

Bundaberg Regional Council Water Education



Year 7 Fun Activity Book

Find the Words

In the Puzzle

Alum
Annual rainfall
Aquifer
Catchment
Chlorine
Clouds
Condensation
Cover
Dam
Desert

Dig
Drink
Evaporation
Filters
Ground water
Hose
Infiltration
Lake
Liquid
Ocean

Pipeline
Plant
Precipitation
Rain
Resources
River
Run off
Seepage
Snow
Soil

Sun
Stopcock
Surface
water
Tap
Transpirat
ion
Treatment
plant
Vapour
Water

T	R	A	N	S	P	I	R	A	T	I	O	N	M	A	P	S	P
R	E	L	L	A	F	N	I	A	R	L	A	U	N	N	A	R	L
I	C	A	P	E	N	I	L	E	P	I	P	W	Q	V	E	E	A
P	O	N	G	V	V	A	P	E	R	N	F	S	M	C	I	A	N
S	N	I	R	A	W	A	T	E	R	F	L	E	I	D	A	T	T
U	D	E	O	P	I	A	P	S	O	I	L	P	A	R	H	N	N
R	E	F	U	O	C	Z	P	O	L	L	I	Q	U	I	D	E	A
F	N	I	A	R	H	O	U	R	U	T	R	A	I	N	A	M	L
A	S	L	Q	A	L	E	V	E	A	R	I	E	K	K	M	H	P
C	A	T	U	T	O	A	K	T	R	A	I	N	V	A	L	C	T
E	T	E	I	I	R	Z	I	A	T	T	A	P	M	I	R	T	N
W	I	R	F	O	I	O	L	W	L	I	T	H	O	W	R	A	E
A	O	S	E	N	N	R	A	D	I	O	L	O	Z	E	Q	C	M
T	N	N	R	A	E	M	A	N	I	N	C	S	S	E	S	S	T
E	N	O	A	V	O	U	U	U	M	S	E	E	P	A	G	E	A
R	O	W	O	M	A	S	I	O	E	Q	D	S	A	L	U	M	E
S	E	C	R	U	O	S	E	R	U	N	O	F	F	N	I	N	R
P	U	C	L	O	U	D	S	G	K	C	O	C	P	O	T	S	T

The Water Cycle

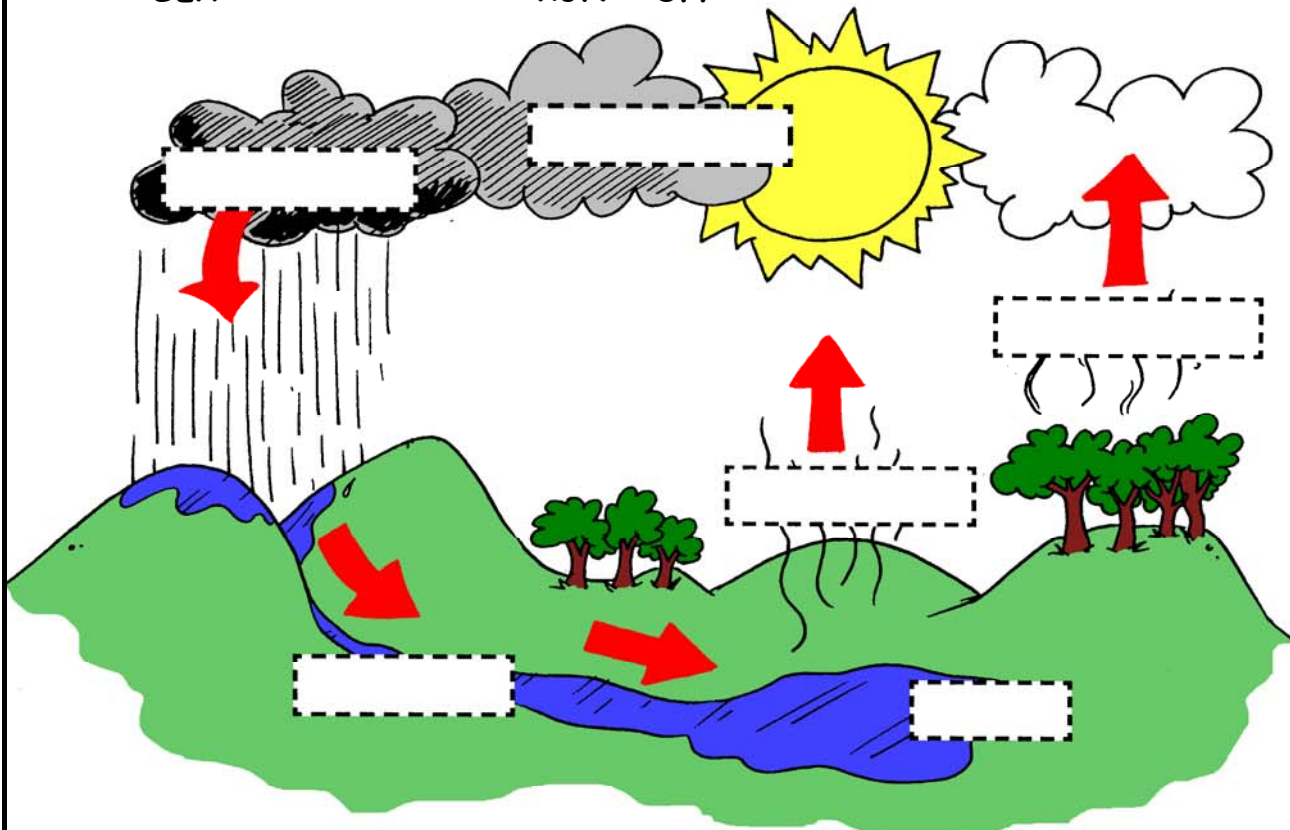
Finish the sentences by choosing the correct word.

1. Water falls from the sky as _____
2. Some rain water flows into creeks and rivers and then down to the _____
3. Some rain water seeps into the _____
4. When water falls as rain, hail or snow the process is called _____
5. Water rises up into the sky in a process called _____
6. Plants also release water into the air through their leaves _____
7. In some parts of the world people interrupt the natural water cycle by building _____

PRECIPITATION
LEAVES
DAMS
SEA

CATCHMENT
GROUND
TRANSPIRATION
RUN - OFF

EVAPORATION
CONDENSATION
RAIN



Label this illustration with the correct words to show the processes of the water cycle.

How Much Water Do You Use

Water Usage Chart

Study your water habits using this chart and caculate water being used.

Activity	Average Amount Used	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Weekly Total
Cleaning Teeth	5 litres on average								
Inefficent Shower	20 litres / minute								
Efficent shower	9 litres / minute								
Bath	Half full - 100 litres								
	Full - 200 litres								
Toilet	Full flush - 12 litres								
Dual flush toilet	Half flush - 3 litres								
	Full flush - 6 litres								
Washing hands	4 litres								
Inefficient dishwasher	50 litres / cycle								
Efficent diswasher	20 litres / cycle								
Hand washing dishes	18 litres								
Washing machine (top loader)	200 litres / cycle (average)								
Hand-held hose	10 - 20 litres / minute								
Sprinkler	1000 litres / hour								

Grand Total

Saving Water

There are lots of ways around the home in which we can use less water. Think of some ways to save water around the home and draw some pictures.

Sweeping the path instead of hosing.



Water Leak Check Procedure Sheet

This is an activity which students can carry out at home and school.

It involves a quick and easy check for leaking pipes and appliances. Some parental or teacher assistance may be required.

This exercise increases the awareness of where water can be wasted in the home or at school through leaks.

TAPS: Check if taps can be turned off properly. If you turn it off tight and it is still dripping, the tap needs attention. See how much water is being wasted in a minute by putting in a plug or by using a bucket. (After a minute, measure how much water has been collected.)









TOILET: Place a few drops of food dye in the cistern. If there is colouring in the bowl before the toilet is flushed, the cistern is leaking.

PIPES:

- ◆ Turn off the taps
- ◆ Find the water meter
- ◆ Read the numbers on the water meter
- ◆ For the next hour, no water should be used in the house or garden
- ◆ Check the water meter again
- ◆ Write the numbers down
- ◆ If the numbers have changed, water is being lost through a leaking pipe

Water Leak Worksheet

	NOT LEAKING	LEAKING NEEDS ATTENTION
Kitchen Taps 		
Laundry Taps 		
Bathroom Taps 		
Shower 		
Toilet Cistern 		
Garden Taps 		

Mystery Picture And Graph

1. Plot the points on the graph, using the ordered pairs.
2. Connect the points as you go until STOP (lift your pencil to start the next group of co-ordinate points).
3. BONUS! When the picture is finished, colour it in and write a slogan about what being water wise means to you.

- F,17
- E,16
- D,17
- D,18
- E,19
- F,18
- G,18
- H,19
- I,18
- I,17
- H,16
- G,17
- F,17

STOP

- F,17
- F,14
- E,13
- D,13
- B,11
- B,8
- D,8
- D,10
- E,10
- F,9
- G,9
- H,10
- I,10
- I,13
- H,13
- G,14
- G,17

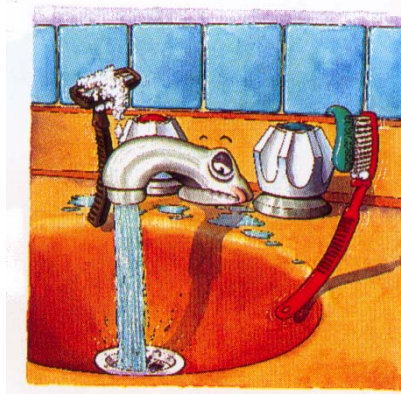
STOP

- I,10
- J,10
- J,0
- L,0
- L,12
- K,14
- J,14
- I,13

STOP

- D,7
- B,5
- B,4
- C,3
- D,4
- D,5
- D,7

STOP



Please use graph on
the following page

20	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	20
19																19
18																18
17																17
16																16
15																15
14																14
13																13
12																12
11																11
10																10
9																9
8																8
7																7
6																6
5																5
4																4
3																3
2																2
1																1
0	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	0

SLOGAN



Do We Take Our Water For Granted

Water is precious... Don't waste it.

Imagine if there was no water flowing from your taps at school and at home. List all the activities which you could not do.



Why do you think it is important to protect and conserve water?



List some ways which you can use less water around the home and school.



Discovering Water Meters

Your local Government knows how much water a customer has used by reading the customer's water meter. Water meters can be found outside houses, shops, factories, schools, in fact wherever water is supplied. Your water meter is read by a Water Meter Reader every 6 months. You can help your meter reader by considering the following points.

- Keep your meter clear of plants, sand and lawn as the meter is buried in a meter box along the front boundary of your property.
- If you have a dog that might bite and isn't restrained inform your local council in advance of the reading period for alternative arrangements.
- If building a fence along your front boundary, inform your local council if this fence conceals the water meter.

READING A WATER METER

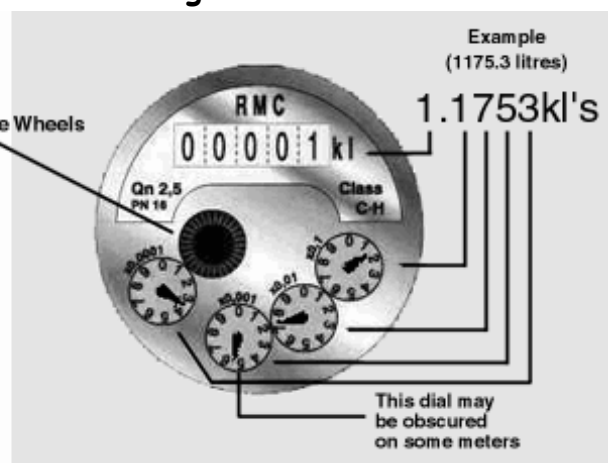
It is a good idea to keep a check on your water consumption. There are several types of meters but the most common used are digital and/or dial meters.

Reading a digital meter is read from left to right. Black number (darker) show kilolitres and red numbers (pale) show litres.

Digital Meter



Digital/Dial Meter



Reading a digital/dial meter provides a reading for kilolitres in a digital format. To get a reading in litres you will need to read the dials from right to left.

The Water Meter Reader when reading the meter reads only the black numbers for billing purposes. The red numbers are only considered for self testing the water meter.

READING YOUR WATER METER

A water meter is used to measure the amount of water that each property uses. It is generally located close to the front of your property boundary buried in a concrete box or green plastic box.

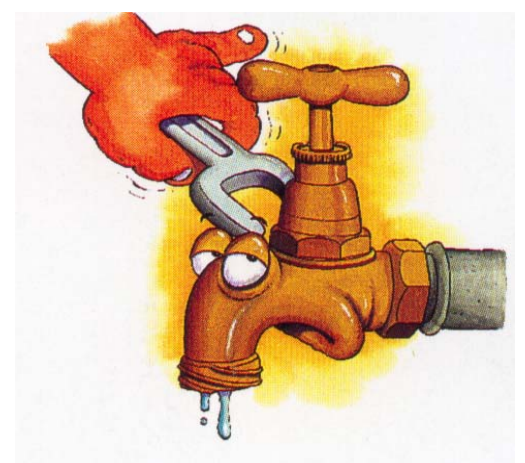
Important safety note, the meter covers and boxes are a haven for spiders, snakes and other insects. Do not allow children to remove the meter box lid without adequate supervision or instruction. To lift the meter box lid either use a screwdriver or long sturdy stick. Do not under any circumstances use your hands.

As an exercise read your water meter at the same time everyday for a week to ascertain how much water your family is using on a daily or weekly basis.

	Reading (black numbers only)	Total consumption
Monday		----
Tuesday		
Wednesday		
Thursday		
Friday		
Saturday		
Sunday		

Weekly Total _____

It is also useful to know where your water meter is located because a stop tap, which controls the flow of water to your house, is normally located in the same box. In an emergency, such as a burst pipe, or when replacing a leaking tap, you can use this stop tap to turn off the water supply to your house.



10 Ways to Save Water And Money in Your Garden

Approximately 50% of domestic water is used outside the house. By following these principles of water saving it is possible to cut garden use by as much as half while still maintaining a green, pleasant and rewarding garden.

BE PREPARED

A good plan can save a lot of water in the garden. Grouping plants of similar needs together in specific areas allow for efficient watering, setting windbreaks to protect delicate species reduces their water needs, and particular micro-climates in different parts of the garden can be planted to best advantage.

IMPROVING THE SOIL

Sandy soils have a low organic matter level which means water or nutrients pass rapidly through. Improving the organic matter content by the addition of animal manures, compost, peat etc. makes a dramatic difference. It improves plant growth while allowing you to use appreciably less fertilisers and water and promotes healthier growth. Various commercial soil additives such as soil wetting agents and water storing polymers will also improve water penetration and retention.



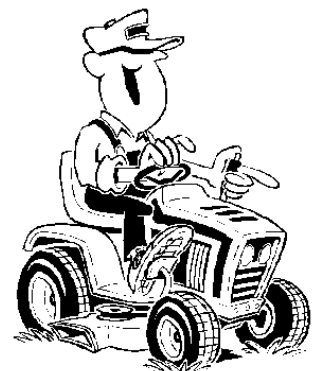
GROWING THE

RIGHT PLANTS

When choosing plants for your garden it is important to consider not only size, shape, function and appearance, but also how they fit into the overall environment and what resources and care will be needed to maintain their performance. Not all plants are the same. Many plants, particularly our own native plants, grow and flourish on very little supplementary water. Your local nursery or garden centre can offer valuable advice on all types of plants and their growing habits.

GRASS IS GREAT - HOWEVER...

Lawns require more water than other areas of the garden and therefore offer the most scope for saving water. Lawn areas should be designed and sited to be practical and should never be used as "fill in" material.



Hardy ground covers are just one of the alternatives that may be used in a difficult area. While lawn does provide many practical benefits in a garden landscape, careful consideration of

what type and where it is used, along with good management can result in significant reductions in water use. Different varieties of lawn grass have differing water demands. A variety of couch are the most drought resistant. These include Santa Ana, Windsor Green, Greenless Park and Winter Green. Other warm season grasses such as Buffalo, Kikuya and Saltene have an intermediate water use rate and a good drought resistance. Cool climate grasses such a Rye Grass, Kentucky Blue and Bent Grass have high water use rates and a fair to poor drought resistance. Your local turf supplier can offer valuable advice on grass selection, establishment and maintenance.

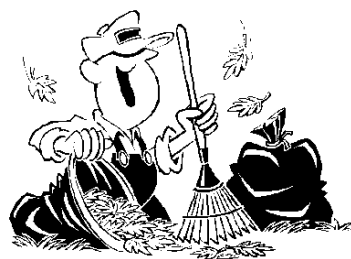
WATER IT WISELY...

The ideal watering system is one which will deliver directly to the plants and then only as much water as the plants need. Appreciable amounts of water can be saved through an efficient, well designed irrigation system which is capable of adjustment for seasonal changes. Your local irrigation professional can offer valuable advice.



MUCLH MUCH MORE

A good mulch, at least 75mm thick, reduces evaporation from the soil surface by as much as 70% as well as discouraging weed growth, preventing erosion and evening out soil temperature variations. Every part of



the garden can be mulched but ensure that the mulch is kept clear of the trunk or

the stem of any plant to avoid possible fungal problems. Mulches may be plant origin like peat, karri or woodchips or inorganic like gravel and blue metal.

All can be used to great effect as a landscape feature.

EARLY MORNING WATERING

Garden watering is best done in the early hours of the morning when wind and evaporation are at their lowest. The hours just after sunrise are best as there is minimum time for water to sit on plants promoting fungus and other diseases.

Never water in the heat of the day. It wastes water and can lead to plant damage from burning.

HOSE AND SPRINKLER USERS

Gardeners using hoses and sprinklers can be as efficient with water as those who have automatic irrigation systems by planning their watering and sticking to a set pattern.

Organise your watering so you apply 10mm each time you turn on your sprinkler. In the hottest months of December, January and February, this will be needed only every second day. To find out the application rate of your sprinkler, measure how long it takes to fill an ice cream container to 10mm or ask your nearest irrigation specialist.

Use a tap time so you can't over water, even if you forget to turn off the hose. Make sure your hose, sprinkler and fittings are in good condition. Use a part circle spray close to buildings and roads to avoid over spray onto paving.

EXISTING AUTOMATIC SYSTEM USERS...

If you already have an automatic system, there are many ways you can save water and maintain a healthy garden. Check the system for nozzle blockages or to see if foliage is interrupting spray patterns. Replace the nozzles if they are worn.

If you notice a dry patch put in an extra sprinkler and don't over water the rest of the section to compensate. Check the operating pressure. The pressure can change over the years and your system may need changes to cope with a lower, or even higher pressure to remain efficient. As with hoses,



schedule your system to put on 10mm depth of water each time you turn it on as only the frequency needs changing.

BUY A NEW AUTO SYSTEM

An automatic irrigation system can be a way of increasing your leisure, efficiently watering your garden and saving water. Make sure of a few things before you start to ensure trouble free system operations and years of water savings...

- ◆ Ensure the person designing the system is an Irrigation Association of Australia (IAA) member. This voluntary industry association, can usually help should any conflict arise.
- ◆ Look carefully at the plan. It should have separate sections for lawns and gardens. The sprinklers should throw water away from the road, driveway, house, paving etc.
- ◆ Look at a written quote and buy a multi-program controller, which separates lawns and gardens.
- ◆ Fit a master valve, and ensure the plumbing connection is done by a qualified plumber.
- ◆ Find out the application rate of the different sprinklers used in the system so that you can schedule your controller.
- ◆ Question the selection of sprinklers - are they suited to your application?
- ◆ Use micro irrigation in greenhouses and drippers on native plants.
- ◆ If you are in a windy location, use a large droplet setting on your sprinkler to minimise wind drift.

Crossword Puzzle

Water conservation and education is becoming a major issue for our community. From the clues provided see if your can complete the following crossword.

Across

1. Waste water is treated
5. Liquid is measured in
7. We have less than 3% of
9. Responsible water users
10. Contaminated water is called
13. Structure holding large mass of water
14. Seen in the sky
15. Water feels
16. Looks after plants
17. Where people reside
18. Frozen liquid
20. Ocean tastes
21. Australian plant
22. Winter rain
24. Best irrigation system
31. To wash cloths in
32. A natural drink that has 78% water
33. Flowing water
34. To wash dishes
36. Plants are grown in a
37. Tasteless liquid
39. Too much water causes
40. Wash hands in
42. Prevents evaporation in gardens
45. Recess in the river
48. Broken tap is a
49. Appears a fog, mists or clouds
51. Transporting water underground
55. Treated sewage
57. Remove lather
58. Can be collected underground
59. Where there is little water
60. River running through Bundaberg

Down

2. Holds outside domestic water
3. Trees losing moisture
4. Heats water
6. Should water plants near
8. Clear pathways
11. Dual flush device
12. Can be found in waterways
19. Water rising
23. Returning to liquid form
24. Process to treat salt water
25. Watering system for gardens
26. Stores town water supply
27. Assists the sprinkler
28. Holds 9 litres
30. Recommended time to water
35. Falling from the sky
37. Earths water process
38. Turns water off
41. Holds 70% water
43. Used to treat water
44. Sport activity done in the water
46. Largest water mass
47. Part of a dam
50. Floating fresh water
52. Reads water consumption
53. In the garden
54. Instead of a bath
56. Incoming water

Keeping Our Waterways and Rivers Clean

As rain falls on the land, on roofs, roads and waterproof surfaces, it collects many things on its way to the stormwater drains. Rubbish, contaminants and other pollutions are picked up, carried into the stormwater pipes and are then discharged untreated into our local waterways. In some areas Council's have installed large traps to catch the rubbish in the waterway before it enters the rivers or oceans.

List the things that you could find in our local water ways.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Briefly explain what sort of problems will generate if our waterways and oceans aren't kept clean. _____

