

infosheet

REDUCE, RE-USE, RECYCLE: THE FUTURE STARTS TODAY

Durban is the
4th fastest
growing city in
the world!

More people mean more **sewage**. More industry means more sewage. To be prepared for the future, Durban Metro's Department of Wastewater Management is having to decide how to expand sewage treatment works and where to build new ones. But these developments are expensive. The big question is - who will pay for them?

Perhaps an even bigger question than the money, however treated, is the question about whether nature can cope with bigger loads of sewage being discharged into the rivers and seas. This is a very real worry nowadays, because more and more **non-biodegradable** chemicals are being found in sewage. These **pollutants** cannot be broken down at treatment works and are therefore discharged into the rivers and sea. Many of these chemicals are very harmful to people, animals and plants.

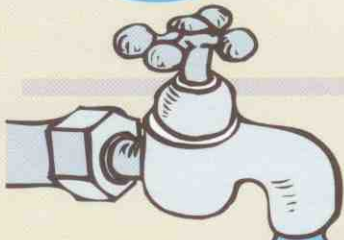
Golf-courses,
parks and farms
can make use of
recycled water.

Re-using and recycling sewage seems to be the way to go in the future. There are also many ways to reduce the amount of water that flows down the sewage drains at our homes, schools and offices. And the good news is that it saves you money too!

Water is a
limited
resource: if
everyone saves
a little we can
all save a lot.

Durban's
Southern
Treatment
Works supplies
a
paper-mill
with 8
megalitres of
recycled sewage
water everyday!





Did you know?

Coal fired power stations need water to generate electricity. Every time a 100 Watt light bulb is left on unnecessarily for 12 hours, almost 3 litres of water is wasted.

WAYS TO SAVE WATER

Treating sewage is expensive! It is important not to pour unnecessary amounts of clean water down the sewage drains. Hold a discussion with learners about ways to save water. The ideas below may be of help for facilitating the discussion. This page can be photocopied (enlarged if possible), coloured in and pinned up on the classroom noticeboard.

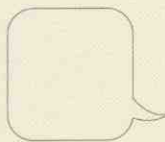
An average bath uses 91 litres and a shower 27 litres

HOW YOU CAN SAVE WATER

Use bathwater for watering the garden.



Mend any leaking taps.



Use electrical equipment responsibly.

warning

Remember that washing your hands with soap and water after using the toilet is important. Don't stop doing this to save water.

Wrap a brick in plastic and put it in your toilet cistern. This can save a litre of water every time you flush the toilet.



Turn off the tap while you brush your teeth.



Run shallow baths or have quick showers.



Only run washing machines or dishwashers when there is a full load.

Wash dishes all at once, not one at a time.



INVESTIGATING WATER USE AT SCHOOL: A WATER AUDIT

- Ask learners to guess how much water they use at school each day.
- Learners will need to estimate how much water comes out of the tap each time it is opened. This can be demonstrated by putting a large bowl in the sink and turning on the taps fully for 5 seconds. Then switch off the tap and measure the amount of water in the bowl using 1 litre cooldrink bottles or a measuring jug. Multiply the volume by 12 to give the amount of water flowing in 1 minute. Ask learners to enter the figures on their water log (see example below).
- For a period of 5 days ask learners to time how long they run the taps at school each time they use water. Each time toilets are flushed, learners should record that 10 litres of water is used. At the end of each day they should add up how much water they used in a day.
- At the end of 5 days, ask learners to work out the average amount of water they used each day. To do this they will have to add up their daily totals and divide the answer by 5.
- Learners can also work out the average volume of water used by the class by adding together their personal totals and dividing the answer by the numbers of learners in the class.

Don't throw
the water away
- use it!

Ask learners to discuss their findings. They should also be asked to compare their original 'guesstimate' with the daily average they have worked out. Learners

personal water use totals with the class average.

- Ask learners to plan ways to reduce the amount of water they use each day.

Nandi Majibiko *24/7/97.*

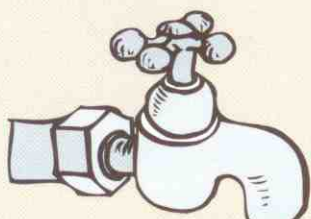
Water Log: Date:

should also compare their

Amount of water flowing from tap in 5 seconds: _____ litres

Amount of water flowing from tap in 1 minute (60 seconds): _____ litres

Time of day	Activity	Time taken	Amount of Water Used
7:30	toilet	—	10 l
7:35	washed hands	60 seconds	12 l
10:00	Drink of water	45 seconds	8 l
Total for Day _____			_____ litres/day



Did You Know?

A water quantity audit is about measuring how much water you use and where and how you use it.

Alternatively, a thorough water quantity **audit** of the school could be undertaken. This is a very exciting exercise which more and more South African schools are doing.

Remember to get the support of other staff and the principal.

A very useful booklet put out by the National Water Conservation Campaign, called *Water Audit*, provides detailed guidance about how to do a water quantity audit. It is obtainable through Umgeni Water or the Durban Environmental Education Centre (see support sheets for contact details).

The following steps can be followed:

1. Ask learners to identify all the things they do at school that use water.
2. Ask learners to identify all other activities at school that uses water eg. watering sports fields.
3. Ask learners to estimate and record how much water each activity uses.
4. Ask learners, teachers and non-teaching staff to count and record why, how often and for how long they use water in a day.
5. Ask learners to work out the total amount of water used in the school per day.
6. Repeat this exercise for a week and ask learners to work out a weekly water-use total for the school.
7. Ask learners to discuss their findings. They should also identify which activities use the most water.
8. Encourage and support learners to set up a Water Action Campaign.

A drip a second wastes 7000 litres a year.

it's a fact!

A primary school in Mitchell's Plain, Western Cape, has worked out that closing the taps of self-flushing urinals after school hours will save them R 6000 per year!





TOILET TECHNOLOGY

With the population growing and the increases in industry, managing sewage in the future is going to be a real challenge! Water pollution has to be controlled. We are probably going to have to re-think how we treat sewage and dispose of the effluent. This will be necessary if we want to keep our communities and our natural environment healthy.

More and more interesting technologies are being put forward for consideration. Some work better than others. One interesting South African innovation is the 'EnviroLoo'. Photocopy the attached newspaper article and ask learners to read it through carefully and answer the following questions. They can work individually or in small groups.

New SA-made 'EnviroLoo' has good export prospects

Reinie Booysen

CONSIDERING the number of bone-dry territories around the world, a new SA-made product must have great prospects as an export item: a toilet that uses no water, gives off no odor, uses no chemicals and provides first-class compost every few years.

It is the result of 15 years' research by retired dentist Brian la Trobe on the problem of raw sewage stabilisation, in association with the municipality of Grahamstown and the Water Research Commission.

La Trobe sees his 'dry compost sanitation system', called the "EnviroLoo", as the perfect solution for the water and sewage problems in dry regions. He said it was gaining acceptability in SA, and his company, Enviro Options, was drawing foreign interest.

Orders were coming in from Botswana, Angola, Ghana and Mozambique and pilot projects were under way in Brazil, Mauritius and the US states of Texas and Arizona. Officials from Israel and China have also been to SA to see the system, said LA Trobe. So far almost 600 units have been installed in SA.

Business Day 13 January 1997

1. Remembering what you know about South Africa's rainfall, why do you think the 'EnviroLoo' could be of great benefit to our country?
2. *Composting toilets* such as the 'EnviroLoo' are claimed to be economical, hygienic and environmentally friendly. Other existing non-flush toilet alternatives in South Africa today include *chemical toilets*, *pit latrines* or *buckets*.
Do a comparative study of these 4 toilets. Find out how each operate, the cost of developing them, the cost of maintaining them, and how they are kept free of germs and other unpleasant smells. Also include any other interesting advantages and disadvantages of each. Most importantly, be sure to investigate their impact on nearby soils and water. You can ask your local Council, or Durban Metro's Department of Wastewater Management to help you access relevant information.
3. Explain the term 'pilot project'. It may be useful to use a dictionary.
4. Do you know of any other interesting ideas to do with sewage treatment in the future? Share these with the class.





CELEBRATING WATER DAY, WATER WEEK AND RIVER DAY

The United Nations General Assembly has chosen 22 March each year as World Water Day. South Africa's Department of Water Affairs and Forestry has chosen the week in which this day falls as National Water Week for our country. The last day of the week is River Day. Each year the department chooses a specific theme for Water Week, and they also produce free posters and other resource materials. To find out what the theme is and to ask for their resource materials write to



*The Department of Water Affairs and Forestry
Communications Division
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Pretoria
0001
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Water Week, Water Day and River Day are good opportunities for focusing attention on sewage in your school. This is the time when the whole school can take part in sewage-related activities. Use Water Week to launch an ongoing project related to responsible sewage disposal.