



Australian Government

nlnw
National Literacy
& Numeracy Week



Reach for the Stars – activity results

This national data has been provided by the Australian Association of Mathematics Teachers (AAMT).

These results have been provided so your schools and classes can compare your data and do further analysis if you would like to.



The Reach for the Stars activity in National Literacy and Numeracy Week 2014, saw thousands of students and their teachers collect data about the water—especially the drinking water—in their classrooms and around their schools.

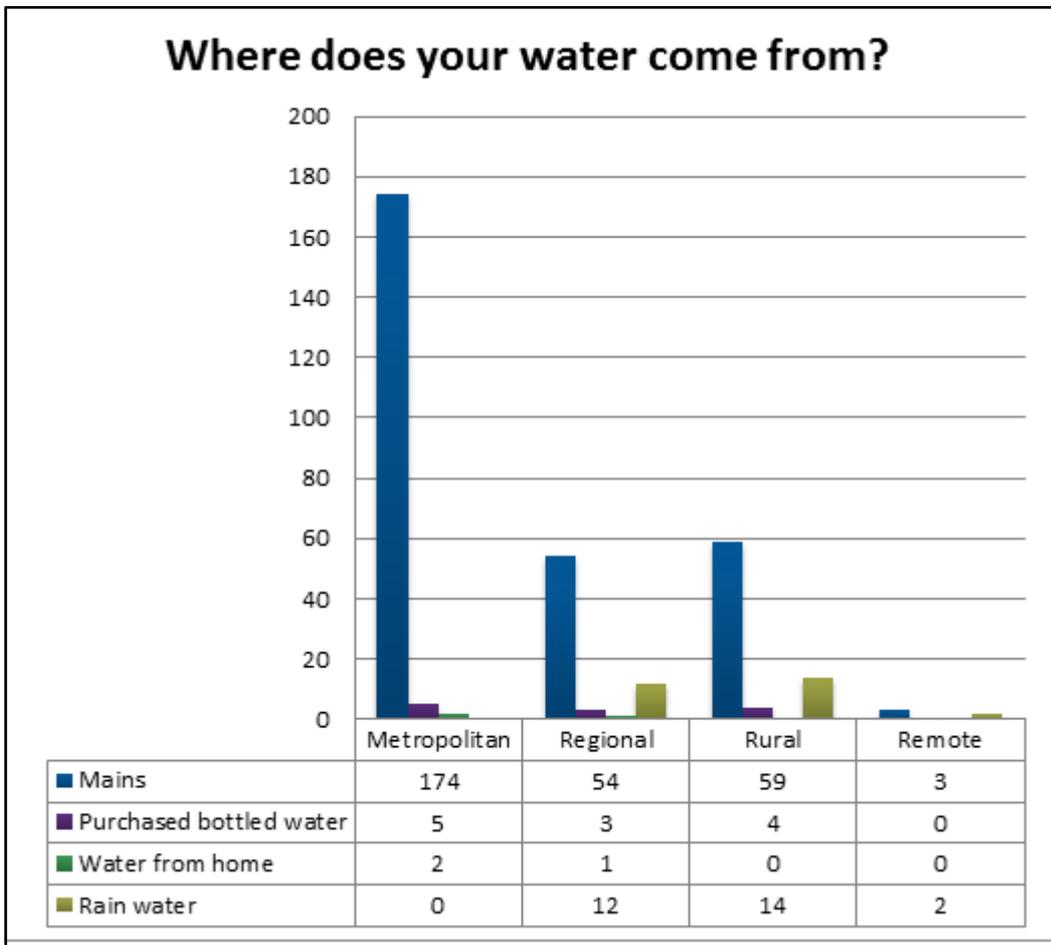
What did we find out?

Where does your water come from?

One class suggested that you could “stand and catch rain in your mouth from the sky”!

This year we asked schools to identify whether they were metropolitan (in a major city), regional (in a large town or city), rural (in the country) or remote (a long way from a town) because we were interested in whether the sources of water would vary depending on location.

Location	Proportion
Metropolitan	54%
Regional	21%
Rural	23%
Remote	2%

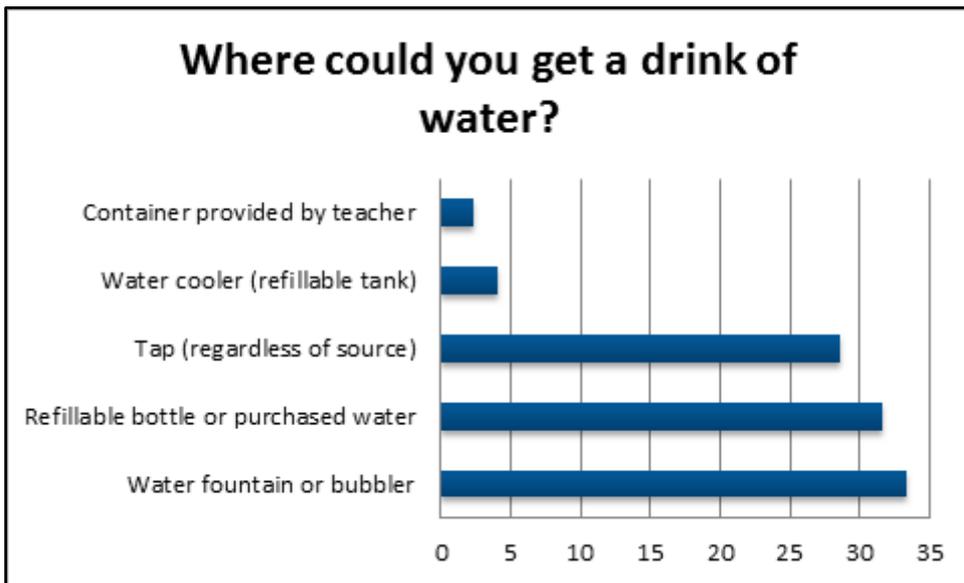


What conclusions can you draw from the graph? Are they what you might expect?

Is this type of graph the best way to present the information? Why/why not? Can you present the information in a better way?

Where could you get a drink of water?

One class suggested licking rainwater from surfaces! But most answered more conventionally.



Find the percentages from the graph. Do they add to 100? What would make it easier to read off the values?

In this question, classes could choose multiple answers (i.e. not just one source).

Approximately 16% of classes had only one source of water, 24% had two sources, 44% had three sources and the remainder (what percentage?) had more than three.

Lots and lots of bottles!

This table shows how many students had either no water bottle or one water bottle, plus the total number of water bottles in the class. We have separated the data into the different year levels. Can you see any patterns?

Level	No water bottles	One water bottle	Total number of water bottles
Early years	768	2094	2614
Lower primary	603	1664	1999
Upper primary	836	1325	1457
Junior secondary	694	1061	1542
			7612

It can be difficult to make meaningful comparisons with raw data, which is why we often use percentages.

Level	No water bottles	One water bottle	Total number of water bottles
Early years	26%	34%	34%
Lower primary	21%	27%	26%
Upper primary	29%	22%	19%
Junior secondary	24%	17%	20%

Can you see any patterns now? Are they what you would expect?

You might like to analyse the data from your State or Territory to see if the patterns are the same or different.

Out of all those water bottles, 670 were new purchased bottles, 4661 were refillable plastic and 987 were refillable metal. So about 9/10 of the bottles had been re-used.

Other materials mentioned were glass, rubber and even wood! One class had individually named plastic cups available for children to use.

Some unusual numbers

We think that some classes misinterpreted the question “What is the highest number of water bottles that anyone in your class had?”

Why did we draw that conclusion? Look in the raw data set to find the answer!

Far, far away

Question 9 asked how many metres from the classroom door was the nearest source of drinking water (excluding water bottles). Again, there was a wide variety of answers. The smallest distance given was 0 m and the largest was 2600 m. If we accept all values as legitimate then the mean distance to get a drink of water is 25.2 m.

If we exclude what looks to be an outlier (the 2.6 km), then the mean distance reduces to 15.6 m (this shows the effect of an outlier on a non-resistant measure of centre). Data should only be excluded if it is clearly an error. Should that value be excluded? Why/why not?

Capacity

We have left this question for you to analyse.

What is the most common size of water bottle? If you wanted to find the mean capacity, how would you manage the fact that the data is in groups rather than as individual values?

Water, water everywhere!

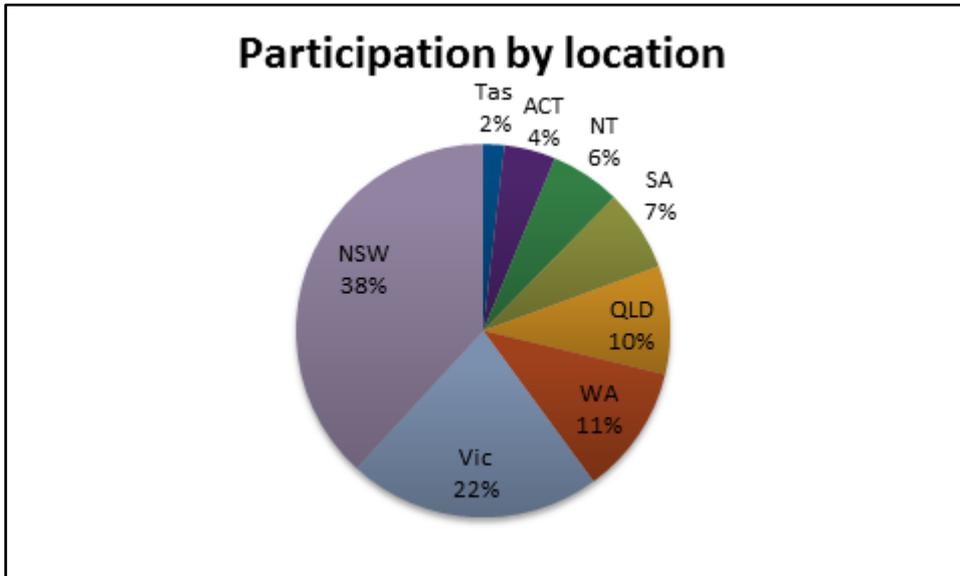
Here is a word cloud about different places where water can be found. The more times a word is mentioned, the bigger the word appears in the cloud. Clearly the most commonly mentioned word was ‘toilet’!

Can you work out the next five most commonly mentioned places to find water?

There are some very small words in the cloud as well. List a few and explain why they are so small.

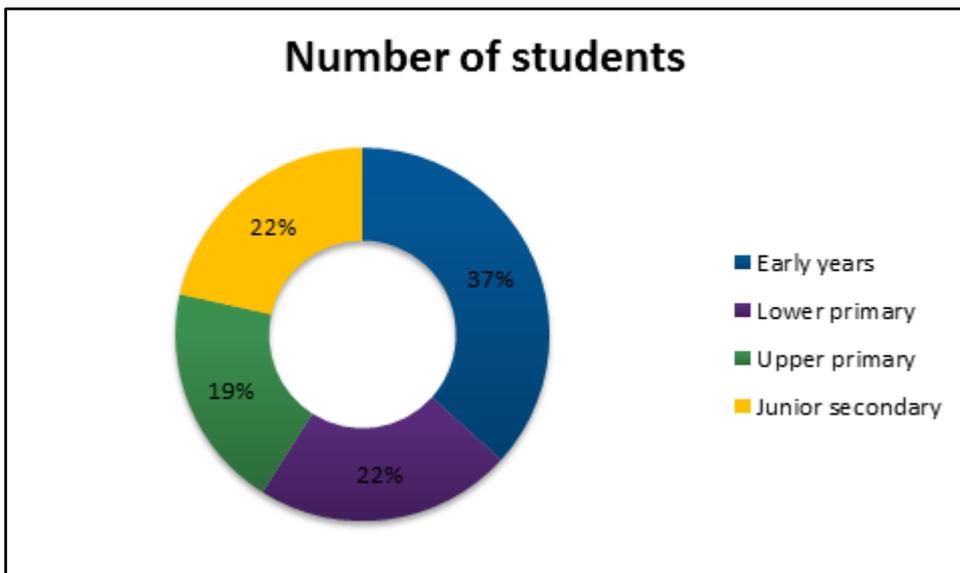
Who participated?

This graph shows the participation of the states and territories based on the number of students who contributed.



Find out the populations of each of the states and territories and put them in order from smallest to largest. Is the order the same as our location order? Are the participation rates (percentages) what you might expect given the actual populations?

Classes were categorised as Early years (Year 2 or below), Lower primary (Years 3–4), Upper primary (Years 5–6/7) and Junior secondary (Years 7/8–10).



What observations can you make?