



NATURAL HAZARDS

ISSUE 52 - SEPTEMBER 2012

Tēnā koutou e hoa ma - Hello Pollution Busters!

With New Zealand ShakeOut happening in the next couple of days and the increased volcanic activity at White Island we thought it would be a good opportunity for us to talk about natural hazards and what you should do in the event of an emergency. This way we can all Bee Prepared if a disaster happens!

Thanks to everyone who entered our scrapbook page competition. Check out the Club Corner on page 11 to see some of the entries. In this issue we have a colouring competition – see page 5.

BuzzBOP loves getting your mail and emails about the things you are doing in the environment so please keep sending them in!

If there is anything you would really like to see featured in our newsletter let us know by emailing buzzbop@boprc.govt.nz or by sending him a letter.

We hope you have a wonderful holiday break and enjoy spending time with friends and family.

“Kia u, kia ngakaunui ki nga mahi pai” Be steadfast and conscientious in all your good work.

From BuzzBOP and the team at Bay of Plenty Regional Council.



GET READY TO SHAKE OUT

Be part of New Zealand's largest earthquake drill

NEW ZEALAND SHAKEOUT - ARE YOU READY?

An earthquake can happen without warning, anytime and anywhere.

When an earthquake hits, you might be at school, at home, or even sleeping soundly in the comfort of your own bed. If an earthquake happened, would you know what to do?

New Zealand ShakeOut is a national (the whole country) exercise that aims to have more than one million people get prepared for an earthquake, and practice the Drop, Cover and Hold survival action at 9.26am on Wednesday 26 September. It's also a great way for schools, businesses, families and community groups to check out how prepared they are for an emergency and to make sure they're ready with emergency plans and survival kits.

The ShakeOut exercise has been a big success in other parts of the world but this will be the first time an entire country is encouraged to get involved.

For more information or to get involved visit www.getthru.govt.nz, then prepare to Drop, Cover and Hold at 9.26am on Wednesday 26 September!



9.26am
26 September
2012



WHAT IS A NATURAL HAZARD?

A natural hazard is an event that can damage houses and streets and may harm human life. Earthquakes, floods and volcanic eruptions are all natural hazards that could happen here in the Bay of Plenty. Disasters like these can happen at any time and often without warning. Although this sounds a bit scary, if we are prepared for such hazards then we can get through as safely as possible! Check out page 9 to see all the things you can do to be prepared.

The Bay of Plenty's history of natural disasters

FLOODS & LANDSLIDES



2004 – intense rainfall and gale force winds in February caused flooding to many areas in New Zealand, leaving hundreds of people homeless, farmland covered in silt, sheep and cattle drowned or swept away, bridges damaged and roads closed.

2004 – in July heavy rain resulted in floods and landslides in the Whakatāne and Ōpōtiki districts.

2005 – people had to leave more than 150 homes after floods in the Bay of Plenty.

2007 – torrential rain and gale force winds caused widespread flooding.

STORMS



1936 – a cyclone destroyed buildings, caused flooding and sinks boats.

1939 – the worst snowstorm in 100 years killed livestock, blocked roads and halted trains.

1968 – Cyclone Giselle caused much storm damage throughout the country.

1988 – Cyclone Bola, one of the most notorious cyclones of recent history, battered the North Island.

2007 – torrential rain and gale force winds caused widespread flooding, slips, wind damage, and road closures.

EARTHQUAKES



1987 – roads were split open, a railway engine toppled onto its side, and houses shifted off their foundations during the magnitude 6.3 Edgecumbe earthquake.

TSUNAMI



1960 – a tsunami from a huge earthquake in Chile resulted in the evacuation of Whakatāne, Ōhope and Ōpōtiki.

VOLCANOES



White Island (Whakaari) has had continuous activity over the past 150,000 years. In 1914 an eruption on White Island killed ten miners.

Rotorua – 140,000 years ago an eruption caused the ground to collapse, forming a huge basin which forms present-day Lake Rotorua.

Mount Edgecumbe (Pūtauki) was last active 3,500-5,500 years ago.

Mount Tarawera – in 1886 it erupted, killing more than 150 people, and destroying the famous Pink and White Terraces.

WORDFIND

D R A Z A H G W F E Y N T R E
A D R D Y G A E I B C A T T H
C S E E O T R H R A N T U N H
D L V A E O O T S T E U M T I
N I O R O L L I T T G R R L P
I P C T D I M F A E R A O R O
W S I H H A D R I R E L T L N
R Q K Q N S A A D I M Q S D A
D G O U M I Z X R E E J U B C
R Y S A N L A N D S L I D E L
O T T K R E T S A S I D K F O
P W Z E S U R V I V A L B K V
C I N O T C E T E K N A L B Z
P R E P A R E D H C R O T X U



WORDS:

BATTERIES
BLANKET
CLOTHS
COVER
DISASTER
DROP
EARTH
EARTHQUAKE
EMERGENCY
FIRST AID
FLOOD
HAZARD
HOLD
LANDSLIDE

NATURAL
PREPARED
RADIO
RAIN
SLIPS
STORM
SURVIVAL
TECTONIC
TORCH
TSUNAMI
VOLCANO
WATER
WIND



EARTHQUAKES

The Bay of Plenty has thousands of earthquakes every year. Most are very deep or are a long way offshore, and don't cause much damage – a lot of the time we don't even feel them! However, a really big earthquake – like the 1987 Edgecumbe earthquake (it was 6.3 on the Richter scale) – can damage houses, crack roads and the ground and bend railway lines.

What is an earthquake?

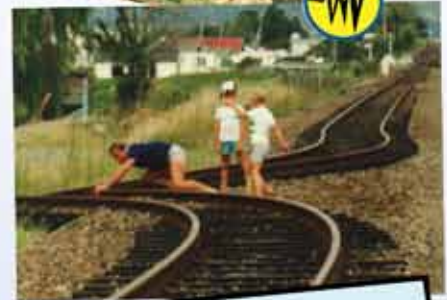
The surface of the earth is made up of big plates that fit together like a jigsaw. These are called tectonic plates. Normally they only move very small amounts at a time. Earthquakes are caused when the plates move quickly and suddenly.

New Zealand is on top of two plates – the Pacific and Australian plate – which is why we have so many earthquakes.

In some places the plates are always on the move, and cause frequent small earthquakes. In other places where they don't move all the time they are prone to have stronger quakes separated by longer periods of time.

You can find out where recent earthquakes in New Zealand were and how strong they were on the Richter scale at Geonet.

www.geonet.org.nz



FIX - secure bookcases, hot water cylinders and chimneys etc. so they don't fall during an earthquake

FASTEN - fasten vases and picture frames using blu-tac or similar

FORGET - when you fix and fasten you don't have to worry about those items in an earthquake

IN AN EARTHQUAKE REMEMBER TO:



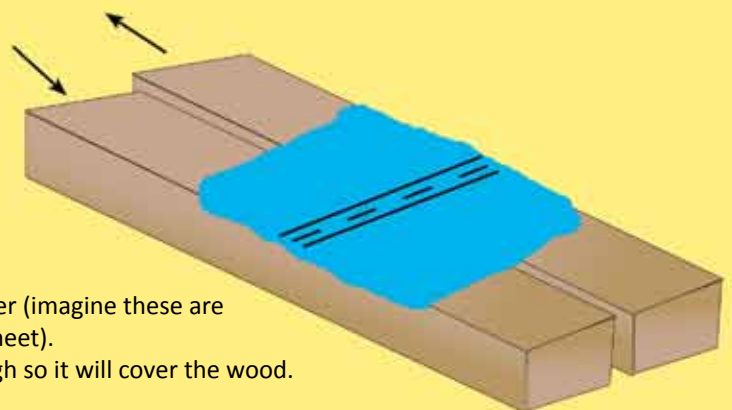
SEE HOW EARTHQUAKES AFFECT THE EARTH'S SURFACE

You will need:

- 2 long blocks of wood
- Clay or playdough
- Rolling pin
- Marker pen

Steps:

1. Place the two blocks together (imagine these are where two tectonic plates meet).
2. Roll out the clay or playdough so it will cover the wood.
3. Cover the blocks.
4. Draw a road across the clay.
5. Move one of the blocks in one direction against the other block. What happens to the clay and road?



What to do before an earthquake

- Practice your earthquake drill: **DROP, COVER AND HOLD.** (Take part in the New Zealand ShakeOut)
- Talk with your family and prepare an Emergency Plan.
- Identify safe places close to you at home or school.
- Get your parents to '**Fix, Fasten and Forget**' items at home.

COLOURING COMPETITION

During

- **DROP, COVER AND HOLD.**
- Stay where you are until the shaking stops.
- If inside stay inside, if outside stay outside.
- Do not try to run outside.

After

- Listen to and follow all instructions from adults or the radio.
- Stay calm.
- If you can, help others.
- Watch out for possible dangers or hazards.
- Remember there may be some aftershocks.
- Remember your prepared action plan and follow it if it is safe to do so.

Name: _____

Address: _____

Age: _____

Send entries to:

BuzzBOP and Team
Bay of Plenty Regional Council
Freepost 122076
PO Box 364
Whakatāne 3158



New Zealand is on the 'Ring of Fire', a geographic belt encircling the Pacific Ocean, it contains about 90 percent of the Earth's volcanoes. There are six active volcanic regions in New Zealand (five in the North Island and one offshore in the Kermadec Islands).

The Bay of Plenty is home to White Island or Whakaari which is one of only a few active volcanoes in New Zealand. It is called active because scientists have recorded volcanic activity deep in the ground under the volcano. Volcanic activity at White Island has increased recently and it had a small eruption in the crater lake area on 6 August.

Although it is active on a day-to-day basis it is very safe! In fact more than 10,000 tourists visit Whakaari each year – have you been?

VOLCANIC ERUPTIONS

A volcanic eruption happens when magma (liquid rock) from deep underground comes to the surface. It gets pushed up and out of a vent or fissure – often with a lot of force behind it. When a volcano erupts it throws lots of things like large chunks of rock, red-hot ash, liquid lava and gases into the air. If there is a crater lake, water can mix with volcanic debris to form fast-moving avalanches of mud called 'lahars', which can kill and injure people and cause damage to property. Ash clouds from volcanoes can make people sick and clog the engines of cars and planes.

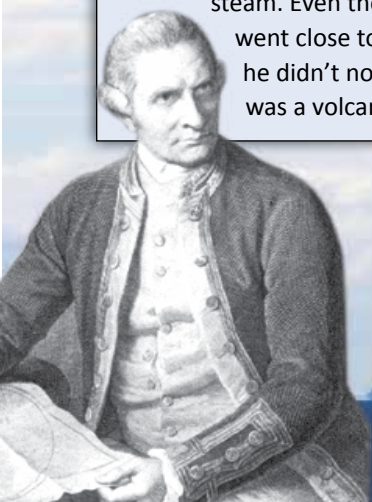


There are a number of volcanoes in the Bay of Plenty - which one is closest to you?



Did you know?

The full Māori name for White Island is 'Te Puia o Whakaari', meaning 'The Dramatic Volcano.' It was named 'White Island' by Captain Cook on 1 October 1769 because it always appeared to be in a cloud of white steam. Even though Cook went close to the island he didn't notice that it was a volcano.



If a volcanic eruption happens:

- **Save water** - in your bath, basin and containers as supplies may become polluted.
- **Listen to your radio** to hear updates from Civil Defence
- If told to leave, cover your face and mouth and **take your Getaway kit**.
- **Stay indoors** if you can and keep your pets indoors too - keep windows and doors shut. If you're outside - find shelter.
- If you have to go **outside wear a mask and goggles** to keep the volcanic dust from getting in your eyes and mouth.
- **Don't go sightseeing**
- Take your outer layer of clothing off before entering a building - volcanic ash is hard to get rid of.
- **Don't drive your car** - the engine can disrupt the volcanic dust which can clog your engine and cause it to break down.

FLOODS

Floods are one of New Zealand's most frequent hazards. Flood waters can destroy the land, washing away roads, bridges, railway tracks, buildings, cars animals and even people (especially during flash floods).



Floods can happen because of storms and heavy rain which cause rivers to overflow their banks. After a flood there can be lots of damage and pollution to clean up. It could take months or years to recover.

There are two main types of flooding:

River floods: When it rains a lot river levels get higher and can cause the water to flow over the banks. If your house is near a river or stream this is especially one to watch out for!

Flash floods: Lots of heavy rain in a short space of time can cause floods in the streets. There can be so much water that the drains can't take it away fast enough!

WHAT TO DO:

Before a flood happens:

- Find out about the worst flood in your area and how high the flood waters reached. Would your home be safe?
- Know how to get to high ground nearby.
- Move animals to safety – sheep and cows on a farm and your dogs and cats.
- Keep valuables and some supplies upstairs or in a high cupboard so they are easy to get to.
- Tell your parents to store their chemicals like weedkiller up high – if these leak in a flood it can be dangerous.

Can you get the lamb to higher ground?



If a flood happens:

- Listen to your radio for information (like weather reports and Civil Defence advice and instructions)
- Remember your pets!
- Don't go sightseeing or driving through flooded areas – the waves the car creates can cause the water to go into peoples' homes.
- Remember that a lot of rain can make cliffs unstable and cause slips – keep away from overhanging areas.
- Don't go into flood waters alone.
- Take your Getaway Items with you if you have to leave your home.
- Remind adults to turn off mains electricity and gas.
- Do not drink floodwater, it could be contaminated and make you sick.

In an emergency listen to the radio for advice and information.

Visit www.bopcivildefence.govt.nz to see what radio stations to listen to.

Practice tuning your radio to the frequency of that radio station.



TSUNAMI



New Zealand is a country surrounded by water, so many coastal communities are at risk from tsunami. In a local tsunami the water level may fall very quickly past the normal low tide mark, then return just as quickly. If this happens, there won't be enough time to issue a warning and it is important that you know what to do, and that you act quickly.

WHAT IS A TSUNAMI?

A tsunami is not a normal wave. It is a series of surges often caused by earthquakes, underwater landslides and underwater volcanic eruptions. Tsunami surges appear either as rapidly-moving tides with very strong currents that can wash people and objects out to sea, or as large breaking waves that can cause significant impact damage at the shoreline.



Tsunami surges can be really big, but they can also be quite small. A tsunami can travel great distances – 17,000 kilometres or more. That is the distance from New Zealand to Greece! They can also travel very fast, up to about 500km/h – that is very, very fast!

Tsunami warning signals can come from several sources - natural, official or unofficial.

Natural warning signals may be the only warnings possible for local or regional source tsunami.

NATURAL WARNING SIGNALS:

- Strong earthquake shaking (like if it is hard to stand up)
- Weak, rolling earthquake shaking that lasts a long time (for example a minute or more)
- Strange sea behaviour, such as unusual and sudden sea level fall or rise
- The sea making loud and unusual noises, especially roaring like a jet engine

The first wave may arrive within minutes so if you experience any of these signals go to high ground immediately.

Tsunami: (pronounced sue-nah-mee) is a Japanese word that means 'harbour wave'.



WHAT TO DO:

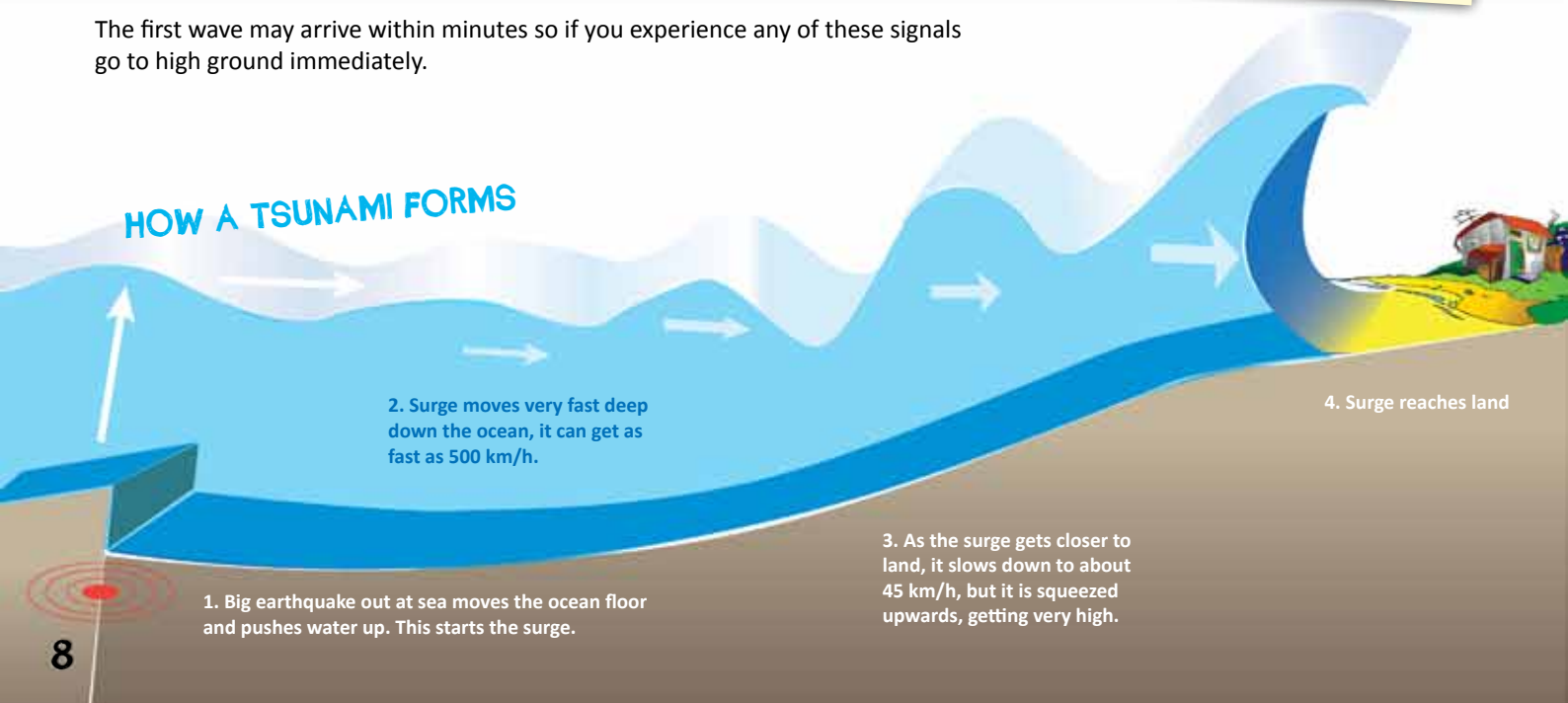
Before a tsunami:

- Know if your local area could be struck by a tsunami.
- Talk with your family and prepare an Emergency Plan.
- Identify safe places close to your home and school - a place which is at least one kilometre inland or 35 metres above sea level.

During a tsunami, or if you notice any tsunami warning signals:

- Stay calm.
- Leave the area immediately if you are on the beach or near a river when a strong earthquake occurs. Move quickly but safely.
- Go at least one kilometre inland or 35 metres above sea level.
- Don't go to a river or beach to watch the waves come in if a warning has been issued.
- Once away from the water, listen to a radio station for information from local civil defence about what to do next.

HOW A TSUNAMI FORMS



STORMS

What is a storm? It's a disturbance of the atmosphere that can cause strong winds, rain, thunder, lightning, heavy snow and rough seas. A strong wind warning is issued by the MetService (New Zealand's weather forecasting service) when winds of more than 87kph are expected over land.

Hazards from storms include falling trees and poles, torn-off roofs, fast-flowing currents in streams and rivers, flying objects, land slips and flooding. Coastal areas can suffer from storm surges, which are extra-high tides caused by the high winds pushing the sea forward.

EMERGENCY PLANNING

Your family needs to have a plan for what to do if there is an emergency. You should talk with your family about these things:

In an emergency you will need to be prepared with:

- An Emergency Plan
- An Emergency Survival Kit
- A First Aid Kit
- A Getaway Kit



Your Emergency Plan should include:

- Where to shelter in an earthquake, flood, volcanic eruption or storm.
- How and where you will meet up during and after a disaster.
- The best place to store Emergency Survival Items. Make sure everyone knows where these items are, and who is responsible for checking essential items.
- Where each person's Getaway Kit will be so they can take it with them.
- How to turn off the water, gas and electricity at the mains – this should be done by an adult.
- How to contact your local civil defence organisation for help during an emergency.

SPOT THE DIFFERENCE



Can you spot the 10 differences between the two photos of Pollution Busters members Lucy (7) and Monique (5) with their mum getting their emergency items together.

The answers are on the next page...

You can download a template to help you with your Emergency Plan from www.getthru.govt.nz

EMERGENCY SURVIVAL ITEMS AND GETAWAY KIT

In most emergencies you should be able to stay in your home. You should plan to be able to look after yourself and your household for three days or more. You should get your emergency survival items for your home together (don't forget to look after them – you should check over your kit every three months). You should also get your personal Getaway kit together in case you have to leave in a hurry. It's also a good idea to tell mum and dad to have any essential emergency items in their workplace and in their car.

Emergency Survival Items

- Torch with spare batteries or a self-charging torch
- Radio with spare batteries
- Wind and waterproof clothing, sun hats, and strong outdoor shoes.
- First aid kit and essential medicines
- Blankets or sleeping bags
- Pet supplies
- Toilet paper and large rubbish bags for your emergency toilet
- Face and dust masks
- Food and water for at least three days:
 - Non-perishable food (canned or dried food)
 - Food, formula and drinks for babies and small children
 - Water for drinking. At least 3 litres per person, per day
 - Water for washing and cooking
 - A primus or gas barbeque to cook on
 - A can opener

Check all batteries every three months. Battery powered lighting is the safest and easiest.
Do not use candles as they can tip over in earthquake aftershocks or in a gust of wind.

Check and replace food and water every twelve months.
Think about stocking a two-week supply of food and water for prolonged emergencies such as a **pandemic**.

What is a pandemic? an epidemic of infectious disease through the human population that is geographically widespread; occurring throughout a region or even throughout the world



Getaway Kits

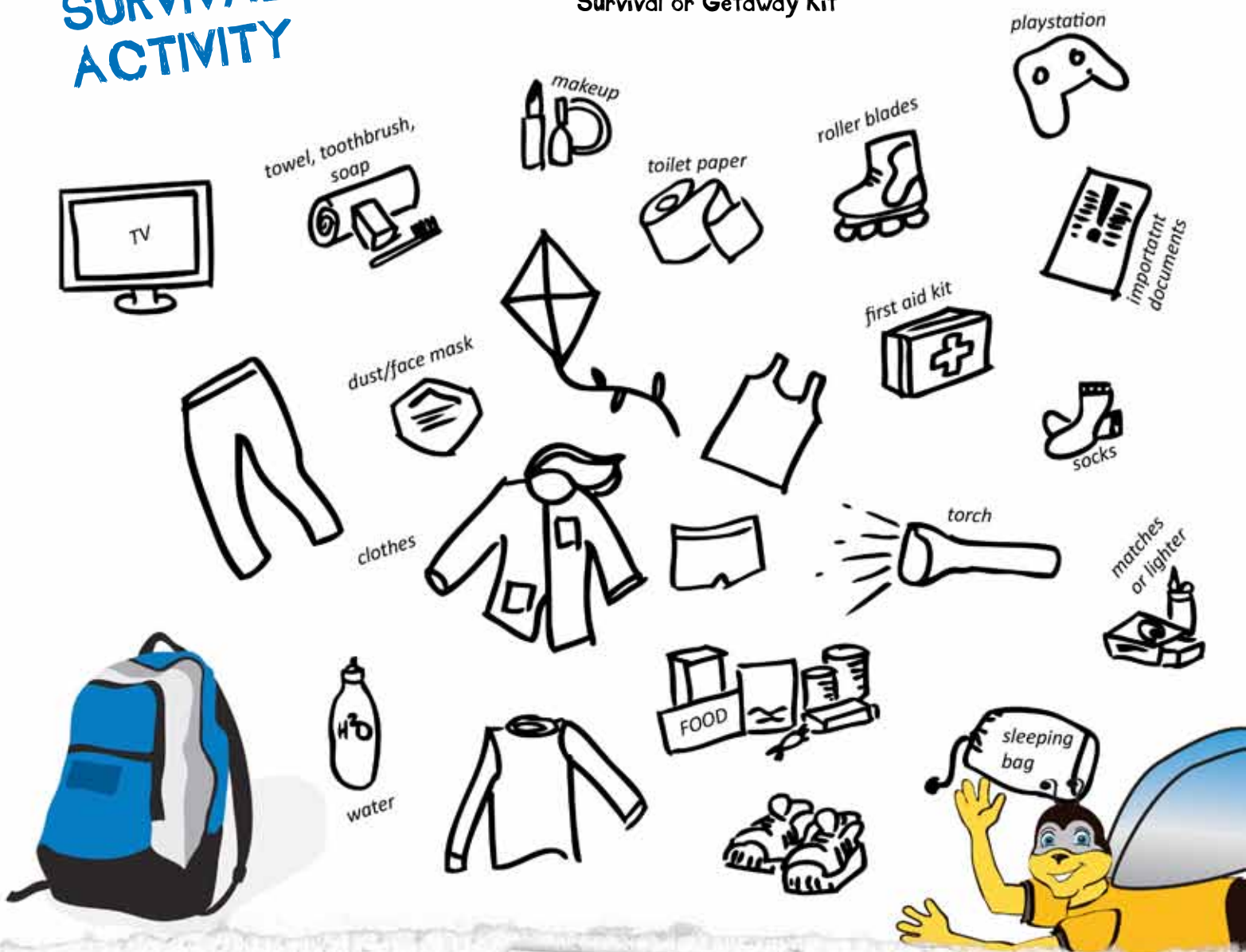
In some emergencies you may need to evacuate (get out) in a hurry. Everyone should have a packed getaway kit in an easy to get to place at home that includes:

- Torch and radio with spare batteries
- Emergency water and easy-to-carry food rations such as energy bars and dried foods in case there are delays in getting to a welfare centre or a place where you might find support. If you have any special dietary requirements, make sure you have extra supplies
- First aid kit and essential medicines
- Essential items for infants or young children such as formula and food, nappies and a favourite toy
- Change of clothes (wind/waterproof clothing and strong outdoor shoes)
- Toiletries – towel, soap, toothbrush, toilet paper
- Blankets or sleeping bags
- Face and dust masks
- Supplies for your pet (like food!)
- Tell mum and dad to Include important documents in their getaway kit: identification (birth and marriage certificates, driver's licences and passports), financial documents (like insurance policies and mortgage information), and precious family photos.



SURVIVAL ITEMS ACTIVITY

Colour in and draw a line to the backpack for all the things that should be in your Emergency Survival or Getaway Kit



CLUB CORNER

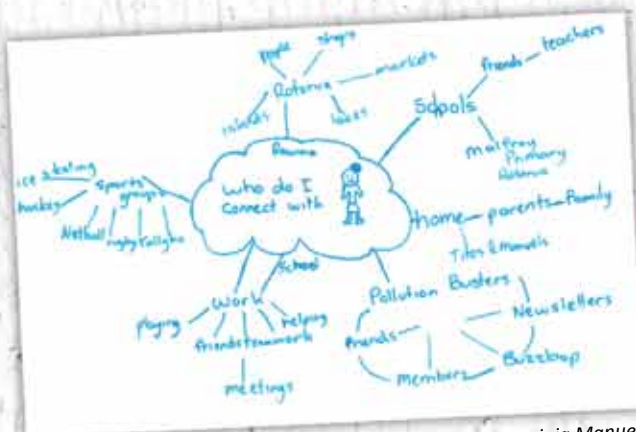
Thanks pollution busters for all your cool artwork. Make sure you enter this issues colouring competition on page 5 and check the club corner next time to see if yours is featured!



Kane Johnson - called "Mother earth" (6 years)



Bodhi (4 years)



Rawinia Manuel (10 years)

Pollution Busters club is the bestest club ever



I went on your website and I learnt a lot and I played lots of games

♥ I love the newsletters and activities

now I am going to make the easy bird feeder.

BuzzBOP'S friend - Clinton Naude

Manager - Group Emergency Management Office



What do you do?

I am an emergency manager and I am responsible for Civil Defence and Emergency Management in the Bay of Plenty Region. My team and I help people to be prepared to deal with natural disasters like earthquakes, volcanoes and floods. We work with our partners such as the police and fire service to get ready for big emergencies.

What's the best part of your job?

Helping people to get ready and dealing with different types of emergencies.

Do you and your family have an Emergency Survival Kit ready to go?

Yes I have a wonderful family who help me by being ready at home, my wife Paula and my daughters Savannah (8yrs) and Alexis (6yrs) are ready – are you?

What's your message to Pollution Busters?

It is really important to get ready at home, to have a plan and Emergency Survival Kit. Ask mum, dad and the whole family to have a talk about the plan. Think about your pets too. You can check with my friend Stan for ideas and tips.



HELPFUL WEBSITES

For more information about what you might need in an emergency take a look at the following websites:

- **The Bay of Plenty's Civil Defence website:** www.bopcivildefence.govt.nz
- **What's the Plan Stan** - Civil Defence website with cool activities to help you understand about natural hazards. www.whatstheplanstan.govt.nz
- **New Zealand Civil Defence – Get Ready, Get Thru:** www.getthru.govt.nz

Other sites:

- This awesome website lets you be the planner and help prevent major damage from disasters in different places around the world. www.stopdisastersgame.org
- Latest quake information: www.geonet.org.nz
- Earth Science learning: www.gns.cri.nz/Home/Learning/Science-Topics

Information in this newsletter was sourced and adapted from the helpful websites listed on the left and from previous issues of Pollution Busters.

Captain Cook image from Wikipedia - James Cook, portrait by Nathaniel Dance-Holland, National Maritime Museum, Greenwich



Pollution Busters join up or change of address here...

Please have an adult check that the details are correct before you send this.

- ☐ I am a new Pollution Buster
- ☐ I am already a Pollution Buster but I have changed my address

Name _____

School _____ Birthday ____/____/____ day / month / year

Address _____

BuzzBOP and Team
Bay of Plenty Regional Council
Freeport 122076
PO Box 364
Whakatāne 3158

Email: buzzbop@boprc.govt.nz

Write your name, age and address on your letters and on the back of your artwork.

Have you moved and changed address?

If you have moved and changed address, please write or email us so we can make sure you get your newsletter.