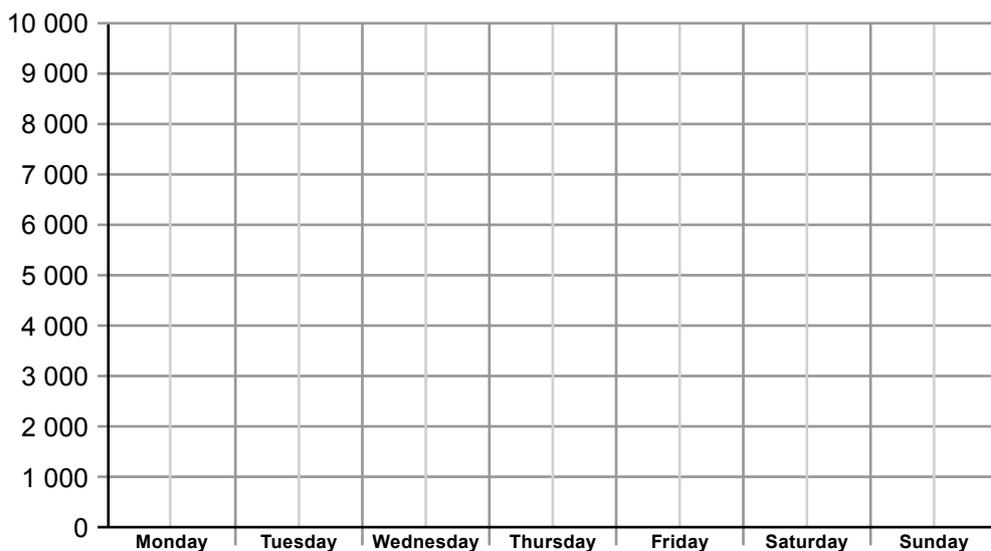




The Water in the School software automatically draws bar graphs for you, based on the water meter readings you input. Although the computer can do this for you instantly, drawing bar graphs is still a skill which everyone needs to master.

Day of the week	Water used in litres
Monday	8 750
Tuesday	7 500
Wednesday	7 900
Thursday	8 250
Friday	9 500
Saturday	500
Sunday	250

1 Draw a bar graph for this table.



2 For this graph you will have to work out how much water was used each day to fill in the final column before you can draw the graph.

Day of the week	Reading before	Reading after	Water used in litres
Monday	24600	32600	
Tuesday	32600	40100	
Wednesday	40100	49000	
Thursday	49000	56750	
Friday	56750	66750	
Saturday	66750	67250	
Sunday	67250	67550	

You will have to draw the graph yourself this time. Just like the first graph you drew.

- the days of the week will go along the bottom of the graph.
- the amount of water used will go up the graph.



Use your 'How much water?' information sheet to answer the following questions:

- 1 What would you say to a person who was thinking about having a powershower fitted? (Don't forget about all that hot water too!)
- 2 How much water does a 'hippo' save every time the toilet is flushed?
- 3 How much water is wasted if you don't turn the tap on and off when you clean your teeth?
- 4 Why is it better to put the plug in if you are going to wash your hands and face thoroughly?
- 5 There is a tap in the toilets that never stops dripping. It would take ten minutes and a 20p tap washer to fix. What would you say to the caretaker to make him/her hurry up and fix it?

#### CALCULATOR CHALLENGE!

- 6 Every time a urinal flushes in the boys toilet, a bucket full of water goes down the drain (9 litres). This happens every 20 minutes if there are no controls, night and day, 365 days a year...

Work out how much water is used in:

a) 1 hour b) 1 day c) 1 week d) 1 year

- 7 Water costs about £1.50 for 1000 litres.  
How much does it cost to operate that urinal every year?
- 8 Controls are fitted to the urinal so that it only flushes for 8 hours a day, five days a week, on the 195 days per year when the school is open.

a) How much water does this urinal use in a year now?

On the other 170 days (weekends and holidays), the urinal flushes once a day to keep it fresh.

b) How much water does this hygienic flush use per year?

c) Now add the two costs together to give the total cost.

- 9 The controller costs £120. How long would it take to pay for itself?
- 10 Find out how many pupils there are in your school.
  - a) About how much water should your school be using in a year?
  - b) Can you find out what the real figure is?





You have now done your survey of the school and know **WHERE** water is used.

You know **HOW MANY** water-using items there are in each place.

You also know **HOW** the school could save water, by **CHANGING WHAT PEOPLE DO**, or by **CHANGING THE WATER-USING ITEMS** themselves.

You know **WHAT** the water-using items are.

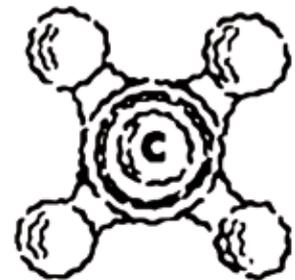
You have been taking water meter readings to see **HOW MUCH** water is used at the moment.

What you need to do now is to put everything together and make a cunning plan!

**Try to give an answer to each question.**

The answers will form the basis of a report you will write. The Headteacher will read it, so make it good...

- 1 How many cold taps are there in the school?
- 2 How many hot taps are there in the school?
- 3 How many urinals are there in the school?
- 4 How many showers are there in the school?
- 5 What other water-using items are there in your school?
- 6 How much water does the school use in a typical day?
- 7 How much water does the school use in a typical week?
- 8 Working on a typical school year of 39 weeks, about how much water will be used if nothing is done to save water?



- 💧 Write a summary of the School's water use at the moment - the current situation. Say where you think water is being wasted.
- 💧 Now make a list of what needs to be done. Try to give costs, if there are any, for each of your ideas.

Make it clear that you will be taking water meter readings and using the 'Water School' software to analyse the data and see just how much water and money the school is saving.

- 💧 Hand over your ideas to the Headteacher for comments!



A lot of people think you're talking about how loud the music is when you talk about volume... True, volume can mean this, but when it comes to water, volume has another meaning.

Volume is simply how much space something takes up, or how much 'empty' space it has inside. As a group, find a selection of containers such as a measuring jug, a bucket, some empty plastic pop bottles, jam jars, cups, mugs etc.

You need water for this investigation, but you are not going to waste it! Before you start, think what you are going to do with the water at the end. Water some plants? Wash something? What ever you do, don't just pour it down the plug hole!

#### Just how much is a litre?

- Find a 1.5 or 2 litre pop bottle.
- Take a measuring jug and fill it exactly to the 1 litre mark.
- Transfer the water to the plastic pop bottle. Use a permanent marker to put a line all the way around the bottle to show 1 litre.
- Take this a step further by estimating and marking where  $\frac{1}{2}$  litre (0.5l / 500ml) would be. Now estimate and mark  $\frac{1}{4}$  litre (0.25l / 250 ml) and  $\frac{3}{4}$  litre (0.75l / 750ml).
- Pour the water into another container.



Ask your teacher, or other adult, to cut into the bottle with a sharp blade about 5 cm above the 1 litre line. Once they have done the dangerous bit you will be able to use scissors to cut around the bottle safely.

- Estimate and then measure the volume of each of your containers using your cut-off measuring bottle.

Look at your selection of smaller containers. Set challenges for others in your group such as: 'Use any two different-sized containers to get as close to 1 litre as possible.' Or: 'How many egg cups would have the same volume as one jam jar?'

- Record your findings.

Use your cut-off bottle to find the volume of a bucket. Now you have a good idea of what one litre (1l) and approximately ten litres (10l) 'look' like. You should also have a bucket of water - use it wisely!





As you know it is really important that young people drink plenty of water every day.

Your task is to design a poster which can be displayed in your school which encourages people to drink more water.

#### Things to think about

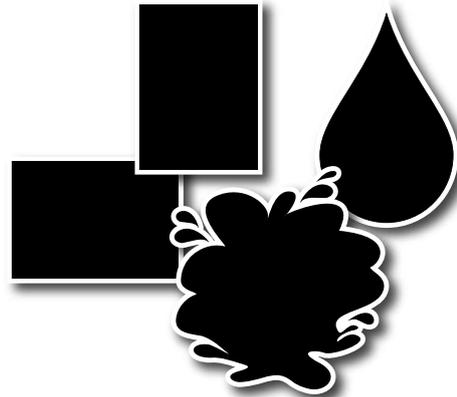
To get your message across you need to think about:

- Paper shape

*Portrait or landscape?*

*Water droplet shape?*

*Splash shape?*



- A large colourful, eye-catching picture / image which will draw people's attention to your poster.

*You could draw it yourself or maybe cut some pictures out from a magazine and stick them onto the page*

- A catchy phrase or sentence which people will remember.

*This should be in large letters next to or across the image.*

*Use an interesting font (letter shapes) and colours.*

*How about a short poem or limerick?*

- Give the reader more details about things such as:

*why we all need to drink plenty of water*

*where the nearest drinking water dispenser is located*

*how you'll feel if you are dehydrated*

#### Remember:

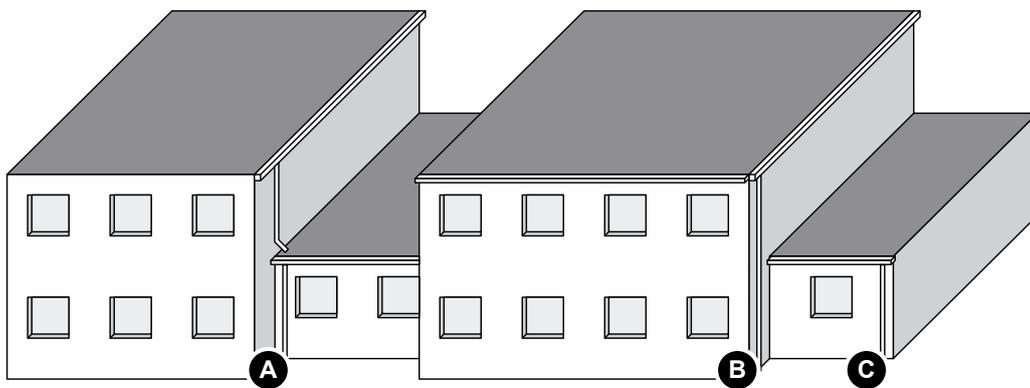
**You don't have to try to tell them everything in one poster – one message is often enough!**



Your school has been given a water diverter and a 200 litre waterbutt so that you can harvest rainwater. The site supervisor (Caretaker) has kindly offered to fit it for you.

But where should you locate it?

Have a look at this picture and decide where the best place would be to put the water butt.



#### Things to think about:

- 💧 How much rain will it receive?
- 💧 Is it close to where it is needed?
- 💧 Will it get in people's way?



#### How clever are you?

There has been no rain for several weeks and the school wildlife pond is half empty.

There is going to be heavy rain tonight and about 200 litres will come down the pipe from the collecting roof of the building.

The trouble is that tonight's rain won't make much impression on the water level in the pond – it needs 100 litres to top it up.

The water butt is half full of rainwater and has a special tap at its base onto which you can fit a hosepipe.

Can you think of a way of ending up with a full pond and a full water butt?



*Keep topped up!*

**Navigate to the Water School library** and see if you can find the information to help you to fill in the missing words in these sentences about drinking plenty of water. Try the blue book!

What substance makes up most of a person's body weight? \_\_\_\_\_ .

If you don't replace lost water by drinking you will become \_\_\_\_\_ .

If you are dehydrated you will have trouble \_\_\_\_\_ in class.

You will feel \_\_\_\_\_ if you don't \_\_\_\_\_ enough tap water.

A sign that you may be lacking in water is that you get a \_\_\_\_\_ .

We get some of the water we need from food especially juicy foods like \_\_\_\_\_ .

**Now write the words you found in these boxes:**

Seven empty rounded rectangular boxes for writing words, arranged in two rows: four in the top row and three in the bottom row.

Put the words in the correct order in the sentence that follows to complete this story.

It was a hot, dry day on the Water School Island.

Roma was feeling \_\_\_\_\_ because she hadn't had a \_\_\_\_\_ with her dinner or eaten any juicy fruit such as \_\_\_\_\_ .

Roma was having difficulty \_\_\_\_\_ on what her teacher was saying.

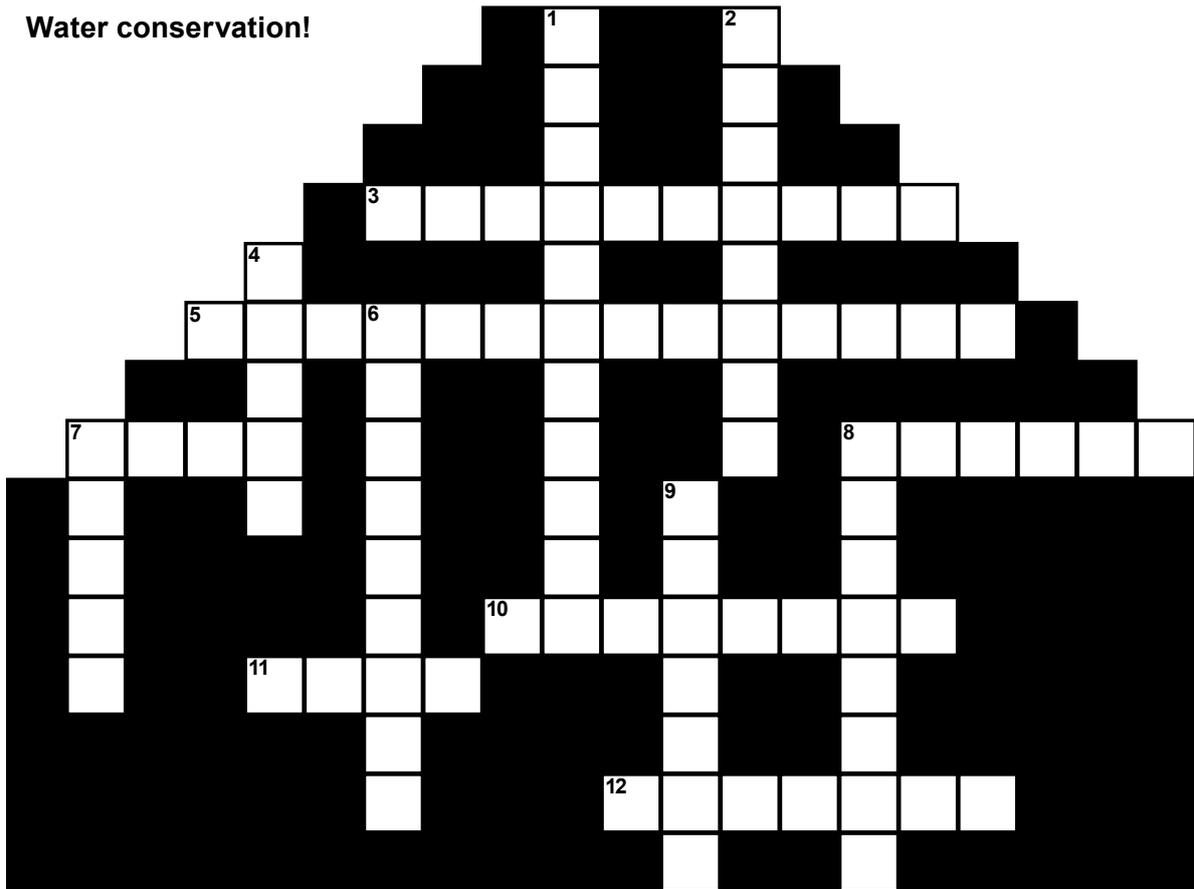
Her head was starting to throb. She had a \_\_\_\_\_ .

'I'm sorry Miss', said Roma, 'I think I must be \_\_\_\_\_' 'May I go and get a drink of \_\_\_\_\_ please?'



Navigate to the Water School library where you will find most of the answers to this crossword in the red book!

#### Water conservation!



#### Across

#### Down

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>3. Records the amount of water supplied</li> <li>5. A device to slow the flow of water in a pipe</li> <li>7. If they drip they can use over 5000 litres a year!</li> <li>8. You wash your whole body here - use it quickly!</li> <li>10. A tap which turns itself off</li> <li>11. Stops the water escaping from the basin</li> <li>12. They can use 9 litres every 20 minutes!</li> </ol> | <ol style="list-style-type: none"> <li>1. A shower with an electric motor which can use 17 litres per minute</li> <li>2. Can use up to 1000 litres of water an hour in the garden</li> <li>4. When the water rinses out a toilet</li> <li>6. Used to store rain water in the garden</li> <li>7. Used to automatically flush urinals</li> <li>8. A special type of tap which gives fine jets of water</li> <li>9. The water tank for a toilet</li> </ol> |
|---|---|

- Cistern • Flow restrictor • Flush • Hose pipe • Plug • Power shower • Press tap • Shower • Spray tap • Taps • Timer • Urinals • Water butt • Water meter •

