10)

» Lesson steps

❖ Session 1— Event organisation

1. When the students complete their product, ask each team to evaluate that product using the 'First product evaluation' on the last page of their design folio work sheet (Resource 8). Remind students of the Technology 'aspects of appropriateness'. Ask students to evaluate their product against the agreed appropriateness determined in Lesson 8, Step 8, such as aesthetics, ethics, culture, and available finances and resources. Pose the following evaluation questions for students to respond to:
 - How technologically appropriate is your product? Identify how you have included the agreed aspects of appropriateness.
 - How is your finished product better than your original idea?
 - In what ways did you improve your initial design idea to create or enhance your finished product?

Students can add individual reflections to their journal.

2. Explain to the students that they will create a display of their promotional products to promote Waterwise. If the class is working in partnership with their local council,

discuss the possibility of a collaborative promotional event. Alternatively, the class could create a Waterwise event for the school or for the community. Brainstorm creative ideas for this event and share preparatory tasks among the teams.

3. During or after the event, invite other students and parents/carers to give feedback on how effective they thought the promotional products were in encouraging people to reduce their water wastage. Each student in the class could survey a number of students and adults who have not been surveyed before using the 'Water usage and attitude survey' (Resource 9). The students collate the class data and record it on a sheet of butcher's paper or an overhead transparency.

❖❖❖ Session 2—After the event

4. Conduct the home water usage audit again with the families of class members over a one-week period. When this water use audit is completed, ask students to collate and analyse the new data for the class. Complete Activity 3 on the 'Home water use—Work sheet' (Resource 3).
5. The students use their journals to record their conclusions about the change in their home water use and the possible reasons why the water use might have changed.

They can answer questions such as:

- Was your Waterwise campaign successful?
- Did your household water use decrease between the two surveys? If so, by how much?
- Is there any evidence that your Waterwise promotional products contributed to the decrease in water use?
- Did your awareness of water issues reduce your use of water?

6. Ask the students to reflect on what they have learned in this unit by completing the KWL chart. Explain to students that they will complete the 'Water journeys' activity (Resource 10), which is a final assessment task for this unit and should be completed by each student individually. Explain the tasks in the 'Water journeys' activity using the enlarged copy of Resource 10.
7. Working with the class, develop an assessment rubric for the design folio and the reflection that aligns with the teacher's 'Guide to making judgements' (Resource 11) but is written in 'student-speak'. The students could use this rubric to self-assess or peer-assess. Clearly explain the reasons for any discrepancies between your assessment and the student assessment.
8. If you began the unit with the 'Water treasures' activity in Lesson 1, repeat that activity and ask students to identify the ways in which their ideas have changed. Encourage them to explain how their understanding has changed through the learning experiences in the unit.

Resource 9



Water usage and attitude survey

School name:.....Questionnaire number:.....

This survey asks people about their views on water. There are no right or wrong answers; it's just the opinion that we are interested in.

> Q1. How strongly do you agree with the following statements?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know
I am concerned about water shortages.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I think enough is being done to address water shortages.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I receive enough information about how to save water.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We do as much as we possibly can to save water in our house.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water is precious and we need to make long-term changes to the ways in which we use water.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Resource 9 (continued)

> Q2. What does your household do to save water?

- | | | |
|--|--|---|
| <input type="checkbox"/> Take shorter showers | <input type="checkbox"/> Have fewer showers/baths | <input type="checkbox"/> Don't leave tap running while brushing teeth |
| <input type="checkbox"/> Divert greywater, e.g. from washing machine | <input type="checkbox"/> Collect water from bath/shower to use outside | <input type="checkbox"/> Only use dishwasher/washing machine with full load |
| <input type="checkbox"/> Low-flow showerheads | <input type="checkbox"/> Dual-flush toilets | <input type="checkbox"/> Plant drought-tolerant plants |
| <input type="checkbox"/> Water garden less often | <input type="checkbox"/> Have mulch on garden | <input type="checkbox"/> Other |

> Q3. Are there any barriers that prevent you from saving water? Yes No

IF YES, what are these?.....

> Q4. Water from a range of sources can be reused for different purposes. For which of the following purposes do you use rainwater/tank water or greywater around your home?

	Rainwater/tank water	Greywater
On the garden	<input type="checkbox"/>	<input type="checkbox"/>
Other outdoor use (e.g. washing car, cleaning house, paths)	<input type="checkbox"/>	<input type="checkbox"/>
Toilet flushing	<input type="checkbox"/>	<input type="checkbox"/>
Washing/bathing	<input type="checkbox"/>	<input type="checkbox"/>
Washing clothes	<input type="checkbox"/>	<input type="checkbox"/>
Don't have a rainwater tank/ don't reuse greywater	<input type="checkbox"/>	<input type="checkbox"/>

Respondent details

Gender: Male Female

Occupation:

Age: Under 15 yrs 16–18 yrs 19–25 yrs 26–35 yrs 36–50 yrs over 50 yrs



Resource 10

❖❖❖ 'Water journeys' activity

Name

Date:

Answer the following questions in your journal or on a separate piece of paper.

1. The journey of water

Either write a story or draw a diagram that shows the different pathways that a water droplet takes after it is sucked from the river into the intake pipe of your local water treatment plant. Use correct scientific terms in your story or add the correct scientific labels to your drawing. Explain each stage in the journey in your own words.

Use as many terms as you can. Make sure you include the following terms:

- › surface water
- › evaporates
- › groundwater
- › condenses
- › catchment
- › water treatment plant
- › sustainable
- › recycles
- › aquifer
- › sewage treatment plant
- › greywater
- › fresh water

» 2. Ideas and evidence

A. What conclusions can you draw from the home water use surveys? For each conclusion explain the reasoning (evidence) used to come to that conclusion.

B. Explain how you used the class results from the home water use survey data to develop ideas for the design of your promotional products.

Resource 11

Assessable elements	Task-specific descriptors				
	A	B	C	D	E
<p>Task-specific assessable elements</p> <p>Science <i>Knowledge and understanding</i> <i>Investigating</i> <i>Communicating</i></p> <p>Explains the different pathways that a water droplet can take and identifies target behaviours that promote the sustainable management of water in their product. Draws conclusions from the home water use survey.</p>	<p>Effectively explains or shows two or more pathways of a water droplet with correct use of terms. Text or diagram indicates coherent understanding of the changes that occur when water evaporates and condenses. Choice of target Waterwise behaviours shows insight. Consistently draws well-justified conclusions from the home water use survey and communicates clearly and accurately.</p>	<p>Satisfactorily explains or shows one pathway of a water droplet using terms that are generally correct. Credible choice of target Waterwise behaviours. Generally draws plausible conclusions from the home water use survey and communicates competently.</p>	<p>Superficially explains or shows one pathway of a water droplet. Rudimentary reference to Waterwise behaviours. Occasionally draws valid conclusions from the home water use survey and communicates disjointedly.</p>	<p>Explains or shows minimal stages in the pathway of a water droplet. Minimal reference to Waterwise behaviours. Rarely draws valid conclusions from the home water use survey and communicates vaguely.</p>	
<p>Technology <i>Knowledge and understanding</i> <i>Investigating and designing</i> <i>Producing</i> <i>Evaluating</i></p> <p>Investigates, designs and creates a product to promote Waterwise behaviours. Evaluates their design process and their promotional product.</p>	<p>Purposeful and effective implementation of processes to create the product. Effectively evaluates the product and design process.</p>	<p>Appropriate and credible implementation of processes to create the product. Adequately evaluates the product and design process.</p>	<p>Variable implementation of processes to create the product. Evaluates the product and parts of the design process.</p>	<p>Minimal implementation of processes to create the product. Rudimentary evaluation of the product and design process.</p>	

Feedback.....