

A U T H E N T I C T A S K

STATEMENT OF THE PROBLEM

Water usage and water conservation is a topic of which everyone should be aware. An investigation of how much water each student uses in a week was undertaken. This led to students taking on an active role in preventing water wastage in our school through water conservation ideas.

Reference material:

R.I.C. Publications (2003). *The Water Kit*, pp 20-23

www.ricgroup.com.au

Blake Education (1998). *Targeting Text Middle Primary Book 2:*

Recount, Procedure, Expositions BLM 67 Saving water: We must play our part, pp 96

For further information see: [Margate Primary School Presentation](#)

WATER CONSERVATION – THE STORY

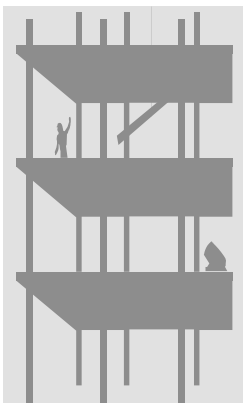
The Planning Stage

A unit of work was undertaken around the topic of Water. Students investigated the amount of water they used at home and at school recording their water usage on worksheets from 'The Water Kit'. The article, 'Saving water: We must play our part' was shared with students, this led to a further investigation on water wastage around the school and how water could be conserved within the school. The students brainstormed points around the school where water could be wasted. Three investigations were identified:

- The amount of water wasted from dripping taps
- The amount of water wasted from leaving a tap running
- Drinking fountains verses drinking bottles

Doing the Task

For the initial investigation, students were provided with the two worksheets for recording the amount of water they used in a week at home and at school. During the week students were reminded to complete their sheets whenever they used water during the day. Tallies were required for the number of times students washed their hands, flushed the toilet, washed out paintbrushes, or had a drink



A U T H E N T I C T A S K

at school and in addition at home were required to tally the number of times they brushed their teeth, had a shower or bath, and watered the garden. 'The Water Kit' literature provided information on the average amount of water that is used when flushing toilets, washing hands, brushing teeth with the tap running, having a ten minute shower etc. At the end of the data collection week the class made calculations on how much one person uses when washing their hands or brushing their teeth. This amount was then calculated for the number of students in the class and then the number of students in the school. One student remarked "Wow, that's *** milk cartons!!!" This student could visualise the amount of water used in terms litre milk cartons. Students calculated how much water they used in a day using the information provided. Some students managed just to tally the amount of times they went to the toilet and or washed their hands. Others were able to calculate the amount of water they used in a week. Calculators were freely available to check calculations.

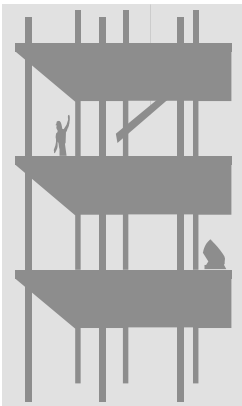
The second phase of the investigation took place after sharing the Article 'Saving water – We must play our part'. After a brainstorming session it was decided that following areas would be investigated:

- The amount of water wasted from dripping taps
- The amount of water wasted from leaving a tap running
- Drinking fountains verses drinking bottles

Students devised a plan to research how much water was wasted around the school in these areas. Students recorded their investigation on a teacher prepared worksheet that asked for the following information:

- What were you finding out?
- How did you complete this?
- Record your first findings.
- What did you do next?
- Write your main findings

Students undertook their investigations in groups and recoded their data on the worksheet (see work sample 1). Some students were only able to correctly count the number of taps in the school. Others were eager to engage in more complex calculations. The investigation using the water fountain involved a number of steps and was more complex than dripping taps. Counting taps, timing, counting drips and measuring volume were all skills that were required.



After the Task

A rubric (see rubric) was devised to guide assessment of student's investigations. Students then designed an A5 size poster to be displayed around the school close to taps to encourage water conservation.

**A
U
T
H
E
N
T
I
C

T
A
S
K**

RUBRIC FOR WATER CONSERVATION INVESTIGATION

CATEGORY	4	3	2	1
Conceptualisation of investigation	Problem clearly articulated. Response indicates full comprehension of purpose of task.	Purpose of task articulated. Response needs to be more succinct and specific.	Response shows general understanding of the purpose of the task.	Summary of purpose of task reveals little comprehension of its purpose/ Minimal or non-existent response.
Plan of Attack	Highly organised plan indicating deep understanding of information required to solve task, and how to gather required information.	Plan clearly presented, but some key steps may have been omitted.	Plan satisfactory, but lacking in detail to reflect deep thinking of the steps required to conduct the investigation.	Plan not evident or is inadequate. Shows little understanding of data required to conduct investigation.
Implementation of Plan	Plan implemented in autonomous manner to a high degree.	Plan implemented with minimal teacher input to satisfactory degree.	Plan implemented with considerable teacher input and guidance.	Plan implemented with major support from teacher.
Mathematical Concepts	Explanation shows complete understanding of the mathematical concepts used to solve the problem(s). Multiplicative thinking.	Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s). Combination of additive and multiplicative thinking	Explanation shows some understanding of the mathematical concepts needed to solve the problem(s). Additive thinking predominantly used or evidently to solve problems	Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.
Mathematical Conclusions	Mathematical understandings are clearly articulated in conclusion.	Mathematical understandings are articulated in conclusion.	Some reference to mathematical understanding in conclusion.	Mathematical understanding is not shown.
Explanation & Conclusion	Explanation is detailed and clear. Conclusion based on evidence collected.	Explanation is clear. Conclusion satisfactory.	Explanation and conclusion is a little difficult to understand, but includes critical components.	Explanation and conclusion is difficult to understand and is missing several components OR was not included.

Work Sample 1

Wasting Water

What were you finding out?

We were finding out how much water people waste when they drink water out of the water fountain for 15 seconds.

How did you complete this?

We tested by drinking out of the water fountain and we recorded how much water we wasted. We also stuck a ice cream container in the water fountain to catch the water we wasted.

Record your first findings?

Sam wasted - 250 ml	The total was 1.600 ml
Jayden wasted - 500 ml	
I wasted - 450 ml	
Ryan wasted - 400 ml	

What did you do next?

Then we added the totals up then divided it by four. The average was 400 ml

$$\begin{array}{r}
 250 \\
 450 \\
 500 \\
 + 400 \\
 \hline
 1600 \\
 \hline
 4 \overline{)1600}
 \end{array}$$

P.t.O →

Write your main findings.

If all the children in the school drank out of the water fountain they would waste 154.000 L