

Exploring Water

Program activities to compliment
the Water Aware Centre Program.



Written by: Susan Byrne November 2006.

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Barbara Jensen, Rous Water Community Education Officer.

Photographs: Early Childhood Centres in the Rous Water Region.

Children's Artwork: Bangalow Community Children's Centre.

Line Drawings: Water Aware Centre Book.

More information:

Water Aware Centre Program - www.rouswater.nsw.gov.au



Rous Water Early Childhood Water Education Program

The '*Water Aware Centre*' program is a water education program to enhance the interest, knowledge and skills of Children Services and to encourage and guide their practices and policies towards sustainable water use.




The program aims to address the basic concepts of:

- What is water?
- Where does water come from and where does it go?
- All living things need water to survive.
- We share our water with lots of people, plants and animals ie the whole environment.
- We use water everyday at Preschool in many ways.
- Water is too important to be wasted.
- Everyone can take action to save water.

What do the children know about water?

Try to establish an understanding of what the children know now about water. Use small group and individual discussion times to establish what their current understandings are.

- Write down what they tell you through discussion or from your observations. Tape recording discussions can make documenting easier.
 - Ask questions such as “Where does the water you use at Preschool come from?” “How does the water get into our tank?” “Where does the water in this puddle come from? Use the teachable moments eg when it is raining, when they are using pipes in the sandpit or when they are washing their hands.
 - Ask children if they would be interested in making maps (2 or 3D) of where they think their water comes from. Include their words if possible.
 - Make a display or book of these discussions, observations, stories and pictures so that children can revisit their ideas and see how others think and to encourage family involvement and interest.
 - Make a Water Web of all the things we know about water, its uses, how it is stored, its properties and how we move it around. Think of all the ways we know to keep it clean and how we can save water. Support this with pictures. Encourage children to draw their own.
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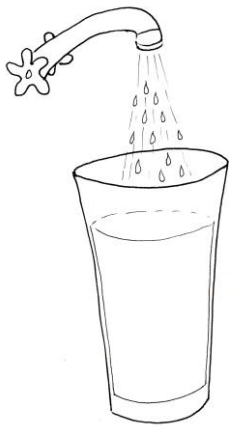
Planning water activities

After discussions and observations have revealed some of the current understandings children have about water, experiences can be planned to build on and clarify current understandings or challenge existing understandings.

For example, some misconceptions encountered at the preschool age about water is that water is white (rather than clear or transparent) and that the water we drink comes from the ocean and that ice only comes in a cube shape. Use the misconceptions about water you have discovered from the discussions to plan experiences that challenge your group's understandings.

Please ensure a safe environment for children and staff when planning, setting-up and undertaking the following activities.

Exploring water as a liquid



Rainwater or Seawater

Exploring the concept that rainwater tastes different from seawater. Provide clear containers (identical) of sea and rainwater. Provide small cups and spoons for tasting. (Supervise) What did the children discover from their inquiries? What language did they use during the activity? Which water tasted like the water from their taps?

Collecting Rainwater

Collect rainwater in clean containers on rainy days and enjoy a fresh drink or use it for a measuring activity. Have a rain gauge in the playground. How many millilitres did we collect today? Create a chart.

Floods

If there is a flood, collect the children's stories of their experiences and observations and make a flood book. Take photographs of before and after. Question where all the water came from and then where it went, use a map of the area.

Local Creek

Perhaps there is a creek nearby where water could be collected and compared with tap water. Have two containers on the table and let the water settle for a day or so. What can we notice?

How could we make the creek water cleaner? Try some of the children's ideas if possible. Make a simple filter with a strainer lined with blotting paper. Have dirt so the children can add it to the water and try filtering again. What can we do to keep creeks and rivers clean? How could we find out? Contact your local Landcare Groups for help and more information about the local creek.

Water is heavy and finds its own level

To explore the concept that water is heavy and finds its own level, fill clear plastic zip bags with water. Use different colours and different amounts. Put into water trough without any



water in it. Children can lift bags, feel the weight, feel the weight shift as they move the bags and watch the water level out as they tip the bags over. Try filling latex gloves or balloons and tying off for a different water experience. Play alongside the children. Listen as the children explore with the bags, gloves or balloons. What are they noticing? Could a question or suggestion lead to further inquiry or understanding of water?

Water painting outside

Supply children with small buckets of water and thick paintbrushes joined to the buckets with plastic tubing or string. Or provide rollers and roller trays. Children can paint paths, sheds etc and watch the water's effect on the surface and also observe the water drying from the surface. Draw their attention to the disappearance of the water after they paint. "Where has the water gone?"

Water colour painting

The children can wet paper with a sponge before water colour painting and watch the colours run and blend. Experiment with water colour painting and rubbing an ice cube over the colours. Or use eye droppers.

Water evaporates

Wash dolls clothes and dress-ups. "Where will we put them to dry?" "Where will dry them the fastest?" "How long do they take to dry?" "What fabric dried the fastest?"

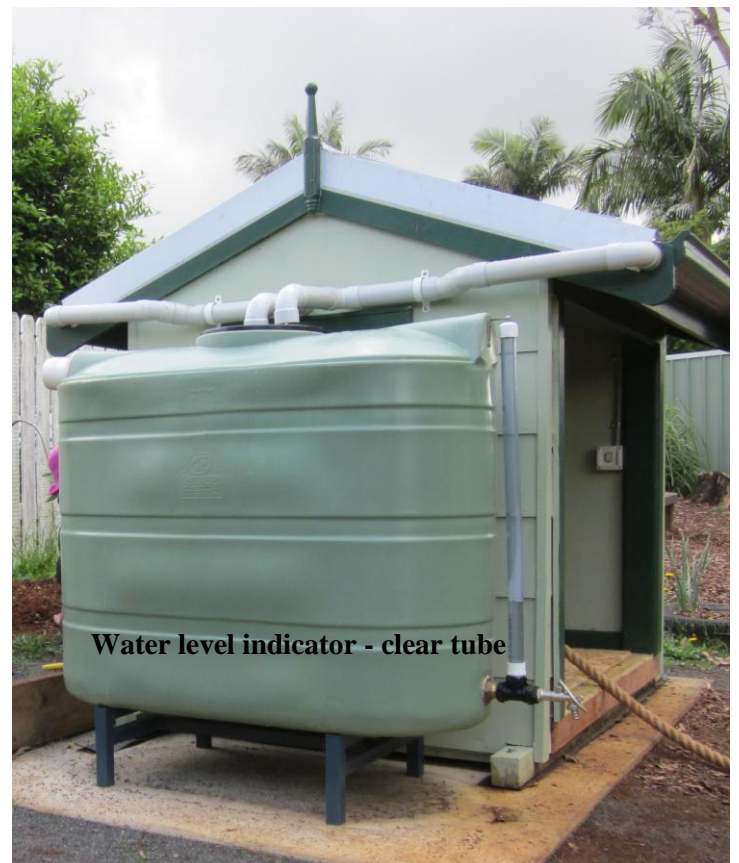
Experiment with water. Give children a saucer each and let them measure out two teaspoons or small cup of water from a jug and put it in their saucers. Ask the children to find a sunny spot where the water cannot get spilled. Encourage the children to check over time to see what happens. "Where do they think the water went?" "Is there any water underneath the saucer?"

Water footprints

Make a small puddle with a jug of water and encourage the children to stand in it and then step onto dry paving or wood. Notice their footprints, take photographs and watch them fade away. "Where has the water gone?" Encourage children to ride through puddles on a trike and then see their wheel tracks on the other side.

Is our tank full?

How much water is there in our tank? Tank suppliers will have a couple of types of water levels like a counter lever or a clear tube. Install these so the children can always



find out how much water is left in the rainwater tank. This will empower them to make the decision about when it is too low and they cannot have water for play. A simple way to make this is to use clear hose with a hose nozzle attached from the tank. This makes for easy use by the children and if an adult holds the clear hose up next to the tank, the level of the water in the tank will be visible. Tapping or feeling the temperature of the tank is another way to find out how much water it has in it.

Floating and sinking

Set up the water play tray for floating and sinking experiments. Include toy boats and ducks and a variety of natural materials to test and to make into boats. Crack walnuts to eat and to make small boats. Add small beads for cargo or passengers. Ask who sank the boat? – use Pamela Allen's picture story book.

Exploring moving water

Moving water through pipes

Use lengths of plumbers pipe (with some bends). Tie one end of the pipe to the top of a climbing platform, verandah or other suitable structure and have the end going down to a large container or the water trolley. Supply children on the platform with small buckets with ropes tied on the handles. Children on the lower level can scoop water out of the container with plastic jugs. Children on the platform can lower their buckets by rope and get them filled with water by the children on the ground. They can then pull their buckets up with their ropes over the railings and pour the water into the pipes and so the cycle can start again. Get the children started on the activity. They may need suggestions to begin the cooperating process. Once they have worked out how this system works let them play freely and devise their own systems. Remind them it is important not to waste water through play but this activity is water recycling.



Discuss and revisit this experience. Can children think of other ways to put the pipes? Could they draw a design for moving water? Follow up on these ideas. Discuss problems as a plan is tried. Does it work? If not, why not?

Discuss how some people have to move water themselves to get it to their homes. Find pictures of people carrying water in containers on their heads. Can you carry some water in a container on your head? Have a try.



Exploring ice

Creative ice blocks

Encourage children to select containers in the room that could hold water so we could put them in the freezer. Let them be creative and try anything within reason that fits in the freezer. Allow children to check over time to see what has happened. Take out a container before it has fully frozen and observe which part has frozen first. What shapes did you make? Put ice shapes in large plastic container or water trough for children to explore. Colour the water.

Freeze a big bowl of water and use for play in the water trough (without water in it at first). Add some smaller ice blocks. Consider freezing plastic polar animals in it like whales, penguins and seals. What did the children notice? How could we keep the ice longer? What could we do to melt the ice faster? Explore the possibilities.

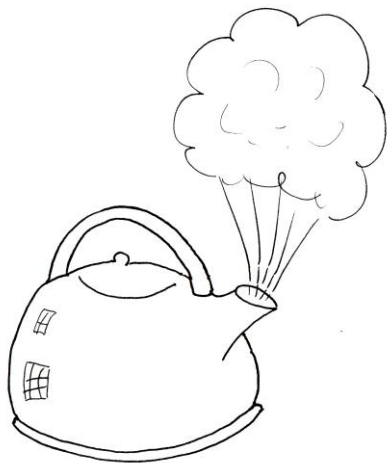
Enjoying ice

Make ice blocks with the children from tap water or squeezed oranges. Put paddlepop sticks in them. Eat and enjoy while experiencing ice.

Make real fruit ice cream at Preschool. Maybe someone has an ice cream maker if so put on a low table so that children can watch the freezing process. Put into cones. Eat and enjoy.



Exploring water as a gas



Heating water – supervise and stay safe

With a small group of children at a time explore what happens when water is heated. Put a small amount (just to cover the bottom) in an electric frypan. Heat up and encourage children to watch carefully. What is happening to the water? Can they see the water vapour? Boil the water until there is no water left. Where do they think the water went?

Repeat the process, but this time as the water vapour rises hold a metal tray or similar (which has been in the freezer (let children feel it first) over the water vapour. What happens? Can they see the water drops appearing on the bottom of the tray?

What might warm up water outside? What would cool the water vapour? (The air gets colder further away from the warmth of the earth's surface)



Trees breathe water

Tie a clear plastic bag over a tree branch on a sunny day and observe it throughout the day. “What happened?” Where did the water come from and where is it going?” Use books and interactive web tools to observe the water cycle.

Dragon’s breath

Huff and puff on mirrors. Observe and discuss what happens. There is water in our bodies, in the air and all round but we just can’t see it most of the time. What about a very cold morning? 65% to 80% of our body is actually water; it is in our blood, muscle and bone. Water helps us to have a healthy body by carrying oxygen, lubricating joints, regulating body temperature and getting rid of wastes.

The colours of a rainbow

Catch the teachable moment when there is a rainbow or use photographs, books and the internet to explore when and why we see them. Make a rainbow by taking a glass of water and paper to a part of the room with sunlight (near a window is good). Hold the glass of water (being careful not to spill it) above the paper and watch as sunlight passes through the glass of water and forms a rainbow of colours on your sheet of paper. Try holding the glass of water at different heights and angles to see if it has a different effect. While you normally see a rainbow as an arc of colour in the sky, they can also form in other situations like in a fountain, fine spray from a hose or in the mist of a waterfall. Rainbows form in the sky when sunlight refracts (bends) as it passes through raindrops; it acts in the same way when it passes through your glass of water. The sunlight refracts, separating it into the colours red, orange, yellow, green, blue, indigo and violet.

Exploring water for our survival

All living things need water to survive and growing plants is a great way to remind children of the importance of water and one major water use. Good soil means good growing, so consider what to use and where to site your garden. Different plants have different needs of sun or shade.

To enhance biodiversity grow local native plants, these will be well suited to your soil and environment and will attract the local native insects, butterflies, birds and other wildlife. Shady areas and small ponds will attract frogs. Birdbaths near a bushy tree will attract small local birds.



Water is life

Set up an interest table all about water. Consider including jars of water from different sources such as a creek with living bugs, the tap, muddy water, soapy water, frozen water. Use posters or books showing water supporting life, watery places or water in the environment. Have a hand lens available for closer inspection.

Drinking water

Use the teachable moments to consider that water is vital to our survival too eg running around, at morning tea or when someone says they are thirsty. Notice sweaty palms and foreheads. And of course weeing! We sweat it out, breathe it out and wee it out so we must keep drinking water to keep hydrated.

Hope



Some one wants to turn the tap on but her hands wont reach. She is worried

Build a veggie garden

Growing veggies will demonstrate that without water there would be no food. Have watering cans available for the children and install

a rainwater tank. Veggie gardens will need good sun and plenty of water. Are you over or under watering? Experiment with a watering meter that is pushed into the garden.

Growing lunch

Talk about what the children would like to grow. Mixed lettuce seedlings are quick to grow and are great used for rollups filled with grated carrot and cheese or anything else you can think of for a healthy snack. Tomatoes, beans and strawberries will be popular. If you have the space grow the biggest pumpkin you can or something tall like try sweet corn or sunflowers. Encourage parent involvement, sharing the produce or taking it to the farmers market.

Sprouts

Try growing sprouts. Alfalfa and sunflower seeds are some of the easiest to sprout. Use about two tablespoons of seed. Put them in the bottom of a clean jar and pour water to well cover the seeds. Put some clean stocking or cheese cloth material over the mouth of the jar and secure with a rubber band. Soak overnight. Pour away the water so that the seeds are just damp. (If you leave the seeds too wet they will rot.) Repeat this every morning and afternoon with fresh water until your sprouts have grown. Pour the rinsing water on a pot plant or garden to encourage water recycling. When seeds have sprouted, eat and enjoy.

Jack and the bean stalk

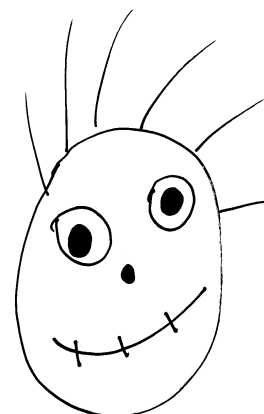
Soak a bean seed in water for about 30 minutes. With paper towel make a tube that will fit snugly inside a glass jar. Slide the seed between the side of the jar and the paper towel so that



it sits about halfway up. Press the paper towel against the side of the jar around the bean to 'seal' it in place. Discuss what you think will happen and what it needs to grow. Keep the bean moist and watch it grow. Tell the story of Jack and the bean stalk.

Haircuts for 'Echidnas'

Growing "echidnas" are fun. Fill a sock with potting mix (remembering safety issues). Children can then put in a couple of tablespoons of lawn seed or let them choose how hairy they want them (more seed means more "hair"). Tie off with a rubber band and add eyes. Either sew on some buttons, or draw on pale coloured socks with a laundry marker, or if you can find some non-toxic glue (that doesn't mind being drenched) they could stick googly plastic eyes on. Children can pummel the sock around in their hands to mix the seed into the potting mix. Put on a table covered with a plastic cloth or somewhere outside. Supply spray bottles of water so that children can water their "pets" regularly and watch them grow very hairy. Children can then give them haircuts and watch them grow again.



Pet for the day

Have a pet visit your Centre (and care for it). What are the basic needs? Use this opportunity to talk about what other living things need water to survive.

Firefighters use water

Arrange a visit to the local fire station or they come to you. Learn about fire safety. Provide the children with hoses, hats etc for dramatic play after the visit. Think about where they get the water from for firefighting eg their truck, water mains, rainwater tanks, dams and rivers.

Exploring water use in our daily living

Saving water devices

Collect some water saving devices like a hose nozzle, shower timer, plug, watering can, outdoor tap timer and water saving taps or showerhead. Put them in a bag and use as a bag of saving surprises. Take out one at a time asking "What could this be used for? Where does it go? How does it work? How does it save water?"

Inventors at collage

Supply materials at a collage table for children to make their own water saving devices. Put out rolls, plastic containers, lids, strong card, catalogues from plumbing supplies etc with strong glue. Ask the children for the name of their water saving device and how it works.



There's water in my day!

Start with a CD of watery sounds. Begin a chant 'There's water in my day: to wash my hands, to flush my toilet, to wash my body, to clean my teeth etc'. Ask children to mime or create actions. Fit the words and actions to music or make a chart/poster with their suggestions.



Water watchers walk

Walk around the Centre looking for water and water use eg taps, pipes, drains, tanks, toilet cisterns, hose nozzles, storm water drains, puddles, clouds, steaming kettles, condensation, frost etc. Ask questions like: Where does the water come from? Where does the water go? What is the water used for? How does it save water? Is this water wasting? Photograph and make a set of water cards to use in other activities, for display or for a water watchers interest table.

Water is wasted – shower sand timers

Make your own sand timers (or use a shower timer). Time water use eg hand washing, drinking and pouring. Put with the water play tray and different sized jugs and containers. Draw the children's attention to timing for limiting water use eg in the shower.

How to make the sand timer: Use two empty dry plastic bottles with the labels removed. Put a cup or two of dry clean sand in one. Drill a hole in one of the lids (the smaller the hole the longer the sand will take to go through). Discard the other lid. Put the two bottles together and join them together with electrical tape. Make sure they are firmly connected by winding the tape around quite a few times and going up the bottles on both sides a little way to make them securely joined. Experiment with slower and faster timers.

We wash and clean with water

Set up a baby washing activity with dolls, towels, biodegradable soap, line, pegs etc. Discuss and sing about washing time.

Bubbles

Provide bubble making equipment. Ask the children where they might see bubbles at home. Look for colours in the bubble. Notice size and shape changes.



Exploring water through musical experiences

Freeze and melt me!

Incorporate the properties of water into musical experiences. Involve the children in the instrument choice, which ones will be good for making the sound for rain, sun and ice. Start by playing an instrument for rain. Encourage the children to move. Play the ice instrument and tell the children that the air around them is getting colder and colder and they are turning into ice. Children freeze into a shape or a puddle.



Play the sun instrument and tell the children that the sun is shining and the air around them is getting warmer and they are starting to melt and melt and melt. Play the rain again and children move as water again. Use the terms “solid” and “liquid” during the experience.

Repeat this game but this time add that the children are tiny drops of water in a puddle lying on the ground. Play the sun instrument and have children imagine that the sun is warming them now and they are getting hotter and hotter until they change into water vapour and go up, up, and up into the sky. Use the terms “liquid” and “gas” during the experience.

Without water there would be no food!

Choose instruments to make a sound for growing, sun and rain. Prepare a vegetable garden and plant the seeds (ie the children). Rain falls, sun shines and they begin to grow. Oh dear more sun but no rain and the vegetables start to wilt. The teacher goes out to pick veggies for lunch and there are no healthy fresh ones ready to pick, no lunch today! And so on. Consider using other props. Put the instruments and props that you used for the story into a basket and make this available for the children to play with later. Capture the teachable moments throughout the children’s play to discuss water conservation actions or the value of water and to add to the experience through learning activities.



Exploring water through stories

Water watchers

Use the Rous Water book and CD from the Water Aware Centre program again. Leave in on your library shelf; put it on a water interest table, read at story time. Play the CD story at rest time. Take advantage of the watery moments such as when it rains, when there is a dripping tap, on a frosty morning etc to play the CD or read the story again.



Drawing water stories

Use an easel and a big piece of paper and draw the pictures as you go (don't be concerned about how well or not you can draw. Children love drawing stories no matter what kind of an artist you are). Make up a story about a child waking up and finding out that no water would come out of the tap. Children can help with the story and think of all the things that they could not do in a household without water.

Story of the water cycle

Draw a story of the water cycle. Start with two raindrops. Trace their journey from the mountains, to a little creek, to a big river and to the sea. Give them some adventures on the way ... waterfalls, animals coming down to drink, pipes sucking up the water or to irrigate crops. Continue the cycle until they are lazing around on the top of the ocean in the warm sunshine and change back into water vapour and go back into the sky where the story can begin all over again.

Tell the story of the water cycle using props and simple puppets. Make very easy water drop puppets out of muslin pieces dipped in blue watercolour paint. Stick on some paper eyes and hang with cotton from sticks. Make the sun from a piece of yellow dyed muslin and tie it to a stick also. Make rivers and creeks and the sea from suitably coloured fabric spread on the floor. Use animal puppets or toys you have, to come and drink from the rivers as the raindrops make their way to the sea and get warmed by the sun and return to the sky.

Felt stories

Make a felt water cycle (clouds, raindrops, the sun etc) for use on a felt story board. After telling the story, make sure that it is available for the children to use and to retell the story for themselves.

Working with water

Put out props for role/imaginative play, in or outside, for jobs that involve working with water ie planners, fitters, engineers, water operators or laboratory water testers. Include maps of the Centre, photographs of Rocky Creek Dam and a water treatment plant, pieces of



plastic pipe, hard hats, fluorescent workers shirts, white lab coats, safety glasses, spades, tools and so on to set the scene for workers on the job Photograph the play and ask the children for a sentence. Consider making these into a “Working with water” book.

Bucket of books

Put watery themed books from your book collection into a bucket in the library corner. Introduce to the children at a group time. Why did I put these books in a bucket? Let’s see what they are about? Write the children’s responses to the books and stick on the bucket as a display.



Rous Water congratulates the Early Childhood Staff in this Region that have made choices and taken action for sustainable water use, as shown by photographs and artwork in this document.

