

VELS Thinking Starter

All Drains lead to the Sea – what can we do to protect our marine environment?

Segment: 'i sea, i care' TV – Catchments Workshop 2011 (6min 35sec)

Find at: <http://www.dolphinresearch.org.au/edudownloads.php>

Recommended Audience: (Grade: Prep upwards).

TEACHER'S BACKGROUND INFORMATION

Catchments are areas of land where rainfall is "captured" and then drains into creeks, rivers, dams and reservoirs, underground basins, where it can replenish rivers in times of drought, and in cities into the gutters and storm water drains. For many of these water courses, the end point is the ocean, such as Port Phillip and Western Port bays. For some it is the great inland lakes like Lake Eyre.

We all live in a catchment, whether we live in the city or the country, and our existence is dependent on the catchments being healthy. They provide the food that we eat, the water that we drink, even the oxygen that we breathe comes from the plants and algae that grow in our catchments.

Since the early days of settlement our catchments have been under huge pressure from human activities such as farming, mining and urban development. This has led to a dramatic loss of biodiversity, an increase in weeds and pest species and the pollution of our rivers via sedimentation and run off from the land.

In the Melbourne Metropolitan area alone, there is a population of more 3 million people living in proximity to approx 8400km of waterways .

DRI research indicates that only about 10% of us think that creeks and rivers pose any threat to our marine environment. Yet nothing could be further from the truth. Much of the litter and other pollutants, such as vehicle oil and household detergents, find their way into our catchments and ultimately end up in the bays. Whether you live on the bays themselves or up in the hills of Healesville or Emerald, ALL DRAINS LEAD TO THE SEA.

Victoria's marine environment is unique. Over 90% of the species found in our waters are not found anywhere else in the world! If we look after our catchments and ensure healthy waterways , then we can protect Victoria's living marine treasures for the future.

Websites:

<http://www.abc.net.au/science/catchmentdetox/factsheet/>

<http://www.melbournewater.com.au>

http://www.parkweb.vic.gov.au/1park_marine.cfm



Thinking Starters are an initiative of the Dolphin Research Institute.

Each starter comes with a video segment and a 2 page resource sheet, packed with ideas to stimulate classroom activities across the curriculum, within the VELS framework.

Check out our other Thinking Starter: Blue Whale Stranding.

Ideas for other themes include:

- A day in the life of a marine scientist.
- World's Greatest Journeys: to the North Pole and back!
- Climate change and our bays.
- Marine Invertebrates - It's a Bug's Life.
- A day in the life of a crab at Balnarring beach!
- Dolphin CSI



VELS Learning Ideas Matrix

Physical, Personal and Social Learning	Discipline-based learning	Interdisciplinary learning
<p>Level 1 Interpersonal Development</p> <p>In a small group sort pictures or objects into things that help the environment and things that hurt the environment.</p> <p>Level 3 Civics and Citizenship</p> <p>Why does the school have an anti-littering rule?</p> <p>Is there such a rule/law in the community?</p> <p>In your opinion would this be a good rule/law to have? Provide at least 5 reasons to support your position.</p> <p>Are there any groups/organisations that deal with this issue? If so, what do they do?</p> <p>Work in a team to develop an action plan that will help protect our marine environment from pollution.</p> <p>http://www.cleanup.org.au/au/ http://www.kab.org.au/ http://www.parliament.vic.gov.au/static/www.legislation.vic.gov.au-lawtoday.html (search Acts - Environment Protection Act 1970 p196)</p> <p>Level 4 Civics and Citizenship</p> <p>Write a letter to local government about the issue of protecting our coast. Provide evidence that it needs protecting and make recommendations on how this could be done.</p> <p>http://www.coastcare.com.au/ http://www.parliament.vic.gov.au/</p>	<p>Level 1/2 English</p> <p>Listen to the song 'Octopus' Garden.' Make an octopus' garden. Children contribute words to describe the garden. Add litter/images of litter to the garden and revise descriptions. Discuss how this can occur. How can we stop this from happening?</p> <p>Level 2/3/4 English</p> <p>Does all the litter at school get properly disposed of? Why/why not? Write a short explanation about this matter.</p> <p>Level 1/2 The Arts</p> <p>Use movement and sound to show how you (or a marine animal) may feel when swimming in a clean ocean. Repeat for a polluted ocean (search google images or similar for photo stimuli).</p> <p>Level 3 Science/Maths</p> <p>"Classroom Litter Trap"</p> <ul style="list-style-type: none"> - Sort/classify litter - Which items of litter could be eliminated? Reused? <p>How much litter does the class produce in 1 week (by weight or area)? 1 month? 1 year? What about the whole school?</p> <p>Level 3-5 Science/ Geography</p> <p>Would you drink this water? Select a country/culture where people do not have access to clean water. Write a short report about what contaminates their water and how this may have occurred, the effect this has on the people and the environment, and any measures that can be implemented to make the water safe to drink.</p> <p>Then consider:</p> <ul style="list-style-type: none"> - What contaminates our water? - What do you 'add' to our catchments on a daily basis? 	<p>Level 3 ICT</p> <p>In a group design and create a story or factual presentation for younger children that teaches them about human impacts on the marine environment.</p> <p>Level 4 Communication</p> <p>In a small group/pair, plan and present an investigative report about:</p> <p>a)Litter traps</p> <ul style="list-style-type: none"> - their role - how they work <p>b)Marine pollution</p> <ul style="list-style-type: none"> -- cause and effect <p>c)Drains & Catchments</p> <ul style="list-style-type: none"> - what they are - human relationship with them <p>Level 4 Thinking Processes</p> <p>Why do we have litter traps?</p> <p>How do they work?</p> <p>Can we improve the design?</p> <p>How could we avoid having litter traps?</p> <p>http://education.melbournwater.com.au/content/rivers_and_drainage/stormwater_pollution/stormwater_pollution.asp</p> <p>Level 3-5 Design, Creativity & Technology</p> <p>Search for suitable locations for rain gardens in your town/school/home. Create a set of plans detailing equipment needed and what the finished product would look like.</p> <p>http://raingardens.melbournwater.com.au/</p>

<p>This could be:</p> <p>Write a piece for the school newsletter about the issue of protecting our coast. Provide evidence that it needs protecting and make recommendations on how government and the community could do this.</p>	<ul style="list-style-type: none"> - e.g. litter, phosphates, pet faeces - What effect is this having on our environment? <p>Level 3 Maths/The Humanities</p> <p>How much of Victoria is coastline?</p> <p>How far is our school from the coast?</p> <p>How do people use the coast in Victoria?</p> <p>In small groups children use a PMI chart to explore how people affect the coast when undertaking one of the identified activities.</p> <p>Level 4 Geography</p> <p>Investigate the journey of a piece of litter dropped on the school oval. Map where it could be washed/blown? What are the associated consequences?</p> <p>http://www.dolphinresearch.org.au/</p> <p>Level 4/5 Geography</p> <p>After rainfall, where does the water from our school go?</p> <ul style="list-style-type: none"> - Walk around school to examine hard vs porous surfaces - Use google maps to view part of the local neighbourhood and estimate area of hard vs porous surfaces - Why is a high volume of stormwater problematic? 	<p>Level 3-5 Science/Design & Technology</p> <p>Make your own water filter. Take a sock and place a layer of sand, then a layer of charcoal and finally a layer of grass. Use this to produce a clean glass of water from a muddy one. How does each material help to clean the water? Research where this happens in the environment, to help clean up water flowing into catchments.</p> <p>Hint: Coastal wetlands, peat bogs and man-made retarding basins.</p>
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Keywords: Stormwater, catchments, porous, litter, contaminate, waterways, drains, environment, rivers, creeks, dams, reservoirs, biodiversity, pollution, detergent, sediment, legislation.

Thanks to Chloe Edwards for developing this resource.

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