Water Management Survey – MAD Green Grants 2019

1.0 Teacher Information

Why do a water management survey? For the purposes of the MAD Green Grant, a water management survey will consist of a series of water meter readings conducted by the students ***before*** and ***after*** your project. This is to establish how effective your project has been in reducing your schools' water use and thus demand on our local rivers.

Using this survey worksheet, your students will record the readings on the school water meter(s) at the start and finish of each day for 2 weeks. Remember reading the water meter(s) should be done around the same times every day. Your students will use these readings to calculate how much water is used every day in the school and at the end of each week, they will calculate the average daily water use.

2.0 Survey Method:

Part one

1. Make a timeline plan to ensure your ***final*** water meter reading in Week 1 (including the weekend) will be complete prior to any commencement of your project. Also ensure your ***first*** water meter reading in Week 2 will not be conducted until after completion of your project.
2. Confirm with Council and school maintenance staff how many water meter(s) service your school and where each is located.
3. Discuss any considerations (safety, comfort or otherwise) that might need to be considered while the students are travelling to and from the water meter(s) and whilst taking the readings.
4. Collect all the necessary equipment (below).
5. Practice reading your school water meter(s) accurately so that every student involved in the project can confidently participate.
6. Decide who is going to be responsible for reading the water meter(s) on which days, what time they will conduct the reading, where they will record the reading etc. For instance, you may have a different pair of students for each day in Week 1 and Week 2, one to read the meter and the other to scribe for the 1st reading and then swap roles for the 2nd reading (they should double check each other's work each time before leaving the water meter).
7. Commence reading and recording of water meter(s) at start of school day and end of school day. If you have multiple water meters, use 1 survey sheet per meter.
8. Each day, have the students use the daily reads to calculate the water used by the school on a daily basis – both during school hours and after hours. If you have multiple water meters servicing your school, add the usages together to get the total daily consumption.
9. At the end of Week 1 (including weekend), have the students use the daily water use figures to calculate the average daily use of the school prior to your project.

Part two

10. Start and finish project, or if project is for ongoing behaviour changes, allow a minimum of 4 weeks.

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Part three

11. Confirm your project delivery is complete or a minimum of 4 weeks has passed for ongoing behaviour change initiatives.
12. Discuss any considerations (safety, comfort or otherwise) that might need to be considered while the students are travelling to and from the water meter(s) and whilst taking the readings.
13. Collect all the necessary equipment.
14. Refresh students on how to read a water meter and the reading roster (see 5. and 6. in Part one).
15. Commence reading and recording of water meter(s) at start of school day and end of school day. If you have multiple water meters, use 1 survey sheet per meter.
16. Each day, have the students use the daily reads to calculate the water used by the school on a daily basis – both during school hours and after hours. If you have multiple water meters servicing your school, add the usages together to get the total daily consumption.
17. Contact Councils' Water Efficiency Technical Officer on 6648 4428 for recent average daily water use figures based on quarterly bills paid by the school.
18. At the end of Week 2 (including weekend), have the students use the daily water use figures to calculate the average daily use of the school after your project completion.
19. Have the students compare the average daily water use from Week 1 to Week 2 to find any difference in the amount of water used by the school on a daily basis which can be attributed to your project.
20. Have the students compare the average daily water use from Week 2 to the average daily water use figures supplied by Council.
21. Discuss with the students their ideas or observations about the changes your school has made to reduce your water use. Where the results what they expected? How do the usages calculated by the students compare to the data from Council? Do the students have any ideas for further reducing the schools' water use?
22. Compile all recordings and points from student discussion into one form ready to submit.
23. Promote your findings at the next whole school assembly, in your school newsletter, local newspaper, school website or social media. This will not only spread the news of your achievements and promote your school as a good community citizen but may also inspire others in our community to reduce their own water use, in line with the Green Grants objectives.

3.0 Equipment you will need:

- Survey sheet to record readings
- Clipboards, pencils/pens, erasers
- Calculators
- Average Daily Water Use data from Council

4.0 Water Management Survey Week 1

COMPLETE & SUBMIT THIS ***BEFORE*** YOU COMMENCE YOUR PROJECT. DUE TERM 2 WEEK 4 FRIDAY 24 MAY 2019.

Part one – Details

Name of School _____ Water Meter Serial Number(s) _____

Group/Class of students responsible for survey _____

How many students in your school? _____ Teacher's name _____

Part two – Record your results

School Day Water Use	Read at Start of School Day eg. 9:00am ***(A)***	Read at End of School Day eg. 3:00pm ***(B)***	Water Used during School Day (kl) *B-A = C* ***(C)***	Water Used After Hours (kl) *A (next day) – B = D* ***(D)***	Total Water Consumption for 24 hours (litres) *C+D x 1,000 = E* ***(E)***
Monday 1 Date:					
Tuesday Date:					
Wednesday Date:					
Thursday Date:					
Friday Date:					For this day, just use C
Total Water Consumption over School Days (litres) *Sum of E column = F. (Double check Friday B – Monday A x 1,000 = F)* ***(F)***					
Average Daily Water Use over School Days (litres) *F÷5 = G* ***(G)***					

Weekend Water Use	Read at Start of Next School Day eg. 9:00am ***(A)***	Total Water Consumption over Weekend (litres) *A - B (Friday) x 1,000 = H* ***(H)***	Average Daily Water Use over Weekend (litres) *H ÷ 2 = I* ***(I)***
Saturday Date:			
Sunday Date:			
Monday 2 Date:			

Total Water Consumption for Week 1 (litres) *F+H = J. (Double check Monday 2 A – Monday 1 A x 1,000 = J)* ***(J)***	
Average Daily Water Use for Week 1 (litres) *J÷7 = K* ***(K)***	

Part three - Calculate using your Water Management Survey Week 1 results

Q1. Based on Week 1, how many litres of water does your school consume each year?
Suggest using (J) x 52 = _____litres/year

Q2. Based on Week 1, how many litres of water per person per day does your school consume on average?
Suggest using (K) ÷ student population = _____litres/person/day

Q3. a) If you detected after hours water usage (D) or water usage over the weekend (H), was this expected? Was the *amount* of water use you detected expected? Do you know where this water is being used? If you do not know for sure, where do you suspect the water is being used? Is there anything you can do to reduce this type of water consumption?

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b) Reading the water meter(s) at your property over periods where you do not believe any water should be used is a great way to detect possible leaks. Not only do leaks waste our water supply from our local rivers, they also unnecessarily add to your schools' water bill.

For the purposes of this survey, let's assume that 90% of the water use detected over the weekend (H) is from a leak.

Based on Week 1, how many litres of water could your school save in a year by fixing the leak?
Suggest using H x 52 x .9 = _____litres/year

Please submit data from your completed survey online no later than 5pm Friday 21st June 2019 via email to jessica.steinborner@chcc.nsw.gov.au.

5.0 Water Management Survey Week 2

COMPLETE THIS ***AFTER*** YOU COMPLETE YOUR PROJECT AND SUBMIT BY 5PM FRIDAY 22 NOVEMBER JUNE 2019 AS PART OF YOUR FINAL EVALUATION REPORT.

Part one – Details

Name of School _____ Water Meter Serial Number(s) _____

Group/Class of students responsible for survey _____

How many students in your school? _____ Teacher's name _____

Part two – Record your results

School Day Water Use	Read at Start of School Day eg. 9:00am ***(A)***	Read at End of School Day eg. 3:00pm ***(B)***	Water Used during School Day (kl) *B-A = C* ***(C)***	Water Used After Hours (kl) *A (next day) – B = D* ***(D)***	Total Water Consumption for 24 hours (litres) *C+D x 1,000 = E* ***(E)***
Monday 1 Date:					
Tuesday Date:					
Wednesday Date:					
Thursday Date:					
Friday Date:					For this day, just use C x1,000
Total Water Consumption over School Days (litres) *Sum of E column = F. (Double check Friday B – Monday A x 1,000 = F)* ***(F)***					
Average Daily Water Use over School Days (litres) *F÷5 = G* ***(G)***					

Weekend Water Use	Read at Start of Next School Day eg. 9:00am ***(A)***	Total Water Consumption over Weekend (litres) *A - B (Friday) x 1,000 = H* ***(H)***	Average Daily Water Use over Weekend (litres) *H ÷ 2 = I* ***(I)***
Saturday Date:			
Sunday Date:			
Monday 2 Date:			

Total Water Consumption for Week 1 (litres) *F+H = J. (Double check Monday 2 A – Monday 1 A x 1,000 = J)* ***(J)***	
Average Daily Water Use for Week 2 (litres) *J÷7 = K* ***(K)***	

Part three – Calculate using your Water Management Survey Week 2 results

Q1. Based on Week 2, how many litres of water does your school consume each year?
Suggest using (J) x 52 = _____litres/year

Q2. Based on Week 2, how many litres of water per person per day does your school consume on average?
Suggest using (K) ÷ student population = _____litres/person/day

Q3. a) If you detected after hours water usage (D) or water usage over the weekend (H), was this expected? Was the *amount* of water use you detected expected? Do you know where this water is being used? If you do not know for sure, where do you suspect the water is being used? Is there anything you can do to reduce this type of water consumption?

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b) Reading the water meter(s) at your property over periods where you do not believe any water should be used is a great way to detect possible leaks. Not only do leaks waste our water supply from our local rivers, they also unnecessarily add to your schools' water bill.

For the purposes of this survey, let's assume that 90% of the water use detected over the weekend (H) is from a leak.

Based on Week 2, how many litres of water could your school save in a year by fixing the leak?
Suggest using H x 52 x .9 = _____litres/year

Part four – Evaluation and next steps

Use this table to compare the results recorded in *both* Water Management Surveys.

Water Management Survey	Week 1 (Litres)	Week 2 (Litres)	Difference (Litres)	Change (%)
Total Water Consumption over School Days ***(F)***				
Total Water Consumption over Weekend ***(H)***				
Total Water Consumption ***(J)***				
Average Daily Water Use over School Days ***(G)***				
Average Daily Water Use over Weekend ***(I)***				
Average Daily Water Use ***(K)***				

Q4. Looking at the results in the above table, is there any difference in the average amount of water your school consumes on a daily basis (K) from Week 1 to Week 2? If so, what percentage increase or decrease was it?

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Q5. Looking at the results in the above table, was there any difference in the percentage change between total water consumed over school days (F) and total water consumed over weekends (H)? Why do you think this happened?

_____

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Q5. What further actions can you identify to improve the water management at your school to reduce your demand on our local rivers?

Area	Action	Person(s) responsible
Student Toilets/Showers/ Sinks/Bubblers		
Classroom		
Playground		
Gardens		
Office/Staffroom		
Canteen		
Other		

Thank you for taking the time to complete this survey.
Please submit data from your completed survey online no later than 5pm Friday 22nd November 2019 via email to Jessica.steinborner@chcc.nsw.gov.au.

For further information please call (02) 6648 4643.