



South Gippsland
Shire Council



Young Inventors Competition – Information for Teachers

Overview

In this busy modern world, it is often easy to forget what it would be like without electricity and running water, without radio, television and the internet, without cars, trains and planes, or shopping centres full of food. Coal Creek Heritage Village is an ideal site for the South Gippsland Sustainability Festival because its buildings, and their contents, remind us of a time when inventiveness meant using what was around you.

When settlers lived in South Gippsland in the 1800s they had to cut down a tree to build a house, collect water in a bucket from the closest stream, sew their own clothes and grow their own vegetables. Students walked or rode horses to school, often through towering forests, and stayed home when the roads were too muddy. Before the Great Southern Railway was opened in 1892, locals took a day (or more) to get to Melbourne, travelling around the coast by boat or trekking through forests and across rivers.

In the past, being inventive meant making do with what you had. Today, because we can buy so many things easily, we often use too much. Now we need to think of ways that we can use less.

For example, in the 1800s schools students wrote on slate, which could be wiped clean when work was complete. There were no photocopiers, computers or printers. Today we have paper . . . and end up with mountains of paper to recycle. In the past, water was precious because someone had to go and fetch it from the creek or river. Today we need to remind people to use the half flush, water plants wisely and to turn off the tap when brushing their teeth.

In the **Young Inventors** Competition, students work in groups to research methods for conserving water, using books and the internet. Younger students are asked to show how they can use water saving devices, and then to think up their own inventions (see Worksheet 2). Older students are asked to discuss and compare devices that they have found through research, before they design their own inventions. A scaffold to assist this process is offered in Worksheet 1, containing questions relating to purpose, materials, design and cost of the invention. Teachers and students may choose to include some or all of these factors. If new inventions sound too challenging, students may simply build on other people's ideas, making modifications or using new materials, to create gadgets that can be readily used at home or at school.

A possible lesson plan

- ✓ **Engage** – as a whole class, the teacher begins by reading a book or a case study, then leads a discussion, asking the students to pose questions about the ideas presented
- ✓ **Explore** – in groups, students use books and websites to research devices that conserve water in a variety of settings (locally, historically or from around the world), recording their findings
- ✓ **Explain** – students report back to the class, describing how one particular tool/device works, then the teacher draws out ideas about purpose, design and use of materials
- ✓ **Elaborate** – in groups, students plan and design new **inventions**, either ones that are entirely novel or that apply ideas from their research in new settings or using different materials to make the water saving device or gadget
- ✓ **Evaluate** – in groups, students produce an A3 or A2 **poster** about their invention (based on the worksheets provided) which briefly describes the process they followed to create their invention

Students are invited to bring their invention, or a model of larger inventions, to the **Sustainability Festival at Coal Creek Community Park & Museum on Sunday 14 March**, along with their poster. Inventions and posters will be judged on the day, by age group. Prizes will be awarded for categories including best invention, best use of materials, most practical, best illustration, and best description of the research and invention process.



Resources

Primary students will enjoy listening to the story ***Lizzie Nonsense: A Story of Pioneer Days***, by Jan Ormerod. Lizzie is the daughter of pioneering parents, living in the isolation of the Australian bush.

Teacher notes are provided at

http://www.littleharebooks.com/schoolresources/notes/lizzie_nonsense.pdf, and include a summary of the story, background information about Jan Ormerod, and a list of questions for students to consider.

Older students might to listen to, or read, the excerpt on the final page of this document. This excerpt is from ***The Land of the Lyre Bird***, published in 2007 by the Korumburra & District Historical Society.

Another useful book is ***The Early Settlement of South Gippsland: A Pictorial History***, by John Bradshaw, 1999, Coal Creek Heritage Village. The text in this book is simpler than that found in many historical books, and thus is quite suitable for upper primary and secondary students. This book contains many great photographs from the 1800s and 1900s, which can be enjoyed even without reading the text.

Students have a huge range of websites to explore when searching for water saving devices. The list below is from the South East Water website. Another site, www.eartheasy.com/live_water_saving.htm, contains ways to conserve water at home and in your yard, with examples of things to make and use (such as plastic bottles to place in the cistern of your toilet, decreasing the amount of water used with each flush). Students may like to make their own water butt (see www.reduceuserecycle.co.uk/greenproducts/water_butts.php). Or they can explore how to save water in a variety of ways at www.savewater.com.au (go to the programs-and-events tab, then to national-water-week, then to how-can-I . . . or just explore the site yourself).

Victorian Water Web Links

Our Water Our Future: www.ourwater.vic.gov.au

Melbourne Water: www.education.melbournewater.com.au/

South East Water: www.southeastwater.com.au

Yarra Valley Water: <http://www.yvw.com.au/waterschool/>

City West Water: www.citywestwater.com.au/education.htm

WaterWatch: www.vic.waterwatch.org.au

Savewater: www.savewater.com.au/

EPA Victoria: www.epa.vic.gov.au/students/

VicWater: www.vicwater.org.au

Melbourne Museum: <http://www.museum.vic.gov.au/watersmarthome/>

Victorian Water Resources Data Warehouse: www.vicwaterdata.net/vicwaterdata/home.aspx

Department of Primary Industries: <http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/water-home>

Department of Sustainability and Environment: www.dse.vic.gov.au/dse/index.htm

Australian Water Web Links

Sydney Water www.sydneywater.com.au/EnsuringtheFuture/WaterSchool/

Water Corporation Perth http://www.watercorporation.com.au/Education/education_index.cfm

Brisbane Water www.brisbane.qld.gov.au/BCC:BRISWATER:763570063:pc=PC_1395

Australian Department of the Environment and Water Resources www.environment.gov.au/water/index.html

CSIRO: www.csiro.au/csiro/channel/ich2o.html

Australian Bureau of Statistics National Water Accounts:

<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4610.02004-05?OpenDocument>

International Water Web Links

Unesco Water www.unesco.org/water/


USGS <http://ga.water.usgs.gov/edu/>

Unicef Water www.unicef.org/wes/

Water News Web Links

ABC water news: <http://www.abc.net.au/water/>

South Gippsland Sustainability Festival Young Inventor Competition – Worksheet 1

Name of invention		Photograph or diagram of invention	
Names and ages of inventors			
School -			
Where will the invention be used?			
Purpose of invention (What will your invention do?)		Estimated cost to build your invention	
Which materials did you use to build your invention?	Why did you choose these materials?	How much would you sell your invention for?	
Other inventions which are similar to our invention and how our invention is different or better than these inventions		
References used – books, websites or anything else			

South Gippsland Sustainability Festival Young Inventor Competition – Worksheet 2

Name and age

A picture of me using water wisely

My water saving invention

Name of school and contact teacher



Excerpt from *The Land of the Lyre Bird: A Story of Early Settlement in the Great Forest of South Gippsland*, published in 2007 by The Korumburra & District Historical Society

Page 111-12, “Recollections and Experiences by Mr T. J. Coverdale”

“As we have now arrived at the stage when most of the pioneers have got small clearings, built temporary cabins and come up to reside, it might be interesting to note what manner of men they were. All the professions were represented, and most of the principal trades and callings, with quite a number of young men from the Government offices and city firms. Many ladies, too, had selected, but very few had, so far, ventured into the wilderness. It was largely a community of bachelors, and the consequence was that those offices in the domestic economy usually administered by the ladies were often filled by ministers notoriously unfit for their positions . . . The cooking and washing departments were generally scandalously administered; but there was a lot of ingenuity shown in the short cuts invented, and in the substitution of new methods for the old ways of doing things. A neighbour of mine . . . noticed a wringing machine in McEwan’s window one day when in town, and immediately saw possibilities in it never dreamt of by the inventor, nor hinted at by the most mendacious [untruthful] advertiser. Making it his own, he took it home and screwed it on top of a blackwood stump. Going over one Sunday morning to exchange ideas, I heard a voice just before I got out of the pack-track . . . When I got up to them, my friend, clad in a smoking cap and a big pipe and little else, was slowly turning the handle of the machine while Johnnie, standing between a bucket of water and a pile of soiled shirts, was carefully wetting the latter – “sousing them” he called it – in the bucket and feeding them to the machine. This was repeated till they looked all over alike, then they were “done”. I suggested they were only spreading the “soil” over them, and there should be some preliminary ceremony. Others, again, had a simple method, which was merely to anchor your linen in the middle of a running stream and let nature do the rest.”

