

Water Tank Calculator

Teacher Notes

Secondary (7-10)

ACTIVITY DESCRIPTION

The Water Tank Calculator activity engages students in the calculation of roof runoff on a school building to determine a suitably sized water tank. The students develop skills in calculating area. Students are then invited to discuss the environmental benefits of harvesting water.

INSTRUCTIONS

1. Worksheet

Complete the Student Worksheet for the Water Tank Activity.

2. Discussion

1. List the positives of installing a water tank. Consider the environmental, social and economic benefits.
2. Refer to the [Average Annual Rainfall map](#) and locate Mildura and Melbourne. What impact would the location of each of these places have on their ability to harvest rainwater?
3. Once you've assessed how much rain water the school could collect in tanks, compare this to the annual water use at the school using the ResourceSmart Online reports. Find out how many KL (Kilolitres) of water the school uses, as well as the total cost of water, annually.
4. Imagine that water costs \$0.03 per litre. Calculate the amount of money your school could save per year based on the volume of water in your new water tank.

SUGGESTIONS FOR ASSESSMENT

Formative

1. Participation in the Water Tank Calculator activity
2. Completion of the Discussion questions above

BACKGROUND NOTES

Fresh water is one of our most precious resources and makes up only a small fraction of all water on the planet. While nearly 70% of the earth is covered in water, only 2.5% is fresh and only 1% of our fresh water is easily accessible for human use. Fresh water is an important resource in addressing human needs, but is also essential for a healthy environment.

Although we use it on a daily basis, very few of us give much thought to how much fresh water we actually consume. **The average Melburnian uses approximately 142 litres of water per day.** Installing rain water tanks can help us to access local freshwater without depleting our reservoirs.

ACCESS THIS ACTIVITY

Visit the **CERES School of Nature and Climate** website to download the activity - <https://sustainability.ceres.org.au/education-resources/curriculum-activities/>

Curriculum and RSS Links

KEY CONCEPTS

Water Harvesting, Water Scarcity, Water Resources

KEY LEARNING INTENTIONS

1. Students will be able to identify the average annual rainfall for their region
2. Students will be able to calculate roof runoff
3. Students will be able to suggest water harvesting solutions for their school

VICTORIAN CURRICULUM

Geography

7 - 8

Identify, analyse and explain spatial distributions and patterns and identify and explain their implications ([VCGGC100](#))

Nature of water scarcity and the role of humans in creating and overcoming it, including studies drawn from Australia and West Asia and/or North Africa ([VCGGK108](#))

Mathematics

7

Establish the formulas for areas of rectangles, triangles and parallelograms and use these in problem solving ([VCMMG258](#))

8

Choose appropriate units of measurement for area and volume and convert from one unit to another ([VCMMG286](#))

9

Identify everyday questions and issues involving at least one numerical and at least one categorical variable, and collect data directly from secondary sources ([VCMSP324](#))

SUGGESTED RESOURCESMART SCHOOLS MODULE LINKS



Undertaking the activity as described above links to the *ResourceSmart Schools Water Module - actions B1.2, B1.3*

Below is a list of extension activities that link to additional actions of the Water module:

1. Conduct a water tank calculation on a building at your own home. Present the findings to your parents and classmates (*ResourceSmart Schools Water Module - action C3.5*)
2. Conduct an audit to determine other possible water tank locations within your school (*ResourceSmart Schools Water Module - actions A1.1, A3.12, A4.6, A4.9, B1.3, B1.4, C2.1*)

SUGGESTED RESOURCESMART SCHOOLS MODULE LINKS

3. Investigate the EPA Guidelines for the use of rain water. A copy of EPA Victoria's "Rainwater use in and around the home" can be downloaded here - <https://www.epa.vic.gov.au/about-epa/publications/dse0603>. List the uses that are considered acceptable and not acceptable (*ResourceSmart Schools Water Module - actions A4.7, C2.1*)
4. Create a learning story detailing the process of your water tank calculation. Present your findings to the school and wider community in newsletters or on the school website (*ResourceSmart Schools Water Module - actions C1.1, C1.3*)
5. Apply for water related grants or for donations from your local hardware store for the donation and installation of a new water tank (*ResourceSmart Schools Water Module - action A2.3*)

Speak to your CERES ResourceSmart Schools Facilitator about further links to the Water Module.