

# Water Audit

## Step-by-step guide



### Information for teachers

This resource is a great cross curricular activity that will enhance student learning about the complex issue of water. From mathematics and science though to the humanities subject areas, students will gain a real-world understanding of water use and wastage in their school/home and be encouraged to think about access to water globally.



Mrs Chimwanda and her daughters fetching water in Zimbabwe. Photo Credit: Isabel Corthier, Caritas Internationalis



In 2016, seventeen Global Goals for Sustainable Development were adopted by world leaders at a United Nations Summit. These goals universally apply to all countries. Over the next fifteen years, efforts will be made by governments, institutions and citizens all across the globe to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that nobody is left behind.



- 3 in 10 people lack access to safely managed drinking water
- 6 in 10 people lack access to safely managed sanitation facilities.

Water scarcity, poor water quality and inadequate sanitation negatively impact food security, livelihood choices and educational opportunities for families experiencing poverty across the world. Goal 6 ensures availability and sustainable management of water and sanitation for all.

Learn more at [www.globalgoals.org](http://www.globalgoals.org)

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### Establishing base-line data

This information is collected prior to the walkthrough audit and helps students understand where water comes from and how it is billed.

#### 1. Find the water meter

The water meter is usually located near the main entrance of the school. If your school is on tank water you need to work out a way to measure the water in each tank. Some tanks have floats to show the water level.

#### 2. Identify the information shown on the meter

Learn about the units that your water meter measures and teach the students how to extract the information they need from the meter.

#### 3. Read water meter before and after school for a week

This information will help you work out if there are any leaks in the system. If your school is using water overnight and there are no night users then you can reasonably assume that there must be a leak.

#### 4. Calculate water use for each day and over the weekend

This calculation is made by simply reading the meter and subtracting the previous reading. If you have determined that there are no leaks then it is easier to calculate this amount for each day (rather than each day/night).

#### 5. Graph results

Graphing the results will help you to see any patterns and it is also a good math activity.

#### 6. Analyse results and irregularities

As the results are graphed there may be some clear patterns emerging. For example, water use may be higher on Wednesdays or on weekends. Students will be able to offer reasons (or

predictions) about any patterns in the results. For example, Wednesdays may be sport days.

#### 7. Get water bills for last 12 months

Most bills are either quarterly or half yearly. If it is difficult to get the bills it is possible to gather the same information from the school's accounts. However, you will need at least one bill to calculate the cost of the water per unit (usually kilolitres). The bills will tell you how much water the school used in the last quarter (water usage) and the cost of that water. It will also tell you the sewerage charge and the amount of water used in the previous bill and in the same period last year. All this information can be helpful in determining the amount and rate of water usage in the school.

### Walk through audit

#### 1. Approval

Obtain permission from the Principal for a walkthrough audit. It involves students being out of class and entering different spaces to do measurements.

#### 2. Safety issues

Discuss safety and appropriate behaviour with the students. Remind them to report any dangerous objects to the teacher or supervisor. Consider doing a risk assessment for the audit procedure.

#### 3. Divide class into 5 or 6 groups

Allocate groups to areas (eg. boys' toilets, girls' toilets, canteen, staff room, outside, classrooms and bubblers). Follow the steps and record the measurements on the worksheets provided.

#### 4. Appoint a team leader from each group to report back

Ask the students to report back their results. Collate all the information onto one summary page.

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### 5. Identify any obvious problems eg. dripping taps, running cisterns.

This is when problems are identified.

### Developing solutions

#### 1. Develop a plan to fix these problems

These problems often require the services of a plumber or you may need to contact your water provider.

#### 2. List all ideas from students and then prioritise

The water audit will raise awareness of water issues and encourage students to think of ways to reduce water use and waste. Students will generate many ideas about ways to save water. List all the ideas.

Some ideas will be long-term and others short-term.

#### 3. Prepare an action plan

Take some of the ideas and turn them into a list of things to do (include short-term and long-term ideas). Create a time line for these actions and give tasks to specific people. Start with simple actions and then build up to the bigger, more difficult, actions.

#### 4. Develop strategies to implement action plans

Some actions will be easy and obvious while others may be more difficult but still worthwhile. Some may require a budget that will need to be funded. This may mean that you will need to have a fundraising activity or apply for a grant.

#### 5. Have the plan endorsed by the Principal

Include the Principal or School Executive to make sure that your recommendations fit into the whole school plan. The School Executive may have some more ideas or might be in a position to allocate funds to the strategies.

#### 6. Put action plans into the School Environment Action Plan

Your school will probably have a School Environmental Management Plan. The water audit information will feed into the plan and become part of the outcomes for the plan.

#### 7. Implement the action plan

Work through your action plan. You will discover as you do this that issues arise which you had not anticipated. Use this new information to modify the plan. Keep implementing the plan even if it takes a long time.

#### 8. Link up with key dates

As you implement your action plan link in with some key dates e.g World Water Day. It may be useful to issue a press release for an activity and get some recognition for your school.

#### 9. Check the next bill and/or water meter

As you implement water saving actions check the water meter and/or bills to see if your actions are making a difference. Consider keeping a graph of daily/weekly water use to keep track of water savings.

### Celebrate any achievements!

Acknowledge and rejoice in any water savings. Every drop counts and the world is a better place due to your hard work and commitment. Publish savings in the school newsletter or at assemblies. Give awards to classes or students who are water saving champions.

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Conducting a water audit is a great way to raise awareness of water consumption, reduce your environmental footprint and save money.

**SCHOOLS** - In your water audit teams, complete the table:

Water devices	Number of devices	Number of water efficient devices	Number broken or leaking and their location	Number dripping
Toilets				
Urinals				
Bubblers				
Taps				
Zip hot water heaters				
Showers				
Others				
Group total				
Class total				

If possible, find a dripping or leaking tap and use a measuring jug and a watch/timer to work out how much water is wasted in one minute.

Use the table below to work out how much water is being wasted.

A	B	C	D	E
Water lost in one minute	Water lost in 1 hour (A $\times$ 60)	Water lost in 24 hours (B $\times$ 24)	Converted to litres (C $\div$ 1000)	Water lost in a year (D $\times$ 365)
A =      mL	B =      mL	C =      mL	D =      L	E =      L