

We recently hosted a class group from Taupo Intermediate who were spending a few days in our region learning all about what makes Taranaki such a special place. Visits from school groups from other regions are not common but it was obvious that the students, teachers and parents went home enthused about our region and its people.



Teachers being detectives at biodiversity session

These two teachers under the watchful eye of Education Officer Kevin Archer are focused on finding clues as to whom or what has been causing environmental damage in a local area. This was one of the practical activities provided at last term's biodiversity professional development session.



Woodleigh School studies its local tributary and the Huatoki Stream

It's eyes down and looking as this focused group from the middle syndicate at Woodleigh School tries to identify some of the aquatic invertebrates living in the tributary just over the school's boundary fence. The syndicate's three classes, led by teacher Cara Rankin also looked at the tributary's water temperature and clarity to help assess its health. The three field trips were followed by a further field trip by a smaller group of students to the nearby Huatoki stream where comparisons were made. This was a most impressive study and showed that successful field trips do not always have to involve transport and/or expense. Thanks to Woodleigh School for involving me in your programme.



Taranaki Regional Council Environmental Awards – 2012

Nominations for awards close on March 31 2012. Awards are given to recognize individuals and organizations that contribute towards protecting and enhancing the Taranaki environment. Application forms are available from the Senior Information Officer Mr Rusty Ritchie at the Taranaki Regional Council.

Bits 'n' Pieces

Professional Development
Mt Taranaki
 Konini Lodge (Dawson Falls)
 Thursday 24 November.
 See the flyer in this newsletter for details.

Professional Development - 2012
Rocky Shore Studies
 Tuesday 7 February
 Kawaroa
 4.00pm - 6.00pm

 Wednesday 8 February
 Bayly Rd Lighthouse (Rahotu)
 4.00pm - 6.00pm

Further details on our website www.trc.govt.nz and in the first SITE newsletter next year.

Thank you letters

As mentioned in a previous SITE newsletter we value feedback from both students and teachers, both orally or in written form. Here is a selection of sentences from some of the letters.

I now have a nice, clear interpretation of what our mountain does and how it reacts.

I learnt that there are only two types of volcanoes - active ones and extinct ones.

One point of yours that I found quite scary is the fact that there is a 50/50 chance that Mt Taranaki will erupt within the next 50 years.

Thank you for taking us to the Patea River because we got to see lots of awesome bugs.

Thank you for taking us to the stream on Thursday. My favourite part was catching the bugs with a strainer, it was awesome. It was fun looking down the tube to check the clarity of the water.

Visit the TRC website

www.trc.govt.nz/environment/education
 Visit the Education page of our website to see local involvement in environmental activities, resources for teachers including full and mini units and previous issues of the SITE newsletter.

Answers from page 3

Multi choice mountain quiz: 1.B 2.B 3.B 4.C 5.C 6.B 7.A 8.A 9.D 10.B
Alphabet Mathematics: Attitude gets a score of 100
Altitude and Rainfall: 1.Egmont Village 2. Stratford 3.3104mm
Matchup: 1.D 2.J 3.G 4.I 5.F 6.C 7.B 8.A 9.E 10.H

For support with environmental education contact:

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 E-mail: education@trc.govt.nz
www.trc.govt.nz



SITE

Schools in the environment newsletter

The Rugby World Cup is over

By the time you read this newsletter you will know who has won the Rugby World Cup, one way or the other the event was a huge success. As you know the three games in New Plymouth went off virtually without a hitch, much to the relief of many, including those at the Council charged with scheduling bus services to and from the stadium on match days.

I know many of you will now be looking closely at your programmes for next year and I cannot emphasise enough, the need to contact me early if you foresee any involvement with the Council. Terms one and two are very busy and already many teachers have made bookings to suit their requirements. This especially applies to rocky shore studies where tidal considerations often complicate matters.

We are looking at reviewing the way we offer professional support for teachers next year. In the past we have offered four or five professional development sessions each year. We have endeavoured to offer environmental topics we think would be valued by teachers. However, the numbers attending these workshops have dwindled with the exception of the after-school sessions we run in February. We are mindful of just how busy teachers are and attending professional development sessions with an environmental focus might not be a top priority for many of you. We are therefore considering switching our focus to more direct support to teachers via syndicate or staff meetings to discuss the support we can offer. So if you are in the early stages of planning a particular study and you would like to know what we can do to assist, please get in touch. These sessions seldom take more than half an hour but feedback suggests teachers are finding them extremely valuable.

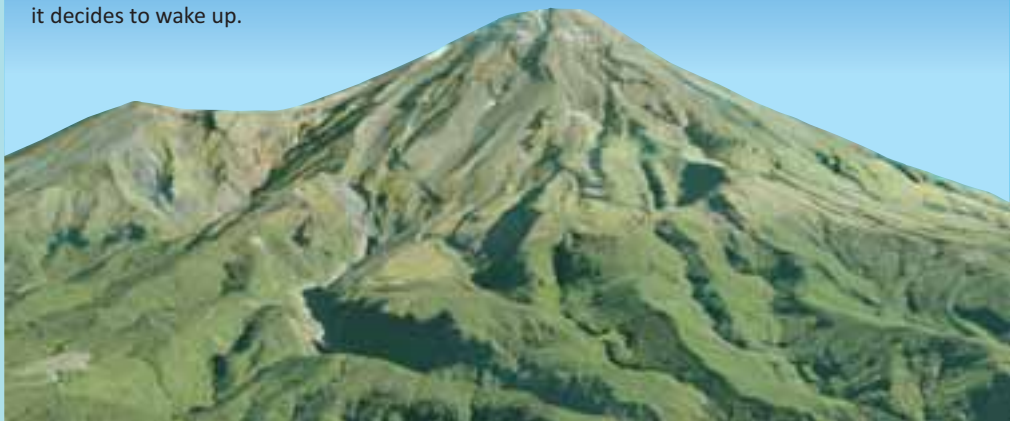
The Taranaki Science and Technology Fair once again demonstrated the diverse talents of our region's students. The Taranaki Regional Council sponsors prizes that best demonstrate an environmental awareness or action. Choosing the winners was no easy task. Congratulations to all the students, teachers and parents who devoted their time and energy to help create such a colourful and informative spectacle.

Enjoy your term and remember to teach is to touch lives forever.

Regards
 Kevin Archer

Te Maunga - our mountain

The focus of this newsletter is our mountain. Mt Taranaki dominates our landscape, our weather and often our conversations. We will look at how important the mountain is for us all, activities we could consider should we visit and actions we need to take now to prepare ourselves for when it decides to wake up.



Science and Technology Fair awards

This year Council prizes were awarded to Jakarta Munro-Smith and Brooke Heaps from St Josephs (Opunake) for their exhibit titled 'No More Mud' and Shan Hickey from Opunake High School for his exhibit titled 'Drain Decision'. Winning a Council prize was not a new experience for Shan as he received an award last year. Congratulations to all three winners.



Te Maunga

Mt Taranaki rises to 2,518 metres making it the North Island's second highest peak, behind Mt Ruapehu. Volcanologists class it as an 'active' volcano in a state of quiescence, meaning it is asleep. Along with older volcanoes such as the Pouakai and Kaitake ranges, our mountain is situated within Egmont National Park. We all know that our mountain is a beautiful and scenic area providing us with many recreational and educational opportunities.

Egmont National Park visitor centres

The Department of Conservation has two visitor centres on Mt Taranaki. The centres feature displays on the natural heritage and history of the area. For schools, they offer different programmes and are open at different times. Contacts for each are as follows:

North Egmont Visitor Centre

Ph 06 756 0990
Email: egmontvc@doc.govt.nz

Dawson Falls Visitor Centre

Ph 027 443 0248
Email: egmontvc@doc.govt.nz

A giant reservoir

Not only does the mountain produce valuable rainwater for the region, it is also able to retain large volumes of water, which over time is released, thereby maintaining flows in our waterways throughout the year. This is because the geology of the mountain absorbs and slowly releases water through ground springs. The majority of our rivers on the ring plain start on the mountain, before crossing the plain and end at the sea.

Mountain river studies

Many schools incorporate a river study whilst camping on the mountain, particularly those staying at Konini Lodge at Dawson Falls. The Kaupokonui Stream has its source close to Dawson Falls with several sites nearby suitable for study. At a later date, many school groups study the same river at several other sites along its course. Data collected at each study is then presented in various ways showing the health of the river at its different points. Other rivers such as the Waiau River (west Taranaki) and the Waiwhakaiho River (north Taranaki) have suitable sites close to the National Park and several others further down, suitable for study purposes.



Mountain walks

There are hundreds of short walks suitable for school groups to take when visiting the mountain. Much can be learned and enjoyed if the groups are well organized, well led, stop regularly and move at a suitable pace for all.

How the volcano shaped our landscape

Volcanologists believe that our mountain began forming about 130,000 years ago and eruptions have occurred intermittently ever since. The last eruption was in 1755 which seems to be a long time ago but isn't in geological terms. Many times in the last 50,000 years the cone of the mountain has collapsed and lahars (debris flows) have swept down the mountain. In addition many eruptions have produced large amounts of volcanic ash which has settled on the land. Our highly fertile ring plain is made up of a mixture of ash and lahars.

Will it erupt again and if so when?

The answer to the first part of the question is almost certainly 'yes' but the second part is not known. However, volcanologists believe that there is a fifty-fifty chance that it will erupt within the next fifty years. What is known is that there have been many long periods of inactivity

Water quality

The quality of the water within the National Park is understandably the best in the region. The heavily vegetated area is well protected with little opportunity for pollution. As the water flows to the sea it has less protection from stream side vegetation and is subject to impacts from many sources including factories, urban areas, roads, farms and people.

Generally speaking, the different species of aquatic invertebrates living in the water reflect the change in the water quality as the river makes its way to the sea. Students studying the rivers devote most of their time collecting and identifying these invertebrates. In recent years most of our streams and rivers have been fenced and thousands of trees have been planted on the banks. In time, as the trees grow, the water quality will improve enabling everyone using the water and everything living in it to be winners.

How we will know what to do before, during and after an eruption?

Our radio will be our best source of information but it will need to be a battery or dynamo charged one as electricity will often be affected in an emergency. Every home needs to have its own emergency kit with items such as spare food, masks, first aid, gas cookers, emergency water, torch, spare batteries, pet food and of course a radio.

in the mountain's history. It is also known that when the mountain does erupt it is likely to erupt for a long period of time on a regular basis. But with the help of nine seismometers, we will almost certainly know when an eruption is imminent and we can act accordingly.



Council support to teachers

- From our [website www.trc.govt.nz](http://www.trc.govt.nz) download the unit 'The Sleeper Wakes' or contact Kevin for a copy of one, you can also borrow a set of up to 10 copies of the book if required.
- Check out Taranaki Blowout on our website
- If you are studying disasters or volcanoes invite Kevin to talk to your class about preparedness for such events.
- Contact Kevin to arrange for your class to visit the Taranaki Emergency Management Office (TEMO) in New Plymouth.
- Invite Kevin to talk about water quality issues in our region and if required to support classes with river studies whilst camping on the mountain.
- As the mountain plays a major role in our weather patterns you could download the Weather unit from our website. Or Kevin could explain to primary and intermediate classes how the mountain affects our weather.
- Invite your class to submit a series of mountain-based questions to Kevin and he will come in and do his best to answer them.

Junior Environmentalists Page



Altitude and rainfall

In most cases there is a direct link between rainfall figures and altitude. Below are some figures for both.

	Altitude (m)	Rainfall (mm)
North Egmont	955	7078
New Plymouth (Mangorei Rd)	70	1792
Egmont Village	198	2365
Patea	23	1043
Dawson Falls	945	5822
Stratford	311	1961
Opunake	27	1239

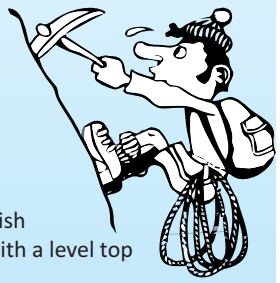
- From the chart can you see what place has a higher rainfall than could be expected when using the altitude/rainfall relationship?

- From the chart can you see what place has a lower rainfall than could be expected when using the altitude/rainfall relationship?

- By how much is North Egmont's rainfall figure greater than the combined figures for New Plymouth (Mangorei Rd), Opunake and Patea.

Multi choice mountain quiz

- New Zealand's highest mountain is
 - Mt Taranaki
 - Aoraki Mt Cook
 - Mt Messenger
 - Mt Ruapehu
- The first person to climb Mt Everest was
 - Mr Peter Hillary
 - Sir Edmund Hillary
 - Sir Ernest Rutherford
 - Mr Will.E.Makeitup
- In terms of volcanic activity, all South Island mountains are classed as being
 - Active
 - Extinct
 - Neither active nor extinct
 - Asleep but liable to wake up
- Lava is
 - good to eat, tasting rather like chocolate
 - always very hot
 - matter that flows from a volcano
 - A Fijian dress
- The summit of a mountain is
 - near the top
 - near the base
 - at the top
 - exactly half way up
- Australia's highest mountain is
 - Mt Surprise
 - Mt Kosciuszko
 - Mt Fujiama
 - Mt St Helens
- A snowbunting is
 - A species of bird
 - A sport played in frozen areas
 - A machine to shift snow off roads
 - A hole in a yacht's sail
- Which of these is not regarded as mountain climbing equipment
 - aqualungs
 - crampons
 - carabineers
 - ice axes
- A plateau is
 - a tableland
 - an ornamental dish
 - a woman's hat with a level top
 - all of A,B and C
- Mt Silisili is the highest mountain in
 - USA
 - Samoa
 - England
 - France



Use these words to fill in the gaps

people, eruption, Taranaki, region, thick, history, cause, difficulties, harm, volcanic, evacuation, Park, ash

A volcanic _____ could cause widespread damage and economic harm to the Taranaki _____. Although Mt _____ has not had a _____ of lava flows beyond the National _____ there have been many instances of _____ layers settling on the ground. Ash eruptions have the potential to _____ extreme _____ to our region. The ash could cause breathing _____ for humans and animals as well as covering the ground with _____ layers. All _____ in the Taranaki region should be prepared for _____ activity and have plans for a safe _____ if needed.

Match up Match the mountain-related words with their meanings/definitions

- | | |
|-------------------------|--|
| 1. The Sleeper Wakes | A. A river that runs from the mountain to the coast |
| 2. Blowout | B. A place to stay on Mt Taranaki near Dawson Falls |
| 3. 2,815 metres | C. The year our mountain last erupted |
| 4. Egmont National Park | D. A book written about Mt Taranaki erupting |
| 5. Volcanologist | E. An instrument that measures motions of the ground |
| 6. 1755 | F. Someone who studies volcanoes and volcanic activity |
| 7. Konini Lodge | G. The height of Mt Taranaki |
| 8. Waiwhakaiho River | H. Used to give an indication of stream health |
| 9. Seismometer | I. Where Mt Taranaki is located |
| 10. Invertebrates | J. A volcanic eruption exercise run by the Council last year |

Alphabet mathematics

There are many mathematical exercises you can do with this data such as seeing what the score is for your name by adding each letter's number. You could compare your score with other people in your class or other members of your family. Some words have interesting scores such as the word 'attitude'. Find out what score it gets, you might be quite surprised.

A = 1	N = 14	A _____
B = 2	O = 15	T _____
C = 3	P = 16	T _____
D = 4	Q = 17	I _____
E = 5	R = 18	T _____
F = 6	S = 19	U _____
G = 7	T = 20	U _____
H = 8	U = 21	D _____
I = 9	V = 22	E _____
J = 10	W = 23	_____
K = 11	X = 24	_____
L = 12	Y = 25	_____
M = 13	Z = 26	_____

