WORLD WATER DAY

22nd March 2022

Resource Pack - Home Learning

Save the Children

The United Nations Convention on the Rights of the Child states that every child has the right to the best possible health. This includes access to clean water. World Water Day is an annual UN observance day that highlights the importance of fresh water.

This year's theme is "making the visible invisible," with a focus on groundwater.

WAI

water

Save the Children

WHAT IS GROUNDWATER? *Build an aquifer and pump water.*

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1. Gather your materials

2. Layer sand.

3. Layer pebbles.

4. Continue to the top.

5. Pour water slowly. Stop when you see the water at half way.

6. Water stored in spaces are aquifers. The height of the water is the water table. Can you label these?

7. Add more water until the water table is near the top. Adding more water is like rain on the earth!

8. Cover your pump with fabric to prevent sand getting in.

9. Use your pump to extract groundwater from the aquifers.

Many people in New Zealand and around the world rely on groundwater as their main water supply.

Why is it important that we protect groundwater?

Do you think groundwater can be polluted?

FUN FACTS

Hydrogeologist, Katy Grant, shares with us her favourite groundwater facts.

Have a question about water? Email us at education@scnz.org.nz and get a reply from Katy.

There is about 68 times more water in the ground than in all the lakes and rivers on earth! But some of it is too deep or difficult for us to reach.

Groundwater can be really old! Some of the water we drink is hundreds or even thousands of years old. Water moves through rock very slowly, so we need to think long term when thinking about aquifers.

Groundwater aquifers can extend out under the sea, so below the sea floor there can be rocks full of fresh water, with salty water above!

There are tiny animals that live in groundwater called stygofauna. We are only just starting to understand how they live and what they do, and there are lots of unknown species.

LIQUIFACTION

Learn about why groundwater matters in an earthquake.

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1 . Gather your materials.

2. Fill your tray with sand.

3. Pour water. You want it damp without puddles.

4 . Mix away any puddles.

5. This sand represents the land and soil with ground water.

6 . Now simulate an earthquake with a hammer!

7. What do you notice happening to the land?

8 . As a bonus, bury light objects to simulate pipes and infrastructure.

8 . What happens if you add a building to the solid ground... ?

9 . Does the land stay solid?

Experiment with different amounts of water and water tables.

What are some things you can do to keep safe in an earthquake?

BUILD A TIPPY TAP

Save the Children

Head to our World Water Day page on our education hub for an instructional video on how to make a Tippy Tap.

A Tippy Tap is common in villages around the world that may not have a reliable piped water supply. They can be made with simple materials, save water when water is limited, and maintain hygiene. Knowing how to make these is a great survival skill - either for in the event of a natural disaster, or even just a camping trip!

Materials and preparation

- Two long strong sticks with a Y shape at one end, and one extra strong long stick to go across the middle, and one more stick for a lever.
- A bottle with a handle (a milk bottle works well)
- Soap bar
- Rope / string

An adult will need to puncture 2 holes in the bottle - one underneath the lid, and the other on the handle to release the pressure. This can be done with a nail that has been heated over a flame, a drill, or a screwdriver.

BUILD A TIPPY TAP

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https://www.savethechildren.org.nz/educationhub/

1 . Dig 2 holes for your Y-sticks, the length of your 3rd stick apart. Push them into the dirt and make sure they're nice and stable.

2 . Put your 3rd stick across the Y sticks like a bar. Hang your bottle on it.

3 . Tie a long string to your bottle, around the lid....

4 . ... then tie this same string to the lever stick and place this hovering above the ground.

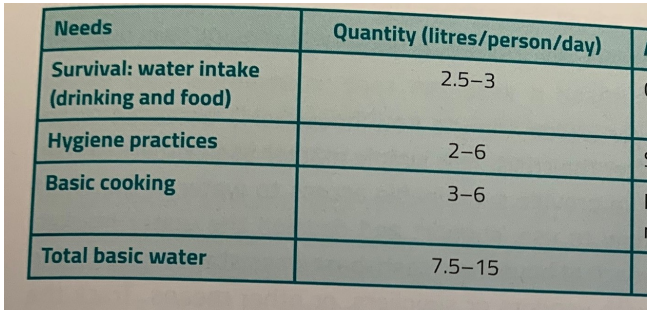
5 . Put a hole in your soap, tie a string to it, then tie the soap to the bar.

6 . Now push the lever with your foot to make the water flow, and wash your hands!

SPHERE PROJECT

The Sphere standards provide a reference for organisations providing humanitarian assistance Many organisations, including Save the Children, use these guidelines during emergencies. This table provides guidelines around water needs during a humanitarian event.

Sphere Water Guidelines for Humanitarian Events



Needs	Quantity (litres/person/day)
Survival: water intake (drinking and food)	2.5–3
Hygiene practices	2–6
Basic cooking	3–6
Total basic water	7.5–15

Did you know that New Zealanders use 227 litres of water per person, per day?

Save the Children

- Choose a city or town. It could be in New Zealand or in another country. Write this here: _____
- Imagine there is a disaster that has disrupted water supply. What disaster could this be in the city you have chosen? _____

  _____
- What is the population of this city or town?_____

  _____
- Use the Sphere guidelines to calculate the amount of water that will need to be supplied to people in order to live.

  _____

  _____
- Present your plan for a humanitarian response on a poster, in your project book, on your device, or in a powerpoint and share with your class. Include:
  - The information above
  - A map
  - Considerations as to how water could be provided (e.g. transport? Access? Where from?)
  - Other challenges that might make the task difficult

Want to know more about emergancy responses? Get in touch at education@scnz.org.nz

HOME DISASTER PREPARATION

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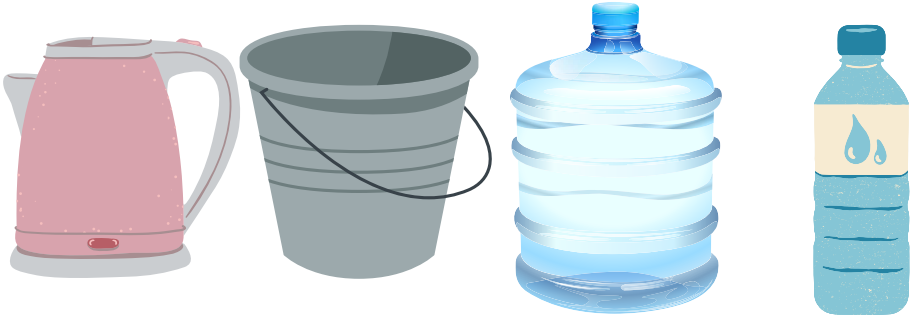
How prepared is your household if the water was cut-off today?

Do a survey of what water would be available to use at home. Perhaps there is water in the kettle? Or maybe your whānau have an emergency water supply? Find out!

Our family had _____ litres of water ready to go if the taps weren't working.



We had water stored in these places:

_____

_____

_____

Civil Defence recommends that you have at least 3 litres of water, per person, per day, for at least 3 days to be prepared!

How much water is this for your household?

_____

Work with your whānau to prepare your house for a disrupted water supply.

8. MY WATER USE

Audit your water use.

In a disaster, each person might only have access to 2-3 litres of water per day, and that is only if humanitarian support has reached them. But the average New Zealander uses 227 litres of water each day!

Toilet flush - 6 litres

Washing dishes - 6 litres

Running a tap - 10 litres per minute.

Brushing teeth - 0.2 litres

Washing hands - 1 litre

Shower - 15 litres per minute

Bath - 90 litres

Washing machine - 100 litres

Dishwasher - 26 litres

Cooking - about 1 litre per pot

Garden hose - 15 litres per minute

Drinking - 2-5 litres

Activity	Number of times or minutes I did this, or amount used.	Total for this activity
Toilet flush		
Drinking water		
Teeth brushing		
Washing hands		
Shower or bath		
Total water use		

MY WATER USE

Reflect on your water audit

Save the Children

Did you use more or less water than you expected? _____

_____

What are some activities that you could save water on and how? _____

_____

_____

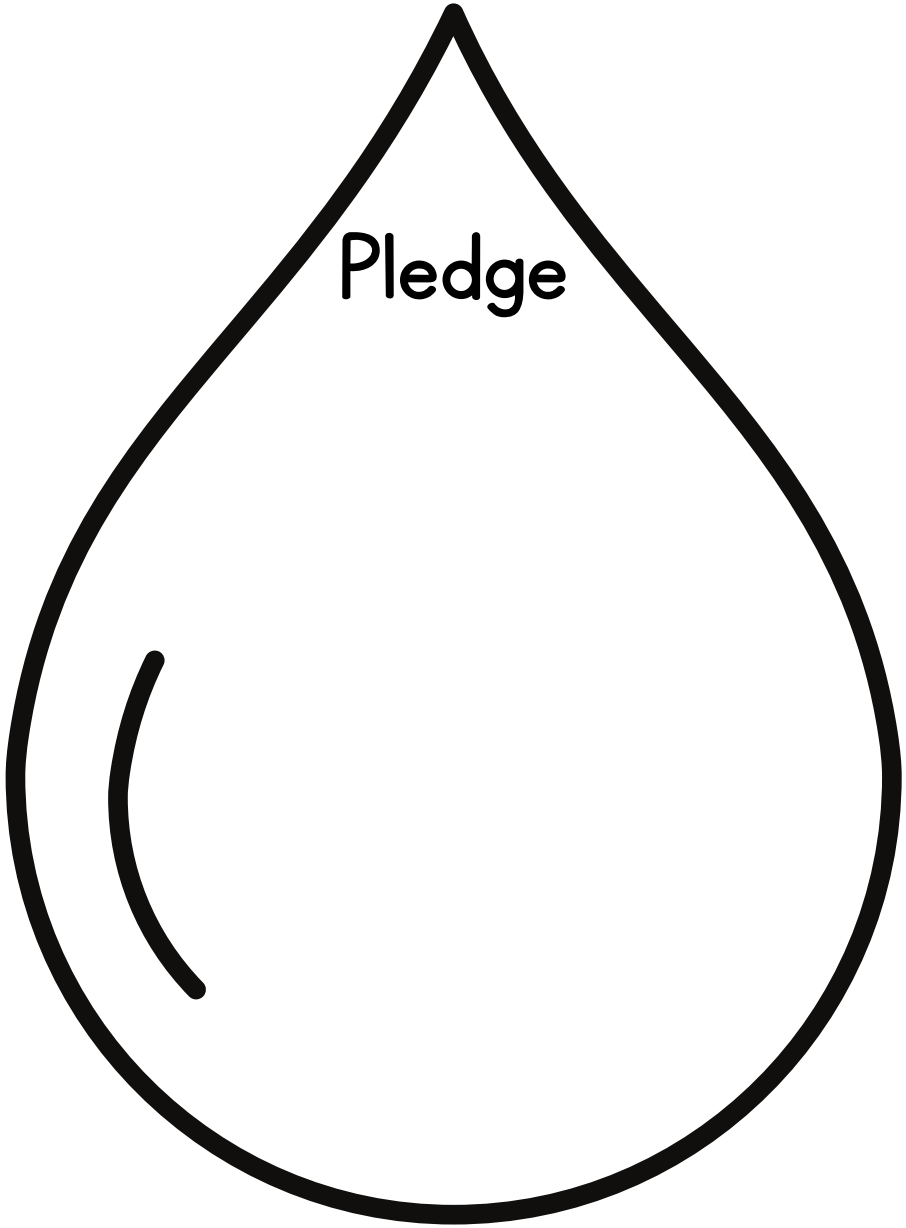
_____

_____

_____

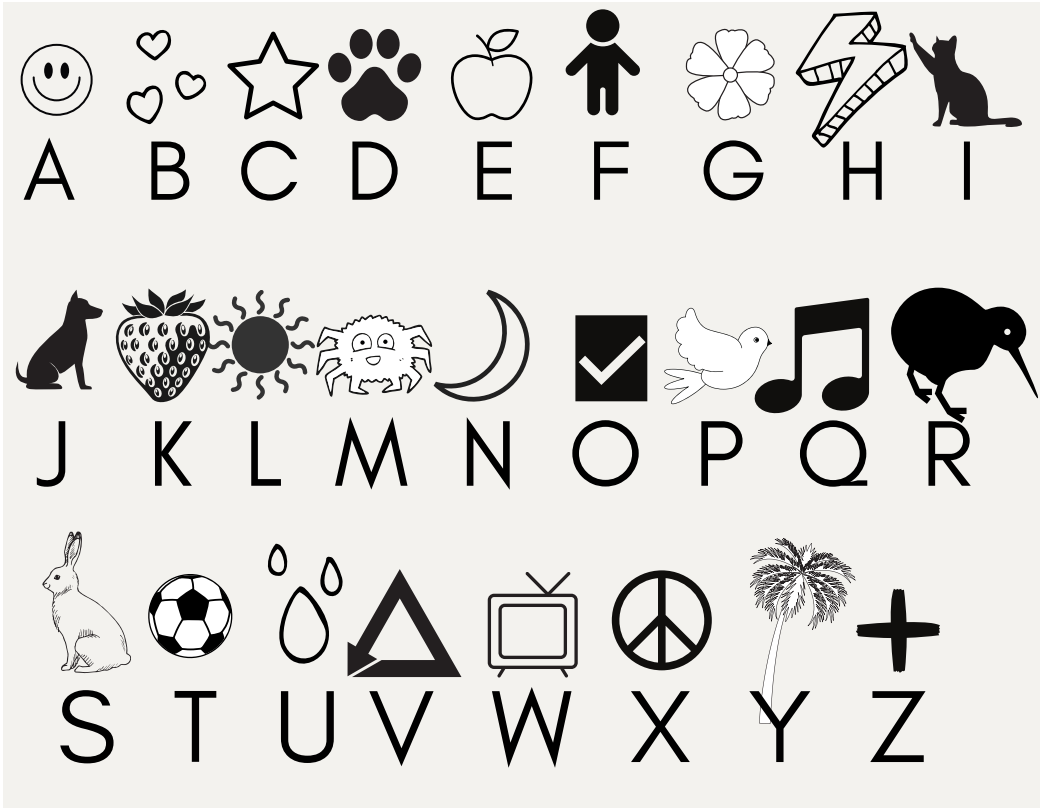
_____

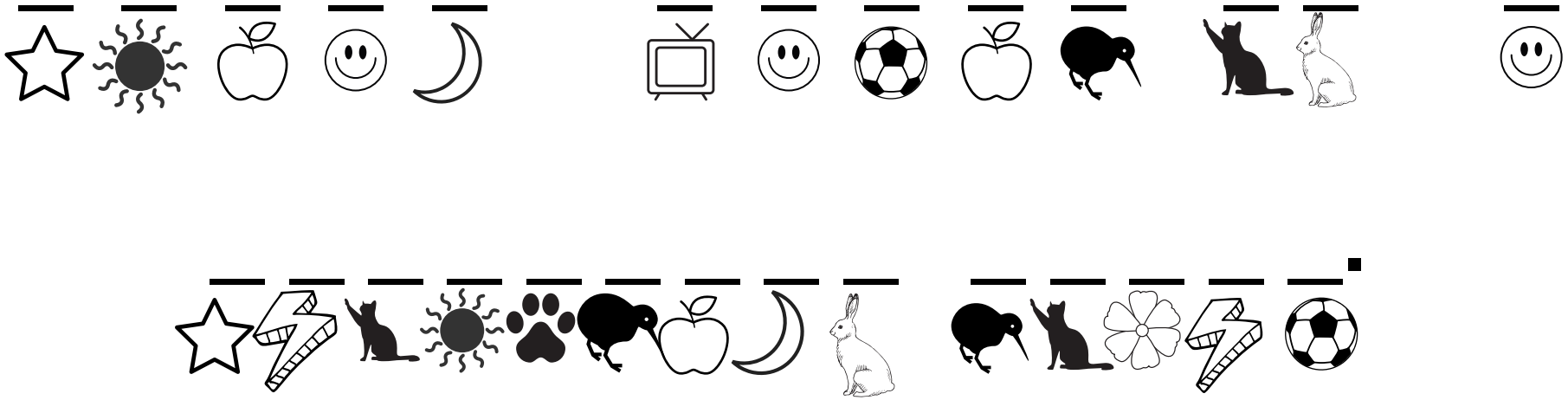
Pledge one action to take to reduce your water footprint. Cut and stick these pledges up in your class or house to remind you of your goal.



CRACK THE CODE

Crack the important message and spread the word!





WORD SEARCH

Save the Children

T	A	X	B	K	A	H	Q	U	G	F
I	R	Q	W	Y	Z	2	A	D	R	E
P	G	E	U	L	P	O	T	E	O	L
P	W	M	T	I	M	A	S	I	U	B
Y	L	Q	C	A	F	H	F	J	N	A
T	V	S	S	J	W	E	D	X	D	T
A	M	S	R	A	Y	E	R	G	W	R
P	R	O	T	E	C	T	I	B	A	E
E	K	E	N	G	W	B	N	U	T	T
F	R	I	G	H	T	S	K	T	E	A
L	V	X	F	H	T	B	N	O	R	W

Water

Groundwater

Aquifer

Water table

Tippy tap

Rights

Freshwater

Protect

H20

drink

ASK THE EXPERT

For World Water Day we interviewed Katy Grant, a hydrogeologist here in Aotearoa.

Hi Katy. Can you tell us about yourself and your job?

Hi, my name is Katy Grant and I am a hydrogeologist. I work for an environmental consultancy called Pattle Delamore Patners, or PDP, and we help people with environmental and consenting issues.

Wow! A hydrogeologist! What does that mean you do each day?

When I first started as a hydrogeologist I spent a lot of time on-site. I would be supervising drilling programmes, doing tests to check water quality and assess flow and monitor water levels in aquifers and streams. Sometimes I get to visit really exciting places, and other days it is just a petrol station! Now I am more experienced, I spend a lot of time in the office, constructing models of groundwater systems and writing a lot of reports. There is a lot of data to pull together.

How did you become a hydrogeologist?

I studied geology and started working for an environmental consultancy. After a couple of years I decided I wanted to specialise in hydrogeology and went back to university to get a masters degree. But when I was younger I wanted to be a helicopter pilot! I always enjoyed science, but it was definitely a gradual process to get to where I am now.

We have been learning about groundwater for World Water Day. Why is knowledge about groundwater important in New Zealand?

Groundwater is critically important in New Zealand and most of the world. It supplies our drinking water in many areas, and also allows us to irrigate land which would otherwise be too dry to cultivate food. Rivers, which are the other main supply, vary a lot seasonally. But groundwater is less directly affected and can supply water all year if we manage it correctly.

Why is knowledge of ground water important as we face issues such as climate change and poverty?

Climate change will affect many aspects of our lives going forwards. In some parts of the world drought will become more common and groundwater will have a crucial role in ensuring people in these regions have access to sufficient water. Floods and sea level rise will affect our coastal communities. This will lead to a rise in groundwater, which can cause further flooding, damage infrastructure, and an increased risk of landslides. Earth processes are all tied together.

We love being scientists! Why is science important for all kids, no matter what we want to be when we grow up?

I think science is really important for everyone as it is a part of everything we do, and shapes the world around us. But most importantly, it is fun to understand how and why things work the way they do. Not everyone needs to understand complex microbiology, or how atoms work, but understanding where our food and water comes from, and how plants and animals live in different environments is important for all of us.

If you want to be a fire fighter, you need to understand water pressure, how gravity might affect a falling building, and how smoke and flames move. If you want to be an artist then understanding different materials, and how paints and pigments react is important. If you plan to be a farmer, you will need to understand how to get the best out of your crops or cattle. Science feeds into all of these things. You don't have to work in a laboratory for it to be science!

Reading something and asking questions shows you are thinking deeply about a topic.

Write a question that you have based on reading this article.

Email your question to education@scnz.org.nz and get a reply from Katy.