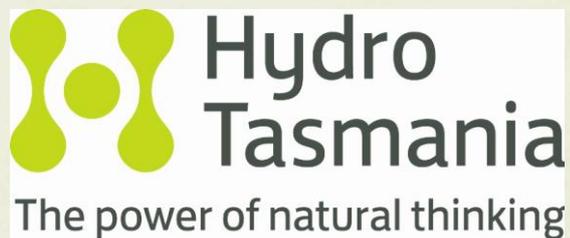




green hub
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Water for Life – Catchment Care Resource Pack - Year 2

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Water for Life – Catchment Care

Resource Pack - Year 2



What is Water for Life?

Water for Life is a call to teachers and students to discover and investigate their local waterway with the aim to inspire Catchment carers now and for the future. It is a supported class inquiry for grade 2 and grade 7 which is done over 6 to 8 weeks. Classroom teaching and learning is supported by three hands-on sessions run by Greening Australia staff. Classes are invited up to the new Sustainability Learning Centre in Mt Nelson near Hobart, as well as Greening Australia staff visiting the school. The outcomes support the National Australian Curriculum and are outlined in detail further in the document.

Explore. Inspire. Change.

Taking part in Greening Australia's education program will have you **exploring** your natural environment, allowing you to be **inspired** by the beauty and complexity of the natural world at your feet. To spark you to **change** behaviour, ultimately taking action and making more positive choices for the natural world and the humans on it.

How to use this Resource Pack

This pack is a collection of lessons, ideas and thinking stems to aid in classroom planning when undertaking the Water for Life inquiry. Please read through at the start of planning. Further suggestions and links are located at the back of the pack.

Enquiries

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Acknowledgments

This pack is a selection of activities and resources by Greening Australia Tasmania and other sources. Other sources are noted where used.

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Water for Life Greening Australia conducted sessions:

Sessions are 90 minutes in length and are conducted outside as a first choice. A detailed plan can be provided on request.

1. What is a Catchment?

- > **Location:** the school grounds on an undulating area, and in the classroom.
- > School provides: 10-30 clean 2lt milk containers, scissors to share.
- > **Outcomes:**
 - Understanding water is one of earth's resources.
 - Awareness of the water cycle and understanding the role it plays on earth.
 - Understanding how a catchment works and how water flows.
 - Introduction to your catchment boundaries.

2. Introducing the Water Users

- > **Location:** the Sustainability Learning Centre, Mt Nelson, near Hobart
- > School provides: transport to Mt Nelson*
- > **Outcomes:**
 - Understanding water is a resource shared by many.
 - Awareness of the different ways we use water in our everyday life.
 - Understanding how water flows and what travels with it.
 - Understanding the role of pollution on river health.

3. Water Alive

- > **Location:** a local waterway, a good size, moderately healthy, river or creek
- > School provides: bus transport to waterway if needed.
- > **Outcomes:**
 - Understanding the diversity of animal life found in and around a waterway.
 - Awareness of the role water bugs play in the ecosystem.
 - Understanding how to categorise water bugs and the features of insects.
 - Awareness of how water bugs can indicate river health.

* Where a school can not travel to Mt Nelson, a choice of 2 sessions will be delivered by Greening Australia. A detailed plan will be provided as a framework to deliver the third by school staff.

Supports the Australian National Curriculum:

Year 2 Science:

- > Earth's resources including water are used in a variety of ways. (ACSSU032)
- > Respond to and pose questions, and make predictions about familiar objects and events. (ACSIS037)
- > Science involves asking questions about, and describing changes in, objects and events. (ACSHE034)
- > People use science in their daily lives, including when caring for their environment and living things. (ACSHE035)
- > Participate in different types of guided investigations to explore and answer questions, such as manipulating materials, testing ideas and accessing information sources. (ACSIS038)
- > Compare observations with those of others. (ACSIS041)
- > Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play. (ACSIS042)

Year 2 Geography:

- > The definition of places as parts of the Earth's surface that have been given meaning by people, and how places can be defined at a variety of scales. (ACHGK010)
- > Draw conclusions based on the interpretation of geographical information sorted into categories. (ACHGS016)
- > Present findings in a range of communication forms, for example, written, oral, digital and visual, and describe the direction and location of places, using terms such as north, south, opposite, near, far. (ACHGS017)
- > Pose geographical questions about familiar and unfamiliar places. (ACHGS013)

First Water Investigations

Setting up

In this activity, it is suggested that groups of students can sit around a table with a bowl of water. This will need some setting up and anything that might be damaged by getting wet will need to be packed somewhere else. As an alternative, students could sit on the grass or other location around bowls of water.

Activity

Explore one water property at a time. Get feedback from students. Compare responses.

- > What does water feel like?
- > What does water look like?
- > What does water smell like?
- > What does water taste like?
- > Can you think of any noises that water makes?
- > How does water move?
- > What happens when water is touched?
- > Why is water still in the bowl?
- > How could water get out of the bowl?
- > What would happen if we left the bowl of water out? Where has the water gone when something dries out?
- > Choose one student to carry a bowl with some water. Ask students to comment how they go about doing it.
- > Try again with a plastic bottle (no top) with water. Ask students how it is different trying to carry a bowl of water compared to a bottle of water.

Clean up the water bowls.

As a class answer the question:

- > What is water?

Source: Cool Australia www.coolaustralia.org

Round Robin Water Discovery

Introduction

Water is one of the most amazing substances with a large number of properties that makes life possible. We use these properties in many ways, even flushing the toilet.

We have many words that describe the properties of water. There are up to 12 simple activities that students can do that use different words to describe water.

Decide if you will introduce the concept of gravity to help describe how water flows to the lowest point.

Setting up and equipment

This activity could be done in the class as a demonstration with one or two students helping each time. Or it could be done outside on garden benches. There will need to be a supply of water close by.

Plastic library trays are the perfect size for these activities. Each tray will need water in it.

These are the basic setup that teachers can choose from. Any activity that you think might cause problems can be done as a classroom demonstration:

Drip – plastic tray and plastic pipette, eye dropper, small plastic cup

Squirt – plastic tray and trigger cleaning bottle

Pour – plastic tray and plastic cups

Volume – plastic tray, plastic cups and a plastic jug

Wet – plastic tray

Wipe – plastic tray and wiping cloth

Wash – plastic tray and hand soap

Dry – towel for drying

Flow – bucket of water near an open drain and plastic cup

Wave – plastic tray and heavy object that can be pushed up and down to make waves

Bubble – clear plastic jar and one straw for each child

Floating/ sinking – plastic tray with objects that float and sink

Make a large label for each of the words that can be sticky taped to a bench if students are doing the activity outside. Each label needs to have a number from one to total number, to prompt student to find the next station. Expect the labels to get wet. The activity will require a few old towels for students to dry their hands.

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Activity

Introduce students to the following words by presenting them as a list. Read out the words:

- Drip
- Squirt
- Pour
- Volume
- Wet
- Wipe
- Wash
- Dry
- Flow
- Wave
- Bubble
- Floating
- Sinking

If the series of activities is going to be a demonstration then:

1. Chose one or two students for each activity to help.
2. Refer to the written word.
3. Do the activity.
4. Ask students to explain the properties of water that was observed.

If the series of activities are going to be done outside:

1. Set up on tables.
2. Get the students to gather in such a way that the teacher can demonstrate each activity.
3. Provide directions that will avoid students getting their clothes wet.
4. Provide direction that students need to find the next number. Make sure they look at the word before they do the activity. When they get to the highest number, the next station will be one.

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5. Provide no more than a minute for each activity before they are directed to the next station.
6. Make sure students have dried off before they return to class.
7. Ask students to explain the properties of water that they observed.

Activities for each station

Drip – how many drips does it take to fill a plastic cup?

Squirt – what happens when water from the squirt bottle hits the water?

Pour – how much water do you lose when you pour water from one cup to the other 20 times?

Volume – how many cups of water can fill the jug?

Wet – what do hands feel and look like when they are wet?

Wipe – what is the best way to wipe water from a bench?

Wash/Dry – wash and dry hands.

Flow – take one cup of water and see how far it will travel in an open drain.

Wave – make waves by slowly plunging the object up and down in the water. How is a big wave made? How is a little wave made?

Bubble – use a new straw to make bubbles. Make one bubble at a time. Are all the bubbles the same size?

Floating/ sinking – what happens when a floating object is pushed below the surface?

Source: Cool Australia www.coolaustralia.org

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What is a Catchment? - Leading into Session 1

Your River

Make a beautiful poster/drawing answering - what is a river? There is no right and wrong here, it is just to see what is created.

The poster will show the life and uses of a river. Encourage creativity, colouring, as much detail as possible.

If the river had a family who would be in it? No need to guide, just see their perceptions.

Your Catchment

Colour in the template of a river catchment provided. Ask students to draw in the different things they would find in the river catchment. *Source: Landcare for Kids. Jr. Landcare.*

Water Mind Map

Make a group list or mind map of how water is used (e.g. drinking, washing, watering, hydropower, swimming, growing things).

Water Words

Make a list of water words in groups in 2 minutes. Compare words by one team reading out their words. If other teams got that word it is not counted. Winning team is the team with the most original words. Examples:

trickle, flush, river, pool, aquatic, waterfall, wet, rain, hail, lake, lagoon, ocean, pond, creek, sea, drip, rainbow, icicle, stream, wetlands, catchment, vapour, spray, puddle, irrigate, sprinkle, sweat, swim, pool, steam, waterproof, float bath, fountain, swamp, dive, drain, wade, reservoir, snorkel, whirlpool, moisture, juicy, watery, wash, drain

Make your own rain cloud

Using a drink bottle with a screw lid, make several holes in the cap. Fill the bottle with water and replace the cap.

Note: In session 1 we will use your rain clouds if you have made them, or I will bring some to share. We will review your river posters if you have made them.

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Figure 1: A large catchment area can be broken into a number of smaller sub-catchments.

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After Session 1: Back in the classroom

Create a large classroom model or poster of a catchment.

Use any materials you like. Be sure to label as much as you can including the direction and location of places, using terms such as north, south, opposite, near, far.



Source: Year 2 Class, St Bridget's Catholic School

Introducing the Water Users: Leading into Session 2

Mind Map – Our Catchment

As a whole class brainstorm words, people, issues, plants, animals, things in your catchment to create a mind map on your catchment.

Our Catchment Storybook

Create an A to Z class story book about the catchment in which you live. Assign a different letter to each student and have them write 1 or 2 sentences and draw a picture to do with that letter on all the different issues, plants, animals, uses and things in your catchment. Students research their word and how it relates to their catchment before they write their sentences to add to the class storybook.

For example:

A – A is for apple. In our catchment farmers use the water to grow apples in their orchard to sell at the shops. We have seven different kinds of apples grown here; they are named Fuji, Golden Delicious, Granny Smith, Jonagold, Royal Gala, Red Delicious and Sundowner.

Have students complete a draft and a final copy of their page, using colour. Collect all the pages together to make a display book. Share with other classes and/or whole school.

Consider using digital media to make your storybook. Programs such as Comic Life, iTunes apps, Blogs and Wikispaces could be useful.

Please bring your Catchment storybooks to session 2 to share with Greening Australia staff.

Role Play

Have students act out their letter in the storybook and present to the class.

Collage

Have student make a collage from old magazines on their letter in the storybook, or swap letters with a classmate.

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After Session 2: Back in the Classroom

Ask an Expert online @ greenhub

Find the answers to those burning questions you have about catchments, water management, and river life. Ask the experts working in this field everyday, how they came to work with water, what they like and dislike about their jobs.

Go to www.greenhub.org.au type in your question, name and age and receive a reply posted on the website within a week!

Meet the Experts from Hydro Tasmania:

Terry Ives
Generation Technician (Electrical)



As a generation technician I am employed to operate, maintain and improve Hydro Power-Generating plants, mainly in the Mersey-Forth generating area, which is located in North-West Tasmania. This involves day-to-day operations, maintenance, equipment upgrades and fault-response, as well as after-hours fault-response activities.



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Dr Cindy Hull
Avian Ecologist, Hydro Tasmania Specialist



I study the birds at new sites for wind farms, to estimate the risk of impacts to those birds. As a result of my study, I may then suggest changes to the design of the wind farm to reduce its impact on birds. I also monitor the birds once the wind farm has been built to see if there are impacts on the bird population, and if there are, I investigate and implement management strategies to minimise the impact.



Christina Nebel
Cloud Seeding Operations Supervisor

Cloud Seeding?! What is that? Find out more about Christina and her work by posting your questions on www.greenhub.org.au/askanexpert

Find out more about cloud seeding, flight maps and more at <http://www.hydro.com.au/water/cloud-seeding>

Water Alive: Leading into Session 3

Colour, shapes and patterns

Introduction

As students describe natural objects, the teacher should collect natural items for sorting activities back in the classroom. Only the teacher should collect the items, in order to ensure that plants are not damaged and the items are clean.

Look for opportunities that will be challenging, e.g., sorting eight leaves into those that are youngest to oldest.

Activity outline

Explain to students that when the class goes outside they will identify and compare colours, patterns, texture and shapes in nature.

Take your students outside and walk around the schoolyard or a local park seeing how many different colours, shapes and textures you can find in nature. Encourage children to stop and observe, touch and feel objects along the way (although discourage the touching of insects or turning over large stones or pieces of wood).

Identify natural objects of interest

What kinds of shapes, patterns and textures can they find? Look at leaves, shadows, clouds, flowers, seedpods, tree branches and pebbles on the ground.

What colours did they see? Have a look for different coloured greens on plants, different coloured petals, seeds and berries.

How did things feel? Did they feel soft, smooth, rough, lumpy, prickly, hard, warm, cold, etc?

Source: Cool Australia www.coolaustralia.org

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After Session 3: Back in the Classroom

Water Bug live on the web

See close up images and some video of water bugs, and learn more about them from www.thewaterbug.net

Got a water bug with no name? Try posting the photo of it on <https://www.facebook.com/waterbugface> and an expert will try to tell you what it is!

Giant Water Bugs

Make colourful and larger than life water bugs from different coloured play doh. Be sure to ask students to include all the features found on an insect and include as many different features as possible.

Water Bugs from Waste

Or make small size water bugs to add to your catchment model in the classroom, out of old materials that are found in the recycling. Cut up plastic bottles and tops, colour cardboard, use sticks and nut for other features.

Become a Catchment Carer

Have students draw a stick figure of them in the middle of a plain piece of paper. Write Catchment Carer underneath it. Write all the words around that figure of you that you think a catchment carer would do. Share it with a partner and add new words you may have not thought of to your paper. As a whole class write up all those words on the shared board and see how many are the same and how many are different.

Assessment idea: Have students create an individual mind map on the word 'Catchment' at the start of the inquiry and at the completion and compare.

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Catchment Carers Celebrate

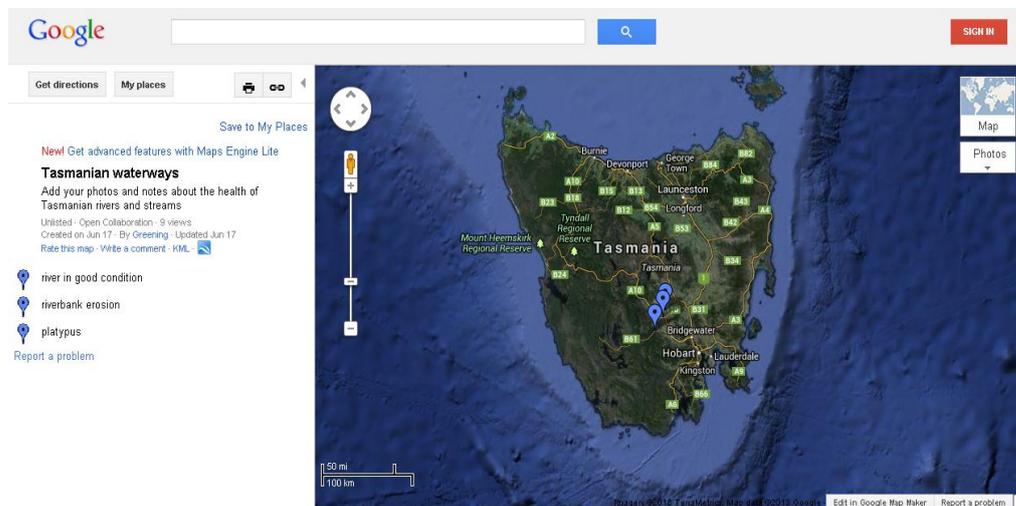
Now is the chance to collate all the things you have discovered about your own river in your catchment. Add photos you took, drawings you made, data you collected to your classroom model or poster. Present your final work to other classes and/or the school. Now you are an expert on your local waterway, it is yours to look after and share the magic of the catchment with others.

Create **Catchment Carer badges** made by the students for the students and adults. Have a parents and families night to inspire others to become Catchment Carers, like you. Don't forget to send Greening Australia photos of your badges and an update on your catchment to post on our blog for all to see your positive action! www.greenhub.org.au

Going Further: Catchment Carers Google Map

Share your knowledge of your catchment with the World Wide Web! As a class choose the best photos and drawings and upload them onto our shared Google Map where all schools in Tasmania are adding their catchment carer news and photos. The Catchment Carers map is at <http://goo.gl/maps/2oQ86>

You will need to create a Picasa account to store photos online before you can attach them to Google Maps (you can't upload them directly from your PC). It is free and easy to use, you will need to download the software from www.picasa.google.com.au



It is easy to upload photos by dragging and dropping them onto Picasa web albums. To attach an image to Google Map you need to right click on the image in Picasa (or any image on the web) and choose 'Copy Image URL' then in the maps make sure you select the red 'EDIT' button so that you can create placemarks, select the placemark icon and click on the map to create the placemark, then in the placemark is an 'Insert Image' icon which you click then paste the URL.

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Further Reading

- > Primary Connections Year 2 – Earth and Space Sciences, *Water Works*
- > Biodiversity audit tool kit: download at www.greenhub.org.au
- > Colin McRae: *Cry Me a River*
- > Fay White: (song) “Everyone lives in a catchment” from the Singing Landcare CD
- > Leslie Rees: *Shy the Platypus*

Web Links

Teacher Resources

Link	Name	What does it contain?	How can it be used?
www.greenhub.org.au	Greening Australia Education	Fast Facts / videos/ Ask an Expert / blogs	Activities / sharing / planning
http://www.landlearn.net.au/curriculum/OtoS.htm	LandLearn - Curriculum Activities	3 links	Lesson activities/poems/questions
http://dailyinfographic.com/wp-content/uploads/2011/11/10-Ways-to-Stop-Wasting-Water.jpg	Every Drop Counts	Image/information	Facts and top tips image
http://coolaustralia.org/curriculum-materials/#body-wrapper	coolaustralia.org - Water	Multiple links	Activities/worksheets
http://www.youtube.com/watch?v=cWGrok_imJ0	Greening Australia - River Recovery Programme	Video	Information/facts/projects/campaign
http://www.geographychallenge.nsw.edu.au/Default.aspx	Geography Challenge	Interactive site	Facts/information/take action/get involved
http://www.environment.nsw.gov.au/sustainableschools/teach/waterteach.htm	NSW Government - Environment & Heritage	Links	Resources/activities

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Student Resources - adult guidance required for year 2

Link	Name	What does it contain?	How can it be used?
www.greenhub.org.au	Greening Australia Education	Fast Facts / videos/ Ask an Expert / blogs	Activities / sharing / planning
http://www.angelamorelli.com/water/	Water	Facts and information	Visual resource with information and facts
http://www.imagineallthewater.eu/EN	Imagine All The Water	Interactive site	facts/information/ ideas
http://www.watersecure.com.au/pub/site-tour-and-education/water-island-game	Water Secure - Water Island	Interactive site with game	game/information/ interactive
http://www.catchmentdetox.net.au/play-game/	ABC Science - Catchment Detox	Interactive game	game/information/ interactive
http://apps.southeastwater.com.au/games/education_kidsroom_wcactivity.asp	South East Water - The Water Cycle Game	Interactive game	game/information/ interactive
http://environment.nationalgeographic.com/environment/freshwater/global-water-footprint/	National Geographic - Environment	Interactive site	facts/information
http://www.generationawake.eu/en	European Commission - Generation Awake	Interactive site	facts/information/ ideas/tips
http://coolaustralia.org/ca_topic/water/	coolaustralia.org - Water	Multiple links	videos/images/fact sheets/articles/news

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Link	Name	What does it contain?	How can it be used?
http://www.youtube.com/watch?v=zNdbj3PbX6o	Water Facts	Video	information/facts
http://www.youtube.com/watch?v=YswL4dIDQuk	Water Cycle	Video	facts/images
http://www.savewater.com.au/mission-h2o-game/	Mission H2O Game	Interactive game	facts/information/testing
http://www.savewater.com.au/	Savewater!	Multiple links	facts/information/games/competitions/what's on?
http://www.sydneywater.com.au/Education/SecondaryStudents/index.cfm	Sydney Water	Interactive site	facts/information/get involved/careers