

# EcoBuzz

EcoBuzz Edition 50

Term 2 2013

*Leilani Wilson from Nelson Christian Academy student with a friendly school chook*



## IN THIS ISSUE:

- Waimea Inlet
- UpCycle competition
- Victory school
- Energy in schools
- Rainwater collections
- Natural dyes
- And much more

## Kia ora tatou

Autumn is well and truly here – has that ‘hunker down’ feeling hit you yet? Like squirrels many of us stock up for winter. Have you thought about how to stock up or better yet challenged your class to think about the power we all have about where and how we shop? Imagine the difference your class could make to several small local stalls, shops, farmer markets, family businesses if they all helped their family make choices to purchase locally made things? We can make a big difference for numerous families and family businesses around us and in other smaller communities (if we buy online from small businesses).

We hope you find lots to interest you in the following pages.

*Thanks Jo, Lindsay, Rob, Adie and Claire*



*Rubbish audit at Victory School*

“Oberlin Professor David Orr, the leading spokesperson for integrating the environment and education...believes that changing the procurement, design, and investments made by our educational systems represents a “hidden curriculum” that can teach, as “powerfully as any overt curriculum, a more comprehensive way of seeing the world that is the foundation for a radically different curriculum than that presently offered virtually anywhere. In every respect this is a challenge of how we think which makes it a challenge for those institutions purporting to improve thinking. Much of the change in outlook and perspective called for will not happen in the time available unless schools, colleges & education get it.”

– Hawken, et al, 1999, p. 315

## Contents

News from the Councils	2-4
Regional Updates	5-6
Regional EnviroSchools	7-9
Schools Taking Action	10-11
Provider Updates	12- 13
Snippets	14-15
Calendar	16
Teacher Activities	17-20

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## Nelson City Council Heritage Week – Edible Walks

This year's Heritage week (13–21 April) celebrated Nelson's rich and varied harvest. The "Big Apple" was once the welcoming sign to Nelson and we have always been a great place to grow and gather food. For Heritage Week a series of 'Edible Walks' maps have been posted on the Nelson City Council website to encourage people to enjoy one of Nelson's many open orchard areas.

Council has been using fruit and nut trees in their planting plans for over 25 years, and each map in this walk series features a park and a suggested walk. Stroll around to get yourself familiar with where trees and plantings are. Trees are marked in fruit varieties, and within those groups there will be variance in harvesting times affected by the weather, soil and plant variety. To download the walk maps visit <http://www.nelsoncitycouncil.co.nz> – search Edible Walks.

## Nelson City Council School Planting Programme

It's planting time again! All Nelson school are welcome to take part in the Nelson Council school planting programme and invitations have been sent out. The programme runs term 2, weeks 5–10, and term 3, weeks 1–5. If your class would like to take part in the programme, please email [jo.martin@ncc.govt.nz](mailto:jo.martin@ncc.govt.nz).



*Hira School planting day 2012*

## Tasman District Council Arbor Day Plantings

All Tasman District Schools are invited to take part in a planting this year to celebrate Arbor Day. The plantings will take place from the 10 to the 21st of June. This year we are including Wildlife Games The 'Invitation to Wildlife Games' are one and half hours of student activities run by an environmental educator in school to look at a range of native/introduced plant and animal life and their habitats.

We can also assist teachers with any unit planning around living landscapes and native biodiversity themes to focus student experiences for environmental actions.

Please email [kathy.tohill-curnow@tasman.govt.nz](mailto:kathy.tohill-curnow@tasman.govt.nz) if you would like further information.

**Have you seen the great white butterfly?** Any finds of these caterpillars and eggs should be reported to the Ministry of Primary Industries (MPI) hotline 0800 80 99 66.





## TV TakeBack

TV TakeBack is part of the Government's initiative to ensure that any TV's replaced during the digital switch over do not end up in landfill. Both Nelson City Council and Tasman District Council have agreed to support this programme.

You don't have to replace your TV – in actual fact we'd much rather you kept your original TV set. To find out how you can do this, the Going Digital website has a useful information page:

<http://goingdigital.co.nz/what-you-ll-need/equipment-3/equipment.html>

If you DO want to recycle your old TV there are several local retail outlets which will accept televisions for recycling. For more information on retailers who accept TV's for recycling under this scheme, go to <http://www.tvtakeback.govt.nz/where-can-i-recycle>

Also, from 22 April there will be Council drop-off sites opening at Nelmac (8 Vickerman Street) for Nelson, and at the Richmond, Mariri and Takaka Resource Recovery Centres for Tasman. It's important to note that the Nelson drop-off site is at Nelmac, and not at the transfer station on Pascoe Street!

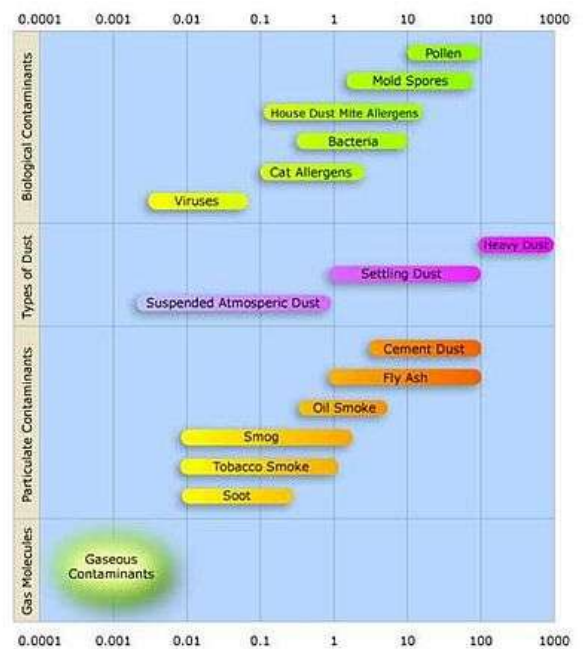
How much will it cost? For the moment the subsidised cost is \$5. There is a cap on the number of TV's which can be recycled at this cost, and as this is a limited programme, both Councils are working on longer term sustainable solutions to offering permanent recycling of TV's. Ultimately, actively involving the suppliers of products like TV's in sustainable recycling of their products (product stewardship) is the direction both Councils support.

## Keeping our air healthy

Achieving good air quality is a challenge because we mostly can't see what might be affecting our respiratory health, except in winter when we see a brown haze in the morning from overnight fires. It is a vital topic because we need to breathe! Did you realise the 'brown haze' is also in our homes and in the car?

Particles in the air are called particulate matter (PM) or if suspended, aerosols. Concern is for particulates PM10 (micrometres) or below, for which our nose hair filtering system is inadequate. See the illustration of air particles from Wikipedia. The Councils measure air quality around our districts, especially in urban areas, and encourage keeping this clean for our own health. Strategies to reduce air pollution include installing particle filters in diesel vehicles, keeping high-emitting vehicles off the road, upgrading to cleaner burners, minimising agricultural burning, using non-fossil fuelled transport and car pooling (organise locally or register with [www.jayride.co.nz](http://www.jayride.co.nz) or [www.letsrampool.govt.nz](http://www.letsrampool.govt.nz)).

The action that reduces the brown haze and really counts for cleaner air in winter is to only burn seasoned dry untreated wood. Check with a local wood merchant as to what is entailed to achieve this GOOD WOOD, if you are not sure. Ask your environmental educator if you would like to investigate the air quality at your school in order to plan for some environmental action. Some ideas to whet your appetite – students could organise their own carless to school days, survey heating options at home, measure heating options at school, visit a Good Wood merchant to learn firsthand, research how to light efficient smokeless fires – then visit a home with a log-burner for some practice.



Particle size in Micrometers

**The Kids**

# Upcycle!

**Competition**

**What can you invent  
from the recycling  
bin or 2 wood  
pallets??**

Open now to all Nelson & Tasman school students.  
Prizes galore and lots of chances to win!  
Entries close – August 16 2013 delivered to Ecofest at  
the Trafalgar Centre Nelson.

See entry forms for more details.  
Or contact Adie – 5437222 [adie.leng@tasman.govt.nz](mailto:adie.leng@tasman.govt.nz)  
Claire – 5250020 [claire.webster@tasman.govt.nz](mailto:claire.webster@tasman.govt.nz)  
or Sarah -5459176 [sarahlangi@nec.org.nz](mailto:sarahlangi@nec.org.nz)

Sections (school years): 1 – 3; 4 – 6; 7 – 9; 10 +  
Categories:

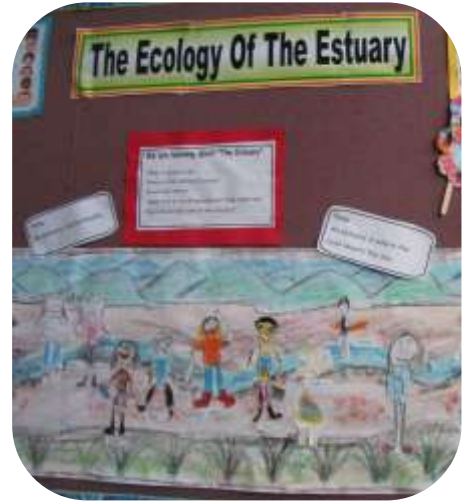
- 1. Recycle bin challenge** – At least half of your invention must be made from items that could be found legitimately in a TDC or NCC recycling bin. Merit will be given for a higher percentage of correct recycle bin contents. Remember your invention needs to do something useful.
- 2. Builder's best** – Best invention from up to 2 wooden pallets (20% other items allowed). Remember your invention needs to do something useful.

During Term 2 we are offering **Teacher workshops** on how to get your students inventing – really inventing! Most of us often tend to rush at the first idea we have – so how do we slow this down with a class; how do we assist our students to generate a variety of ideas; gain more depth; add value to others' ideas; trial ideas and really think about the range of possible inventions? In a 1.5 hour afterschool free workshop we will explore some techniques to assist you as a classroom teacher. Then it's ready, set, go for the Kids Upcycle Competition.

The workshop is interactive, fun and provides a lesson plan and resources ready to use with your students. We require at least 5 teachers to run a workshop – it could be held at your school, or a school nearby. Organise 5 or more teachers yourself or let one of us know you are keen to join a workshop; we will endeavour to run as many workshops as needed.

## There's a lot to learn about the Waimea Inlet Estuary

Waimea Estuary or Inlet is right on Richmond and Nelson's backdoor step. Getting to learn a little bit about it and appreciate it up close was something that Richmond School's Year 2/3 syndicate did in Term 1. These children also took some first steps in caring for the Inlet.

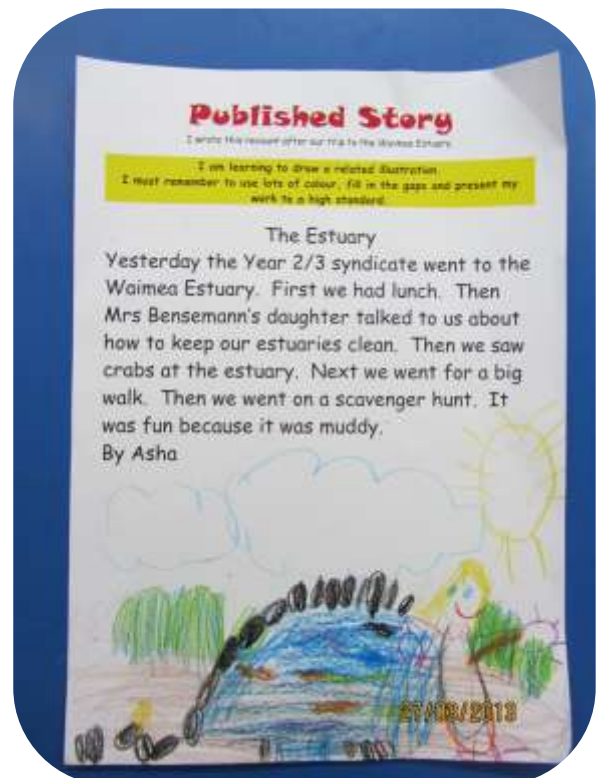


The Waimea Inlet Forum allows individuals, recreation groups, landowners, businesses and organisations that are interested and active in protecting the health of the Waimea Inlet to meet three to four times a year. At each forum, people get an opportunity to be informed about the diversity of actions and things affecting and happening around and in the Inlet and to voice their concerns. They also learn about the range of scientific research and volunteers' knowledge that continues to grow about the biodiversity and character of the Inlet.

Did you know that the Forum created a Charter to recognise the values people bring to the Inlet; to acknowledge its rich ecological resources and historical, present and future use; and to affirm its future health through collaborative action? Check this Charter out to see how you could help the Waimea Inlet too.

The Forum can be an outlet to schools to report observations and findings found from investigations and actions that schools have undertaken on the estuary. The Forum would appreciate any contributions that add to understanding the changes that occur in and around the Inlet.

See the website: [Waimea Inlet Charter](http://Waimea Inlet Charter)



## The Nelson Tasman Enviroschools network

Welcome to Birchwood School, Birchwood Kindergarten and Mapua School as new Enviroschools ☺  
Welcome to Roger Wilde – new early childhood Enviroschools facilitator for The Nelson Tasman Kindergartens and Nelson City Council while Helen Durbridge is on leave. Roger is working part time as a teacher at Auckland Point Kindergarten and part time as facilitator.

The Nelson/Tasman Enviroschools network now includes:

- 15–Early Childhood Centres  
( 6 Nelson + 9 Tasman )
- 18–Primary Schools  
( 7 Nelson + 11 Tasman )
- 1–Intermediate schools ( 1 Nelson )
- 5–Secondary Schools  
( 3 Nelson + 2 Tasman )
- 1–Area Schools ( 1 Tasman )



## Enviroschools Kit and Coffee Sessions

Do you want to:

- Participate in fun activities linked to the environment?
- Get active experience of the range of Enviroschool resources available in the kit?
- Broaden your toolbox of ideas to take to the classroom?
- See where the Enviroschool kit fits into the curriculum?

Then come to a termly 'kit and free coffee session.' From 3.45–4.45pm (Dates below.) Venue: Café Affaire.

**Thursday 30th May.** Focus: Action Learning cycle and Action Projects – Support with reporting for the recent Nelson Enviroschools Action Project Funding.

**Thursday 22nd August.** Focus: Energy  
**Thursday 14th November.** Focus: Water

These sessions are free and open to all teachers in Nelson Enviroschools. They will offer an opportunity to network with fellow teachers and to participate in activities from the Enviroschool kit whilst having a relaxing coffee.

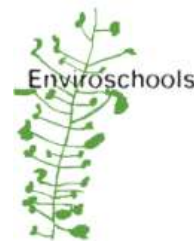
**Please contact Lindsey Fish to register.**

[lindseyfish@xtra.co.nz](mailto:lindseyfish@xtra.co.nz) / 211460247

## Hira Kindergarten Congratulations

Congratulations to Hira Rural Kindergarten who confirmed in March that they have attained the level of a Bronze Enviroschool. Ka pai!





## Action Projects in Term 1 at Victory School

It's been full steam ahead at Victory this term since completing their vision map; the students have set about several action projects.

The completed vision map on display in the library on the Enviro-wall.



Enviroleaders preparing to share their findings of their Eco Vision Quest.



Garden leaders enjoying the gardening club at lunchtime, as well as Kids Edible Gardens.



Making bottle bricks for a new 'chair of peace' in the community garden.



Reusing wrappers otherwise destined for landfill.



New composting systems have been set up with money from the Nelson Enviroschools Action Project Fund.



Enviroshools and Waste Education Services supporting the school with its vision to reduce waste.



Monitoring energy use at school as part of Enviroschools/Energy in schools collaboration project.



Finding ways to use less energy.



What's next for Term 2? They have started to monitor and clean up the York Stream and will install a rainwater collection system for veggie irrigation. Phew! Well done!





## The Pumpkin Festival at Central Takaka School

The rain clouds were blown away by Doris the witch and the orange clad children and pumpkins came out to play! What did they play? Why pumpkin bowls, pumpkin piñata smashing, pumpkin golf and the best, ugliest, biggest, smallest pumpkin competition of course!



*Giant pumpkin weigh-in with Aaliyah Lockwood and her little sister from Collingwood Area School.*



*Pip McLellan shows everyone how to give her best at pumpkin bowls.*

Why have a Pumpkin Festival? For the multiple learning opportunities as well as the fun. Central Takaka students were actively involved in the complete life cycle of the pumpkins – from seed saving to growing, eating and seed saving again. They planned and ran activities involving creativity, negotiation, problem solving and design. They planned the very orange food for a shared lunch and helped cook it. Students from other local schools were also able to enter the competitions and enjoy the day too.



*An orange creature appeared to entertain us all. It was noted teacher Denise Morgan was missing at the time.*



*Doris the librarian witch shares a story about another witch who loves ... pumpkins!*



## Classrooms Compete for best Garden

In order to beautify our school grounds and involve all of the children in our vegetable gardens we decided this year to have a competition. We have 6 classes and 6 garden beds! During the January school holidays staff spent some time in the gardens tidying them up and feeding the weeds to our chooks (some of which we have bred at the school).

In the last week of term, our bus driver George invited a very knowledgeable friend, Ted, to judge our gardens! George and Ted spent a long time judging the gardens and George bought a Mitre 10 voucher for each class with the winners (Room Two) receiving slightly more money than the other classes.

*Noeline Strange, Nelson Christian Academy*



*Ted and George judging the gardens (by the winner's garden).*

*Cover photo – Leilani Wilson from room 2 with a friendly school chook.*



*Noeline's class garden includes scarecrow, which was made on their scarecrow day where everyone all dressed up as scarecrows and made two for the gardens.*



## 17 – 18 August Funky Fashion Shows

**Categories for 2013:** Recycled fashion – made from recycled products. All fashion must be created from pre-used items. The only non-used items can be the adhesives – cotton, glue, etc. “Fashion” includes any wearable item.

**Op Shop Challenge** – buy a complete outfit (open to anyone, not just textile students) Purchase from any Op Shop. Maximum spend is a total of \$10. Keep the receipts as proof. Create a full outfit, including accessories. (Not including underwear)

**Funky Fashion Shows** are co-ordinated by **Christine Johnston of Labels in Nelson**, who can be contacted on wk: 03 546 6556 or hm: 03 547 8376, or email: [christine.johnston@live.com](mailto:christine.johnston@live.com).



## Birchwood Primary School's journey towards zero waste

In 2012, Birchwood primary school (275 pupils) made a massive commitment to reduce its waste. Before the changes, caretaker Jim sent six – 240L bins to landfill every week. This amount reduced almost immediately to two bins, reducing costs from \$90 per week to \$30. Six months later, this reduction has been maintained and plans are a-foot to further reduce waste.

### What do the students say?

Brooklyn and Mia are the two student leaders who, with other volunteer helpers, collect the food-scrap buckets from the classes on Tuesdays and Fridays. "It's disgusting" said Brooklyn, "but the compost works well and it's helping the environment so it's worth doing—it only takes a few minutes. We also have recycling bins in each class and we try to reuse as much stuff as we can—even at home we do it. We have 'nood food days' now too, when no one is allowed to bring wrappers to school."

### What's next? Caretaker Jim has the last word

Since the waste drive it's so much more pleasing to have the food composted instead of going to the tip. I am passionate about preventing plastic waste getting into the rivers and the ocean or blowing into the next door neighbour's yard. I have the honour of choosing which class wins the "We care" shield, awarded each week by the Principal.

### Advice for other schools: key factors

- WES waste audit and lunchbox education
- Learning about the landfill
- Taking the rubbish bins away
- Giving parents the message that it saves dollars
- Celebrating the success: staging a big show at the end of the year "It's all a load of rubbish!"

For the full story visit [www.wes.org.nz/schools](http://www.wes.org.nz/schools)

*A litterbug from Birchwood school performs the milk bottle top and paper bag song at the show "It's all a load of rubbish!"*



*Brooklyn and Mia, student leaders at Birchwood school, empty the food-scrap buckets into the compost.*



*A typical zero-waste lunch at Birchwood school.*

## Small Planet - Natural dyes workshop

There was a lot of banging and hearty conversation at our Small Planet cluster meeting, where Judith Keylock ran a magical natural dyes workshop at Nelson Environment Centre.

Judy, who does a lot of work at Maitai school with disabled students, is a passionate advocate for teaching children how to connect with nature by using natural fabrics: silk, cotton and wool, and natural dyes. "Learning how to use natural dyes has been life-changing for me", said Judy, who dresses in beautiful fabrics she dyes herself. "There is so much learning, even knowing what is a flower and what is a leaf, and the properties of the fabrics we dye, e.g. that wool, being an animal-based fabric, contains protein, whereas silk and cotton are plant-based and need to be painted with milk to fix the dyes.

Judy covered a variety of dyeing techniques in her 1.5hr workshop.

An ice flower (or berry) dyeing technique, which uses frozen flowers (Under Maori tikanga berries are unsuitable for use as dyes because they are food). This is a very sensory technique that requires no heat, and demonstrates changing colour using science.

- Hapa zome, which is a technique whereby we beat flowers and leaves into fabrics using a mallet. This was the most popular technique, and a hot favourite with the students, allowing them to pound the flowers and leaves into the fabric with astonishingly fine detail.
- Making bundles and steaming them using a hot method. This involves a lot of fine motor skills winding fine cotton around the flax stalks, and the equipment is easy and safe to use in a classroom.

The fifteen early childhood teachers who took part were unanimous in their appreciation of this inspiring workshop and recommended it highly. Here is a project Judy did at [Maitai School](#) using some of these techniques.

Please contact Sarah Langi [sarahlangi@nec.org.nz](mailto:sarahlangi@nec.org.nz) for more info.



## Good news: the Energy in Schools Programme extends to more schools in Nelson and Tasman

Kia ora, at Nelson Environment Centre we are celebrating! Canterbury Community Trust has granted us another 12 months funding for our Energy in Schools Programme. Having completed the first pilot with 2 secondary schools and the second with 3 primary schools, we are now able to roll it out to any schools in Nelson and Tasman that are interested.

Our technical advisor, Aaryn Barlow, has been offering free energy audits to schools in Tasman under last year's funding, and aims to complete assessments for ALL schools across the region within the year. Marlborough District Council has also provided funds to pilot the

programme in four Marlborough Enviroschools. Under the programme, 24 schools in Nelson and Tasman have now received a free energy assessment but we have held off offering the curriculum support and behaviour change part of the programme until we knew funding was secured.

Now, the whole programme is available to all schools in Tasman and Nelson on a first-come first-served basis. The programme works well together with Enviroschools and Lindsey Fish, Nelson Enviroschools facilitator, has been co-delivering the programme in Nelson enviroschools, where appropriate.

For more information and to register interest in joining the 2013 programme, visit the Nelson Environment Centre website: [www.nec.org.nz/schools](http://www.nec.org.nz/schools) or contact Sarah Langi.

### Meet the Energy in Schools team

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## I Like to Move It, Move It!

Mention the words, "I like to move it, move it" and chances are the song King Julian and the Lemurs sang in Madagascar will automatically spring to mind. After all who can forget the jungle animals in all their glory dancing to this catchy number?

Now it's possible to capture the same level of energy, enthusiasm and vibrancy as this song by creating items that move from recycled objects. These three tried and true ideas from our Crafty Critter classes will allow your young people to really get things moving.

**Spinning Tops** – Created from old CD's and DVD's, a large marble and a milk bottle top these fun creations are bound to put your thoughts in a spin. To create your own design, simply draw around the shape of the CD on paper, colour this in and cut it out. Glue the paper design on top of the CD. Attach a milk bottle top to the centre of this design using a hot glue gun. Flip the CD over and squeeze a ring of hot glue around the circular hole in the centre of the disc for the large marble to be attached. Start spinning!



**Bubble Foamerators** – Who would have thought an empty 300ml disposable plastic bottle could be so much fun? Cut the bottom off the bottle. Use a no longer needed piece of towel to cover the bottom of the bottle and attach with a rubber band. Dip the bottom of the bottle in a dish of water followed by a dish of dishwashing detergent and blow into the bottle from the top. Children will be both amazed and delighted to see long foamy bubble snakes emerge from these bubble-making devices.

**Rubber-band Firers** – Using nothing more than a piece of driftwood, a peg and a rubber-band these creations are easy to make. Hot glue the peg 12cm from the stick's end. Wrap the rubber-band around the end of the stick and secure in place with the peg. Open the peg to release the rubber-band. The tighter the tension on the rubber-band, the further it will fly! For other recycling craft ideas, check out the Crafty Critters website [www.craftycritters.co.nz](http://www.craftycritters.co.nz).



## NZASE National Primary Science Week

is happening from **20-24<sup>th</sup> May, 2012** (Term 2, Week 3)



Throughout New Zealand students, teachers, parents, communities and science providers will be involved in a wide range of national and local science activities designed to promote awe, wonder and interest. Contact Nelson Coordinator: Sterling Cathman [sterling@MrScience.co.nz](mailto:sterling@MrScience.co.nz) for Nelson/Tasman events. The competition is open to all Year 1 to year 8 students in 4 divisions: Year 1-2, Year 3-4, Year 5-6 and Year 7-8.

## Schoolgen Solar Oven Challenge



Also there is Schoolgen Competition closing on May 31<sup>st</sup>.

See [www.schoolgen.co.nz/scienceweek](http://www.schoolgen.co.nz/scienceweek) for further details.

Emphasis of the competition is not cooking per se but solar design and the science behind it. Design: What do we want to cook/heat? What type of solar oven could achieve this? What is realistic for a solar oven that we can build? Science: What is the actual temperatures reached inside the oven, times to reach cooking temperature, response of temperature to quantity of food in the oven, etc. Also coming up with one or more questions and then testing them. E.g. what is the maximum temperature that can be reached at a certain time of year and day with no food in the oven? How can this temperature be increased? (e.g. more reflector area, smaller receiver area, more/better insulation). What happens to temperature when you add food/water to heat/cook?

## Nature Watch NZ: <http://naturewatch.org.nz/>

This is a place where you can share what you see in nature, meet other nature watchers and learn about New Zealand animals, plants, and fungi. The world is filled with nature watchers, from trampers to hunters, birders to beach-combers, and pros to school kids. Many of us keep notes of what we find. What if all those observations could be shared online? You might learn about the butterflies that live in your neighbourhood, or discover someone who knows all about the plants in your favourite reserve.

You can share – description, species if known (common name is okay), photograph, date, site as well as specifically where found e.g. trees/foliage, canopy/shade, surroundings, condition, number and weather.

**Farmers market website** – check out the Nelson farmers market newsletter for great recipes and seasonal news  
<http://www.marketground.co.nz/fmznelson/53400/1/>

## Heads up for Ecofest School Competitions

It's time to start thinking about possible class/individual entries in the Funky Fashion, Upcycling or Alternate Powered Car competitions for Ecofest this year. Ecofest will be held at the Trafalgar Centre August 17/18.

Entry forms are due in:

- Alternate Powered Car competition entries due in by 28 June.
- Op Shop Challenge and Recycled Fashion entries due in by 12 July.
- Upcycle competition entries due in by 16 August.

For competition details and entry forms please email Jo-[jo.martin@ncc.govt.nz](mailto:jo.martin@ncc.govt.nz), Adie-[Adie.Leng@tasman.govt.nz](mailto:Adie.Leng@tasman.govt.nz) or Claire-[Claire.webster@tasman.govt.nz](mailto:Claire.webster@tasman.govt.nz)



## Film Makers Workshops – for Young People, Teachers and Youth Workers

The Outlook for Someday presents its third annual series of free one day sustainability film-making workshops, this year one is scheduled for Nelson on August 6. 9 am to 4.30. Venue to be confirmed. Limited to 25 participants. Register now on <http://www.theoutlookforsomeday.net/workshops>

## “Our Green Roadie” by our very own Emma Heke

Here's the film trailer [www.vimeo.com/55198564](http://www.vimeo.com/55198564)

More info and DVD sales at [www.facebook.com/OurGreenRoadie](http://www.facebook.com/OurGreenRoadie)

The film is a compilation of stories and snapshots shared by 50 NZers throughout the country, inspirational, interesting and aims to encourage everyday people to embark or continue on a greener journey.

Free one day workshop: Strengthening community gardening education in Nelson.

Victory Village Community Centre. 2 Totara St Neslon. 9-3 Monday 20 May

## A drawing competition for primary students of the top of the south

The theme of the drawing will be “what will the next generation of scientists look like”? The competition will be open to all students of the top of the south in years 1-6, we'll have prizes for three different year groups (years 1-2, years 3-4 and years 5-6) and each winning student will receive a personal science kit.

Drawings must be sent to; Jo Thompson, Cawthron Institute, Private Bag 2, Nelson 7042 and the closing date for drawings to be received is Tuesday 28th May. All entries must have their name, age, school and contact details, and the winning entries will be posted on the Friends of Cawthron Facebook page.



## Keep New Zealand Beautiful "Wall Worthy" mural competition.

Schools are to submit a design to KNZB by the end of October, winning designs decided in November. There are five schools that can take out this award with a big prize pool.

Designs then need to be done and painted by May of. Keep New Zealand Beautiful is always looking for ways to inspire school students to get involved and take pride in their local community and our campaign Wall Worthy provides a brilliant way for schools to do exactly that by combining History, Art and Design, Social Studies and Geography and making a motivating and inspirational competition throughout the country.



## The Next Generation.

Wednesday 22nd May 3.45pm – 5pm  
Cawthron Institute, Milton Meeting Room

A Primary Teacher training event led by Paul McNabb, team leader of the Cawthron Research and Development Team.

Paul will be talking about the characteristics required to be a successful scientist in today's world. No longer are scientists expected to be 'lab-rat-type introverts'! The next generation of scientists have to be; team players, international collaborators, multi problem solvers, great presenters and creative designers. Through a current research case study, Paul will demonstrate how these skills are utilised every day in a research organisation and what to encourage in your students. Bookings are essential, contact [jo.thompson@cawthron.org.nz](mailto:jo.thompson@cawthron.org.nz)

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# Calendar

20 May	<b>Teacher gardening workshop</b> – sustainable gardening in the City at Victory Village Community Health Centre	Fay Vaughan <a href="mailto:communityhealth@victory.school.nz">communityhealth@victory.school.nz</a>
20-24 May	<b>NZ Primary Science week</b> Schedule of workshops and events based on the science of solar power	Sterling Cathman - <a href="mailto:Sterling@mrs-science.co.nz">Sterling@mrs-science.co.nz</a>
29 May	<b>Enviroschools Early Years cluster meeting</b> 3–5pm Open topic to deepen knowledge and networking	Helen Durbridge <a href="mailto:Helen.Durbridge@nncindy.org.nz">Helen.Durbridge@nncindy.org.nz</a>
30 <sup>th</sup> May	<b>Enviroschools coffee and kit session</b> , focus ALC and projects. 3.45 – 4.45pm, Cafe Affaire Nelson	Lindsey Fish <a href="mailto:Lindseyfish@xtra.co.nz">Lindseyfish@xtra.co.nz</a>
5 June	<b>World Environment Day</b> The theme for this year is Think. Eat. Save – campaigning to reduce food waste and food loss	<a href="http://www.unep.org/wed/">http://www.unep.org/wed/</a>
5 June	<b>Arbor Day</b> marks the beginning of the planting season and a time to celebrate the unique biodiversity of our country	<a href="http://www.doc.govt.nz/getting-involved/events-and-national-events/arbor-day/">www.doc.govt.nz/getting-involved/events-and-national-events/arbor-day/</a>
10 June	Entries open for <b>Nelson Tasman School Environment Awards</b> in association with Cawthron Science Fair	For applications and criteria go to <a href="http://www.cawthronsciencefair.org.nz">www.cawthronsciencefair.org.nz</a>
10 Jun–6 Sept	<b>School Tree Planting Programmes</b> – Nelson and Tasman – see the ad on page 3	Jo Martin– <a href="mailto:Jo.Martin@ncc.govt.nz">Jo.Martin@ncc.govt.nz</a> Kathy Tohill.Curnow– <a href="mailto:Kathy.Tohill.Curnow@tasman.govt.nz">Kathy.Tohill.Curnow@tasman.govt.nz</a>
13 <sup>th</sup> June	<b>Green Cuppa</b> - 3:30 – 5pm Networking and resource sharing at Motueka/Moutere	Adie Leng <a href="mailto:Adie.leng@tasman.govt.nz">Adie.leng@tasman.govt.nz</a>
19 June	<b>Matariki Lantern Parade</b> 3.40 – 8pm Victory Community Centre. Performances, drumming, community meal (\$2)	Gareth Cashin 546 8389 <a href="mailto:gareth@victory.school.nz">gareth@victory.school.nz</a>
28 Jun	<b>Hyperwaste Exhibition</b> Using waste items for something really useful. Organised by Waste Education Services at Nelson Environment Centre	<a href="http://www.wes.org.nz/">http://www.wes.org.nz/</a> Sarah Langi - <a href="mailto:SarahLangi@nec.org.nz">SarahLangi@nec.org.nz</a>
1 – 7 July	<b>Te Wiki o Te Reo Māori</b> (The Māori Language Commission) have chosen “Ngā Ingoa Māori” (Māori names) as the theme for Māori Language Week 2013	<a href="http://www.koreromaori.co.nz">www.koreromaori.co.nz</a>
12 July	<b>Ecobuzz deadline</b> Please send Claire contributions, stories, photos around school actions	Claire Webster– <a href="mailto:Claire.Webster@tasman.govt.nz">Claire.Webster@tasman.govt.nz</a>
7 Aug	<b>Teacher professional development workshop</b> 1.30–4.30pm Term 3 TOTSEE primary teachers workshop: All you ever wanted to know about dealing with human digested waste!	John Campbell <a href="mailto:education@museumnp.org.nz">education@museumnp.org.nz</a>
7 Aug	<b>Small Planet cluster meeting</b> , 3–4.30pm, Nelson Environment Centre	Sarah Langi– <a href="mailto:SarahLangi@nec.org.nz">SarahLangi@nec.org.nz</a>
17-18 Aug	<b>Ecofest at the Trafalgar Centre</b> lots of opportunities for school students for Ecofest	<a href="http://www.ecofestnelson-tasman.co.nz/">http://www.ecofestnelson-tasman.co.nz/</a> Jo Reilly - <a href="mailto:Ecofest@xtra.co.nz">Ecofest@xtra.co.nz</a>

## Planet Earth is 4,600 million years old



If we condense this inconceivable time span into an understandable concept, we can liken the Earth to a person of 46 years of age. Nothing is known about the first 7 years of this person's life, and whilst only scattered information exists about the middle 35 years, we know that only at the age of 42 did the earth begin to flower. Dinosaurs and the great reptiles did not appear until one year ago, when the planet was 45. Mammals arrived 8 months ago; in the middle of last week, human like apes evolved into ape like humans, and at the weekend the last ice age enveloped the Earth. Modern humans have been around for 4 hours. During the last hour we discovered agriculture. The industrial revolution began 1 minute ago.

During those sixty seconds of biological time, what impacts have humans made on planet earth? From 'Against all odds' – Greenpeace[1989] <http://www.youtube.com/watch?v=TxXH-yrDRzk>



## Activity One: Where does the water go?

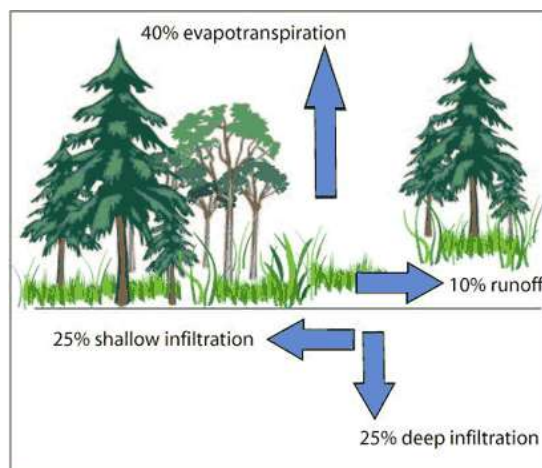
With heavy rainfall events predicted to increase worldwide it is good to understand where rainwater goes in the water cycle.

### Pervious vs. impervious surfaces

Where rain falls naturally as nature intended the surface is pervious or permeable and the water cycle might look a bit like this:

The 5–15 percent of water that runs off a pervious surface will be filtered as it drains into the nearest waterway. Different soils and vegetation affect run off differently as do lighter and heavier rainfall events. Please note: these percentages change when soils reach saturation. There are some interesting activities to test infiltration of water into soil and soil moisture on the Globe website – [Catchments](#). Activities range from level 1–2 to advanced science about hydrology and soils.

[Passing through](#) is an easy and fun activity that shows how different absorption of water in different situations. [Soil Moisture](#) mea



Impervious or impermeable surfaces stop water infiltrating into the soil, like paved car parks. Think of all of the constructed surfaces we rely on: guttered roofs of factories, shops, shopping malls, tall buildings and houses, plus roads, driveways, sports' courts and more...

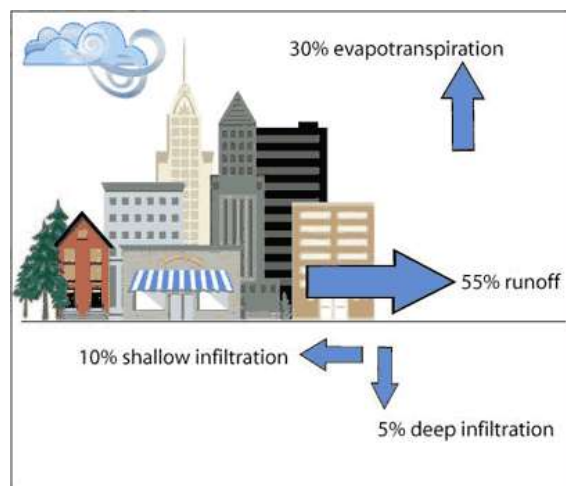
Is a swimming pool a pervious or impervious surface?

The table below was created with information from NASA satellites in 2006. Compare the affluence and the weather of the countries involved.

*Country population and estimated constructed impervious surface area (ISA) per person*

COUNTRY	ISA km2	Population (Landscan 2004)	ISA per Person (m2)
United Arab Emirates	891	2,346,994	379.7
Canada	11,295	32,022,750	352.7
United States	83,881	282,575,328	296.8
Australia	2,673	19,312,536	138.4
New Zealand	484	3,706,823	130.5
United Kingdom	7,576	58,926,004	128.6
Netherlands	1,985	16,115,017	123.2
Japan	13,990	122,192,928	114.5
Fiji	63	775,863	81.3
India	81,221	1,058,349,824	76.7
China	87,182	1,292,548,864	67.4
Samoa	9	144,839	63.6
Zambia	495	11,123,909	44.5

*The water cycle on impervious surfaces could look like this:*



The runoff will also carry whatever surface pollution is present to the nearest stream and could be from car exhausts, tyres, brake systems, fuel, debris and fertilizers as well as rubbish.

Investigate what is happening on your school property and measure how much land is covered up and impervious to rain infiltrating into the soil.

## Activity one continued: To assess the ratio of pervious to impervious surface.

1. Create an aerial map of your school using [Top of the South Maps](#) to investigate pervious/impervious surfaces
2. Measure out a 10cm by 10cm square on the map.
3. Create a grid of 1cm squares.
4. Choose the easiest surface to identify, either the pervious or impervious.  
Shade this area on your grid.
5. Decide how you can best measure the number of 1cm squares of either the pervious or impervious surface that you chose and compare. Cutting the squares and putting them together or counting wholes and fractions of squares. See example



6. Decide on the ratio. The example has 46 squares impervious to 54 pervious
7. To confirm: Ground-truthing is the method of verifying in real life, your choice of data from what you identify on the aerial map.
8. Extension activities: Use the water cycle percentages from the above illustrations
  - a. Calculate the estimated percentage of water run off from this area of your school.
  - b. Work out the ratio of impervious to pervious surface for the whole school and the estimated percentage of runoff.

What would it be like to not have constructed surfaces in urban areas or on roads connecting places? Discuss the benefits and challenges. The challenge to reduce the amount of run-off produced in urban areas, whilst protecting the infrastructure and maintaining the health of catchments and waterways is an increasing global issue.

Research the range of ways to reclaim pervious surfaces e.g. using netting with grass to strengthen lawns with heavy foot traffic rather than paving; reducing the width of driveways and streets; increasing use of berms (grassed verges); building with green roofs. Reducing the pressure on stormwater drains can include urging more households to collect rainwater and retain gardens.

**Did you know** that the top layer of asphalt on roads is now more pervious? Bacteria in between the top and hard bottom layer of asphalt roads can deal to some of the road pollutants reducing the impact on waterways.

## Rainwater catchment information for preschools & schools

### Important considerations:

- Size of tank. This may depend on space available. What will the water be used for? How could possible usage be estimated? [Small tanks (250litre) may not be worth plumbing into a downpipe, but even if they are filled with a hose from the mains they may still have valuable educational value]
- Use only food quality or drinking water quality tanks – some plastics leach toxic chemicals.
- Site for tank. Simplest installation is beside a downpipe, but also consider where the water is required. Possibly a manual pump could be included at outlet, so children can use a hose to take water where they need it – sandpit play or garden.
- Well-prepared base for tank – compacted gravel, concrete, or a strong wooden stand on concrete. A full tank has considerable weight, and may eventually sink or become lopsided if resting on soil or sand.
- Strong metal or web strapping may be required for tall tanks, depending on the shape.
- Inlet filter or leaf diverter, to minimise leaves and other debris in water. Some systems have a ‘first flush diverter’ – a device that diverts the first proportion of rainwater carrying dirt and contaminants.
- Other leaf protection, e.g guttermesh, especially where there are large deciduous trees nearby.
- Overflow – when tank is full, surplus rainwater must go into a drain or a well-prepared soak-pit.
- Flush valve at the bottom of tank, or large opening at top to allow someone to climb in and clean, because eventually organic debris and algae will settle in the bottom of the tank. Flush outlets at bottom of the tank may be prone to leakage.
- Tank must have a secure childproof lid. Any open parts of tank inlets and overflows should be covered with mosquito nets to prevent mosquitoes from entering the tank.

### Other options:

- Elevation of the tank on a stand – sufficient that outlet tap has clearance for children to fill buckets and to give sufficient pressure to run a hose to gardens. (however make sure tank is well secured)
- A gauge of some sort, so that children can clearly see the water level in the tank. Some centres use a float and signal stick, but a clear pipe attached at the bottom of tank and running up the side gives children direct awareness of the water level.
- Manual pump at outlet, so that children have to work for the water and cannot leave the tap running. We’ve heard of a centre that has a bicycle-driven pump – children ride to get their water!
- If installing a tap at the bottom of the tank, perhaps create a permanent collection bowl underneath, so children can use spilled or overflow water if tap is left running.

**Materials & suppliers:** *We may be able to negotiate discounted plumbing supplies for Enviroschools projects – check with your Facilitator before committing to buy larger items such as water tanks.*

- Recycling centres often have large plastic containers (food grade) that are suitable for using as storage.
- <http://www.tanks.co.nz/catalog/slimline-tanks/>
- <http://www.aquatanks.co.nz/shop/category/slimline-tanks>
- <http://www.devon.co.nz/Water-Tanks/>
- Wine barrel, 220 litre – \$179 at Mitre 10 – may be able to obtain free from wineries?
- 250 litre ‘Gutter Tank’ (Water Gain Ltd) \$250 at Mitre10
- High-quality Diverter/filter: <http://www.rainwell.com.au/rfd> AUS\$175

### Further Information, Advice and Support

These two kindergartens have good working examples. Visitors welcome but please phone first to arrange time:

- Greenwood Kindergarten, 51 Greenwood St, Motueka. Ph 03 528 8385
- Tahunanui Kindergarten, 53 Muritai Street, Tahunanui, Ph. 548 5345

Rain Saver Systems, NZ info@rainsaver.co.nz , [www.rainsaver.co.nz](http://www.rainsaver.co.nz) / Gavin & Cathie Hil, 03 5487044 / 027 229 3355

<http://www.smarterhomes.org.nz/water/collecting-and-using-rainwater/>

<http://www.level.org.nz/water/water-supply/mains-or-rainwater/harvesting-rainwater/>

[http://www.rainharvesting.com.au/rainwater\\_research.asp](http://www.rainharvesting.com.au/rainwater_research.asp)

## Activity two: Make a wasp trap

### How the Wasp Trap Works:

Wasps are attracted to the scent of the bait, and fly into the bottle opening to get to it. Once inside the bottle, they can't figure out how to get back through the narrow opening, and eventually die, drowning if liquid is present.

To keep wasp nests a healthy distance from your school or house, set out traps in the early Spring when the queens are looking for nesting sites or in late Autumn when the wasps are very hungry.



Use a permanent marker to draw a line around the neck of the bottle, just below the taper.

Cut around the line.

Unscrew the cap. Then, flip the top of the bottle upside down, and tuck it into the bottom portion of the bottle to complete your wasp trap.



If you'd like to be able to hang your wasp trap, use a hole punch to make two holes for a handle, making sure you punch through both the top and bottom portion of the bottle. Then, thread a piece of wire through the holes, to serve as the handle.

Different baits work at different times of the year. In the spring and early summer, wasps are looking for sources of protein. In the late summer and autumn, wasps are looking for sweets. To successfully bait your trap, stick a piece of lunch meat or a small hunk of hamburger inside your trap in the spring. Use a few inches of soda, juice or another sweet liquid in the summer and fall months. Add a bit of vinegar to the mix to keep bees out of your trap.

### How to Set Up Your Trap:

Place your trap (or traps) outdoors in areas where you see wasp activity (or are trying to prevent wasp activity). If you're trying to keep wasps away from your picnic, set up a bottle a short distance from the table, so they'll hopefully be attracted to the trap, instead of your food.