



Water Is Life

A Project of iEARN

2016

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***Water is Life* Introduction**

Rob King, iEARN Australia

The iEARN *Water is Life* project was designed with the aim to bring students into active research and action-oriented collaboration concerning water as the vital essence of life.

Taking the United Nations Sustainable Development Goal 6 - *Clean Water and Sanitation* and Goal 14 - *Life Below Water* as their inspiration and focus, students worked within their school and collaboratively with schools across the globe to study, research and share as they developed an understanding of the Goals and cooperatively developed ideas and strategies to play their part in the meeting of the Goals.

Students were encouraged in the development of their learning, their cooperation with their classmates and students in schools around the globe and supported in turning their research into ideas they can take to the community.

From their research, each participating school identified a local issue related to water use in their communities and identified a point where they could make a difference. Through the activation of student voice and agency in learning each school developed and implemented a community action plan designed by the students. In each of these plans the students endeavoured to actively make a difference through direct action and also through raising awareness in their wider communities.

Throughout the project students shared their ideas, ambitions and actions with each other through the use of online collaborative spaces. Through these interactions students developed deeper understandings of the range of issues pertaining to water sustainability and conservation from different environmental and cultural perspectives.

This report is a celebration of the creative minds and actions of our young people showcasing their incredible collective capacity in generating optimistic ideas and actions that can make a positive difference to our environment. They remind us all that when we work together for a common cause we do have the power for constructive change.

In the words of the Japanese poet, Ryunosuke Satoro -
“Individually, we are one drop. Together, we are an ocean”

***Water is Life* Introduction**

Jessica Chang, Kaohsiung Municipal Jhengsing Junior High School, Taiwan

Water shortage and pollution are serious problems for humans now. *Water is Life* is a project that lets students collaborate with other schools from other countries. Students can notice water issues, focus on water shortage and pollution and learn how to protect water in this project. During this, students need to search information, think about how to save water and put it into practice. This project lets students probe into water problems, think about the actions to protect water and try to change the world.

There is much water on the Earth, but water resources are really precious. We still need to save it. Protecting water has been a serious issue for people.

***Water is Life* Introduction**

Eva Chen, Kaohsiung Municipal Jhengsing Junior High School, Taiwan

The iEARN *Water is Life* is a project that can make students aware of saving water, paying attention to water resources, protecting seas and oceans and noticing that water shortage is an important problem of the world. We collaborated with many schools. Everyone has to understand the seriousness of these points. This project enabled different countries' students to think about the crises of water in our life and through specific actions, do their part to change the environment.

The Water is Life project was developed and managed by iEARN Australia
<http://www.learn.org.au>
and
operates through the global not-for-profit network iEARN International
www.learn.org

iEARN

120 countries, 30 languages, 50,000 educators, 2 million youth

THE PEOPLE



Since 1988, iEARN has grown to include over 30,000 schools and youth organizations in more than 120 countries.



Through iEARN, over 2,000,000 students and 50,000 educators are connecting in global project-based learning and virtual exchange activities — learning with the world, not just about it.



iEARN values partnerships and welcomes educational, youth service, and development organizations to join us in building a network of opportunities for young people to work together.

THE PROJECTS



iEARN enables students and educators worldwide to design and participate in global projects as part of their regular classroom and after-school programs.



In addition to meeting educational goals, all iEARN projects have to answer the question, "How will this project improve the quality of life on the planet?"



Participants become global citizens who make a difference by collaborating with their peers around the world.

Schools in the *Water is Life* Project

UGANDA

Rubongi Secondary School

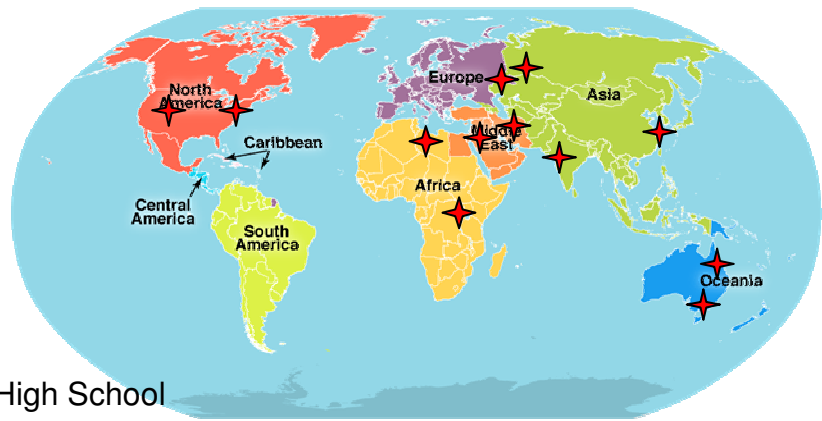
TAIWAN

Hsin Chya Elementary School

Wen Ya Elementary School

Taipei Municipal Jinhua Junior High School

Kaohsiung Municipal Jhengsing Junior High School



IRAN

Saba School

JORDAN

Al-Hassad Al-Tarbawi Schools

TUNISIA

Farhat Hached Pioneer Preparatory School

Riadh Nassr Preparatory School

U.S.A.

Helen Keller Middle School

Alexander Dawson School



INDIA

St. Mark's Senior Secondary Public School, Meera Bagh



RUSSIA

School #16

UKRAINE

Gymnasium #2

AUSTRALIA

Mirboo North Secondary College

Swan Reach Primary School

Sunshine Beach State High School

Officer Secondary College

Leongatha Primary School

Warringa Park School

Cardross Primary School

Canterbury Primary School

***Water is Life* student awarded recognition at 23rd International Conference of Young Scientists, Cluj- Napoca, Romania 16 - 22 April, 2016**

Aashima Gulati, from St. Mark's Senior Secondary Public School, Meera Bagh, India, presented her research work for the *Water is Life* project at the International Conference for Young Scientists in Romania. It was received very well by the jury as well as the audience and she received a Special Mention by the jury in the Environmental Sciences section.

It was a fantastic experience for the team of teachers and students from St. Mark's Senior Secondary Public School, especially for Aashima.



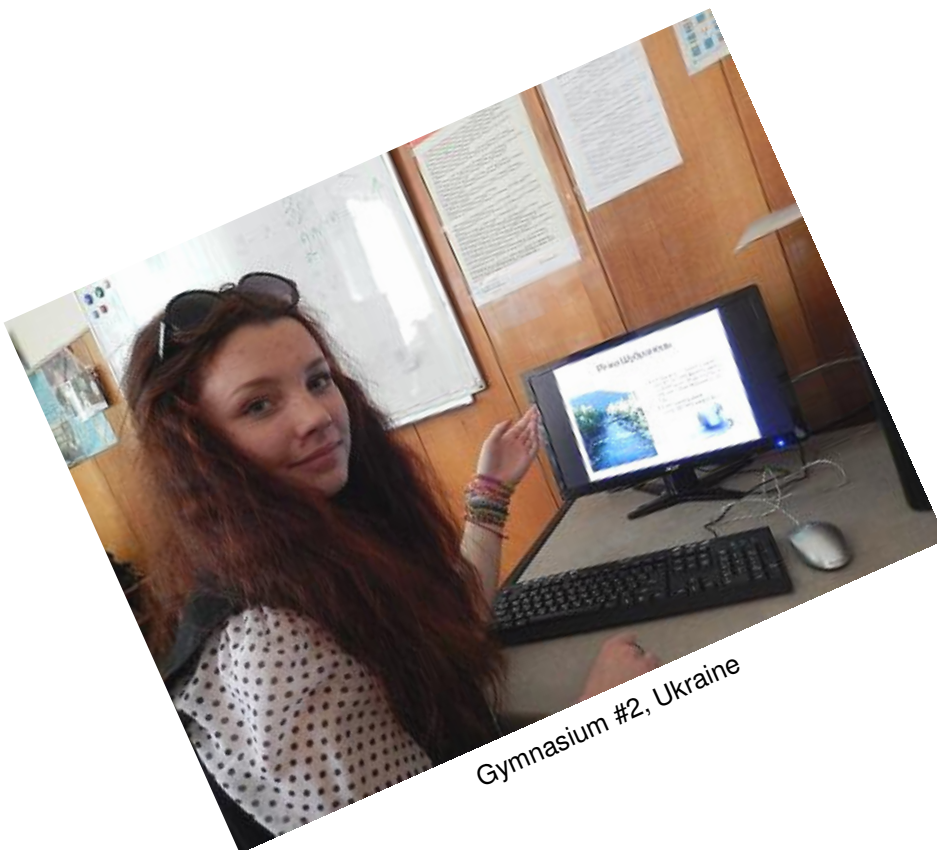
Individual Action Goals - Introduction

As part of the *Water is Life* project, students were asked to look at what they could do as individuals to work towards achieving the United Nations Sustainable Development Goals.

They focused on Goal 6 - *Clean Water and Sanitation* and Goal 14 - *Life Below Water* and, through thought and discussion, developed their own personal action goals, action goals for their families and, in some cases, action goals for their communities.

On the next three pages you can read a sample of their individual action goals.

Mackenzie Johnson and **Hope Emery** from **Swan Reach Primary School, Australia**, have selected a sample from each of the schools.



Gymnasium #2, Ukraine



Wen Ya Elementary School, Taiwan

Individual Action Goals

Schools used Padlet to post their students' individual action plans.



Individual Action Goals

Students came up with many great plans for individual actions to save water, raise awareness of the need for access to water and to treat water as a resource with care.

Cardross Primary School are:

- Trying to teach others about water pollution using PowerPoint
- Studying the consumption of contaminated water

Gymnasium #2 have:

- Examined the small rivers near their hometown Chernitsvi
- The rivers are: Shubranets, Klokuchy and Molnytsi

Hsin Chya Elementary School are trying to:

- Reduce their amount of rubbish.
- Reduce the amount of plastics they use.

Leongatha Primary School Group1's goals are:

- Only filling the sink halfway when washing dishes.
- Turn the tap off when brushing teeth.

Saba School is:

- Turning banana peels into activated carbon.
- Making filters.

Officer Secondary College is saving water by:

- Collecting rain water in a bucket.
- Putting a bucket under shower head and reusing the water.

Riadh Nassr Preparatory School have:

- Learnt about saving water.
- Made a song about water.

St Mark's Senior Secondary Public School have:

- Learnt about saving and reusing water.
- Made a PowerPoint about water importance.

Sunshine Beach State High School's goals are:

- To pick up any rubbish they see.
- To use less water during household chores

Swan Reach Primary School's goals are:

- To wash cars on the grass.
- Turn off tap when brushing teeth.

Leongatha Primary School Group 2 will save water by:

- Preventing pollution at the beach.
- Reusing plastic bags.

Farhat Hached Pioneer Preparatory School aim:

- To save water used from the bath in a bucket to water my garden.
- To fill up a glass of water and use it while brushing my teeth instead of leaving the water running.

Kaohsiung Municipal Jhengsing Junior High School goals are to:

- Reduce the time taking a shower; instead of ½ an hour I will take 15 minutes.
- Save water after washing rice or boiling noodles.

Mirboo North Secondary College plan to:

- Get water timers to stop water overflowing for the horses.
- Use barbless hooks for fishing rather than barbed hooks.

Alexander Dawson School plan:

- As an individual only do full dishwasher and washing machine loads.
- Get a filter for Klaus's tank so that the water doesn't have to be changed so much.

Canterbury Primary School want:

- To recycle water by putting it on the garden.
- To have two-minute showers and not to leave the tap running.

Warringa Park School decided:

- Not to tip half empty bottles of water down the sink.
- To save the dolphins.

Rubongi Secondary School plan to:

- Clean water source by digging around, making drainage for water.
- Write posters alerting people not to pollute the water sources.

Wen Ya Elementary School want to:

- Collect wasted water from the drinking fountains at school.
- Use the less purified but clean water to grow the plants.

Taipei Municipal Jinhua Junior High School want to:

- Save water, household water recycling, such as hand washing, rice washing water can be used for watering the flowers.
- Use environmentally friendly cleaning agents, reduce water pollution, reduce phosphorus pollution.

Helen Keller Middle School have:

- Reduced the amount of food waste in their school.
- Increased the number of cans and bottles put in the recycle bin.

Research

In this project students have undertaken research to advance their understanding of the state of our world in regard to sustainable clean water. Their research has been through a study of available literature and web resources, through discussions with people brought into their classroom and through their own examination of their local environment. In reporting their research they discuss in this report the importance of sustainable clean water and point to threats to it. They offer solutions to problems.

Some students have reported on ways to protect our water supplies and some have experimented with accessible ways of cleaning polluted water for safe human use.



A member of an association *Global Warming* talking to the pupils
Riadh Nassr Preparatory School, Tunisia



Students experimenting with filtering water
Officer Secondary College, Australia

Canterbury Primary School, Australia

Investigating water quality in South Surrey Park

Much to my dislike, our local park (South Surrey Park) is full of polluted water that makes you itchy, dirty and uncomfortable. My dad is a volunteer at Bush Search and Rescue, Victoria and we are going to see if he can help us make all the water in South Surrey Park clean, drinkable and swimmable (for dogs).

Chloe



When we looked at our water samples we found that even the water that looked the cleanest was actually pretty polluted. The most polluted area was from an area we called 'log creek'. The water here is quite still as the reservoir has not been opened in a long time. It is also shallow (only about 30cm deep) and lots of logs and trees are stopping the water from running through it.

Chloe

We went to South Surrey Park to analyse the water and see if it was clean or dirty. We collected five water samples from different parts of the creek and different depths then ordered them from dirtiest to cleanest. We are going to look at the water under microscopes from the science room to see the areas where the water is most polluted and then see if we can find out what makes the water dirty.

George



... find out what makes the water dirty.



Rain chains

We have been researching how to make a rain chain and what materials we need to make one. (A rain chain is a thing that you hang from your gutter and it makes spare water from your gutter go onto a plant or a tree.) They're a really good way to use the water that is being wasted. Has anyone made one before? If so, what materials did you use? We have seen ones made with pots, chains, metal cones, and buckets and we want to know which would be most effective. Thanks!

Maddie

金華國中 Jinhua Junior High School, 台灣 Taiwan

關於台灣的水污染

Water pollution in Taiwan

By Lulu

什麼是水污染？

What is water pollution?

水污染，主要是指由於人為因素直接或間接的將污染物質介入於水體後，變更其物理、化學或生物特性的改變，以致影響水的正常用途或危害國民健康及生活環境。

Water pollution, mainly refers to, due to human factors, directly or indirectly the pollutants involved in water, change its physical, chemical or biological characteristics of the change, so that the water harms national health and the living environment.

水污染的來源

Source of water pollution

垃圾掩埋場中的滲出水，在垃圾掩埋初期因含有高濃度的有機質。

Leaching in the landfill due to high concentrations of organic matter.

農業活動中使用的農藥、肥料等物質，經由地表水或地下水的滲透 與流動而進入水體，使得水體環境受到污染。

The use of pesticides, fertilizers and other substances in agricultural activities, through the infiltration and flow of surface water or groundwater into the water body, so that the water environment is polluted.

家庭、機關團體、學校、工商事業排出的廢水中，含有糞便、油脂、廚餘、化學藥劑等，其中大量的病菌和有機物是水污染的主要來源。

The waste water discharged from the family, government organs, schools and industry and commerce, is a major source of water pollution, including faeces, grease, kitchen waste and chemicals.

沒有乾淨的水 對生活的影響

No clean water effect on life

民生用水受到影響，沒辦法洗碗、沐浴、煮飯...

The livelihood of the people affected by water, no way to wash dishes, bathing, cooking...

若家中有落弱婦孺，當需要用水時，會造成不便

If the home has a weak family, when water is required, it will cause inconvenience.

為了台灣(世界各地)，我們應該...

For Taiwan (and around the world), we should...

節約用水，重複利用家庭用水，例如：洗手、洗米水可以拿來澆花、拖地。

Save water, household water recycling, such as hand washing and rice washing water can be used to water the flowers.

使用環保清潔劑，減少水質惡化，降低磷污染。

Use environmentally friendly cleaning agents, reduce water pollution and reduce phosphorus pollution.

避免在水庫區野炊、戲水。

Avoid a picnic and swimming in the reservoir area.

到野外郊遊、烤肉，要隨手將垃圾帶走，不要將油污流入溪流中。

On a field outing or barbecue, take the garbage, do not put oil into the stream.

也可以...幫助清理水資源豐富地區的垃圾。包括海灘、湖泊和海洋。確保你的垃圾清理是安全的收集垃圾，把收集的垃圾放在附近的垃圾箱裡。

You can also...help clean up the waste in the area of water resources, including beaches, lakes and seas. Make sure your trash is safe to collect and put the garbage in a nearby trash bin.



参考

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“ I will request all the students to drop the leftover water from their water bottles in drums while leaving the school premises. The water collected can be used to water the plants and cleaning of the school building. ”

Neena, India

St. Mark's Senior Secondary Public School, Meera Bagh, India

The Najafgarh Lake

Author – Team St.Mark's Sr.Sec.Public School,Meera Bagh,New Delhi

History

Najafgarh Lake used to be a vast lake in the south west of Delhi in India near the town of Najafgarh from which it takes its name. It was connected to the river Yamuna by a natural shallow nullah or drain called the Najafgarh nullah/drain. However, after the 1960s, the Flood Control Department of Delhi kept widening the Najafgarh drain in the pretext of saving Delhi from floods and eventually quickly drained the once huge and ecologically rich Najafgarh lake completely.

With recent advances in ecological understanding it has become clear that draining of this vast lake has affected the entire climate of this important region that is India's capital territory of Delhi and its neighbourhood. It has also led to the underground water-table going down leading to water scarcity for this densely populated region. However, at the time of the draining of the lake in the 1960s, everyone seemed to be largely unaware and oblivious of what was happening and its long-term effects.

Before the draining of the lake, it was one of the last habitats of the famed and endangered Siberian crane which has all but vanished from the Indian subcontinent now. It is said that before independence, many British colonial officers and dignitaries came in large parties for waterfowl hunting every season.

Development of housing colonies

After the complete draining of the lake in the 1960s, the Najafgarh lake was converted into farmland and gradually several housing projects started in areas such as Vikaspuri, Uttam Nagar, Pappankalan and Dwarka. The Delhi airport also borders the former lake basin. Land costs have skyrocketed and builders and developers have converged on this area which falls within Delhi.

The present day Najafgarh Lake

Today, the Najafgarh lake is the Indian capital's most polluted water body due to direct inflow of untreated sewage from surrounding populated areas. There is a well-kept drivable inspection road maintained by Irrigation and Flood Control Department of Delhi on one of the drains embankment. Bird-watchers and nature-lovers can view the wildlife and water birds occurring on the drain from vehicles by driving on this road. Currently the drain is so wide and deep that it acts as an elongated lake in its own right and can hold and store a lot of rain water which can be regulated through regulators built into it at intervals. A part of the drain also attracts some small scale local village fishermen, occasionally one can be seen casting his line or net in the waters. There is an over growth of water Hyacinth which has to be cleared very often so that the water flow remains uninterrupted.



Steps taken by the government

There is a development scheme in the works where Najafgarh drain will be covered by the Flood Department from Vijay Nagar, Delhi to Hakikat Nagar and on the covered area shops will be built.

The Delhi Urban Art Commission has proposed a greenway pedestrian connection along the Najafgarh waterway in keeping with its focus on developing a well-connected city.

The National Green Tribunal (NGT) has ordered the Haryana Urban Development Authority (HUDA) to complete the construction of a proposed sewage treatment plant in Gurgaon by March 2017, two years earlier than planned. According to the plan, the project is being designed to let only treated sewage into the Najafgarh drain in Delhi.

The government is working on a plan to connect Kakrola in West Delhi with Wazirabad in north Delhi by building a road on Najafgarh drain.

Go boating 'on' Najafgarh drain if govt's water park plan succeeds

MAKING WAVES? Plans to develop water sports complex on city's biggest stormwater drain

NEW DELHI: If intercepting goes as planned, you will soon be able to enjoy rafting in Delhi.

The Delhi government is working on an ambitious project to construct a complex where several water sports can be enjoyed on artificial rivers in west Delhi's Najafgarh.

The previous government had proposed to convert a water sports complex in the Najafgarh drain into a water park. It is now the Delhi government's plan to implement the project.

The cost of the project has not been finalised yet but government sources said it could be over Rs 100 crore.

Officials said there would be water sports, boating, rafting and shopping, including an open-air theatre.

A water treatment plant will also be set up to make the drain water fit as per Indian standards.

The water department has divided the site of 277 acres into 11.44 acres at Okhla and 16.33 acres at Najafgarh drain.

Facilities such as boating, rafting and shopping, including an open-air theatre will be made available to visitors.

While the setting up of water sports complex and an open-air theatre will be public recreational facilities, water sports, boating, rafting and shopping, including an open-air theatre, will provide connectivity to the site. The state will represent the state and the government will make the site and a detailed report will be prepared soon.

The Delhi Transport and Transportation Development Corporation (DTTC) will set up a water sports complex at Najafgarh drain for two water sports - rafting and canoeing, managed by the Corporation and the Delhi Government.

"A water treatment plant will also be set up to make the drain water fit as per Indian standards," said an official.

RIDING THE WAVES

- The cost of the project has not been finalised yet but government sources said it could be over Rs 100 crore.
- Officials said there would be water sports, boating, rafting and shopping, including an open-air theatre.
- A water treatment plant will also be set up to make the drain water fit as per Indian standards.

Liberty to develop the drain is a plan announced by the Delhi government. The plan is to develop the drain into a water park. The plan is to develop the drain into a water park. The plan is to develop the drain into a water park.

INTERCEPTOR SEWER SCHEME

DELHI JAL BOARD TO MAKE INTERCEPTOR SEWER LINES ALONG NAJAFGARH, SUPPLEMENTARY AND SHAHDARA DRAINS

Total length of interceptor sewer lines along these three drains: **59 km**

Total cost of making these lines: **Rs. 1,962 crore**

Project to be completed in **six phases**

Under the project, water from **180 smaller drains** would be channelled to the nearest sewage treatment plant

The treated water would be put back in the main drain

Trials started on Phase I in **September**

MUCH OF DELHI'S WASTE FLOWS INTO THE YAMUNA

Only 45 per cent OF DELHI IS CONNECTED TO THE SEWER SYSTEM

Interceptor system would seek to tap the sewage of remaining **55 per cent** unconnected areas

SEWERAGE SYSTEM IS STILL NOT AVAILABLE IN

| | | |
|---------------------------------------|---------------------------------|------------------------|
| 1,600 Unauthorised colonies | 1,000 Jhuggi clusters | 189 villages |
|---------------------------------------|---------------------------------|------------------------|

The attraction today

The most positive point is the Najafgarh Drain Bird Sanctuary that encompasses wildlife habitat and wetland ecosystem. It has become a haven for migratory birds. According to news reports, this sanctuary witnesses the arrival of more than 5000 birds of about 16 different species. This is around five times more than the presence of birds at the famous Okhla Bird Sanctuary of Delhi. The birds include Black-Necked Stork, Painted Stork, Black-Tailed Godwit, Sarus Crane and Black-Headed Ibis.



Birds of Najafgarh Bird Sanctuary

What the residents have to say

We took a survey and asked the local residents to fill in the questionnaire. We were dismayed to see the very limited knowledge that people have/had of the drain. We found many of the people believe that the government isn't doing its bit and that the drain is more of a menace than a boon.

Q4. If not, then do you think people living nearer to the drain are being affected?
Yes, Mosquitoes and Badsmell affects them.

Q5. Do you think that the Government is doing something about the problems caused by the drain?
I do not think so.

St. Mark's Senior Secondary Public School, Meera Bagh, India

Q2. Are you satisfied with your surroundings or are you facing any problem as far as home appliances are concerned?

No, A/c (Air conditioners) are affected badly.

Q3. Do you think that Najafgarh Drain is affecting you in any way? If yes, then how?

Yes, It leads to breeding of mosquitoes and the diseases caused by them. The bad smell also affects the environment.

Q4. If not, then do you think people living nearer to the drain are being affected?

N.A.

Q5. Do you think that the Government is doing something about the problems caused by the drain?

No

Q8. Do you think that the drain is of some use to us or is just useless?

It is used for sewage collection.

Q9. How can we improve its condition?

Covering it and treating the waste water.

Thank you for co-operating. We hope your suggestions would help us in some way.

Monica

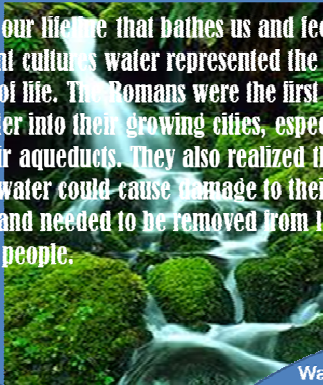
Our research has made us believe that if the lake had not been drained, the danger of the areas nearby being flooded is very high but because of the draining there has been several other environmental issues cropping up. This drain is near our school so we know that the toxic content does damage to the electrical appliances and the other gadgets at home.

We shall be continuing with our research and, maybe, talk to our Eco Club members and their leaders to do their bit in getting to know the drain and the problems. As a school, we can do our bit in making people aware of the drain as well as the problems.

A short presentation on the importance of water

IMPORTANCE OF WATER

Water is our lifeline that bathes us and feeds us. In ancient cultures water represented the very essence of life. The Romans were the first to pipe water into their growing cities, especially with their aqueducts. They also realized that sewage water could cause damage to their people, and needed to be removed from large areas of people.



Water is critical for all living things



Without water there can be no life



Water provides some good clean fun, too



Water is necessary to all living things.

Water is all around us, in the air and in the ground. It is in milk, vegetables, fruit, meat, leaves, trunks, roots, and branches of a tree; it is even in stones.

Water is used for many things:

To drink: people should drink 8 glasses of water each day to stay healthy.

To wash things: dishes, cars, clothes, ourselves as needed.

To cook things in (eggs, vegetables); to use in things we cook (cakes, soup).

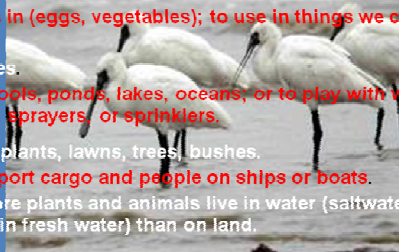
To put out fires.

To play in: pools, ponds, lakes, oceans, or to play with when using hoses, sprayers, or sprinklers.

To water plants, lawns, trees, bushes.

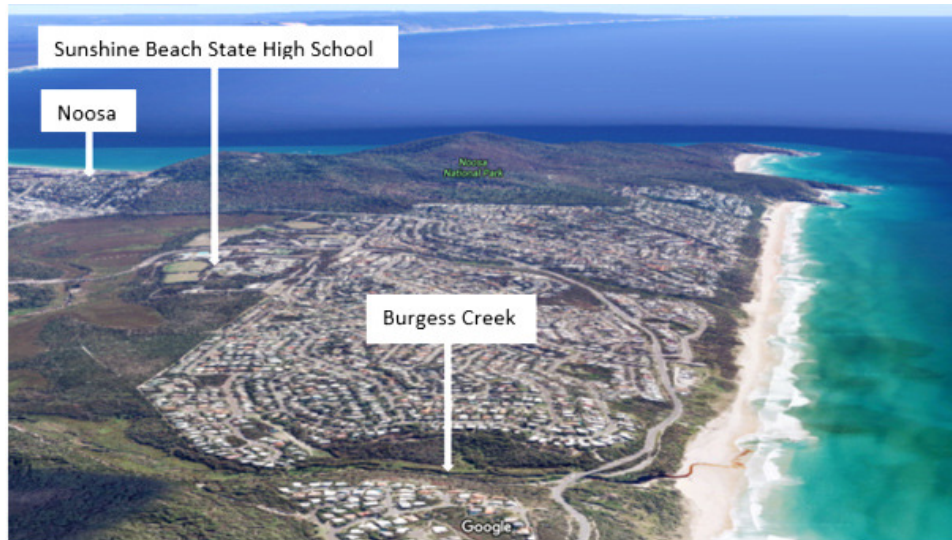
To transport cargo and people on ships or boats.

More plants and animals live in water (saltwater or in fresh water) than on land.



Sunshine Beach State High School, Australia

Burgess Creek



We will be doing our research on Burgess Creek. It is located near our school and runs out to sea somewhere along the Sunshine Coast in Queensland, Australia.

We are going to test Burgess Creek to see how healthy it is. If Burgess Creek is unhealthy, then we will find the cause of why it is unhealthy and see if there is a way to fix it. If it is healthy, then we will try and keep it that way

pH is a measure of how acidic/basic water is. Anything under 7 is acidic and anything above 7 is a base. A fresh water creek like Burgess Creek should have a pH of about 7.

We had four designated testing sites, each moving further upstream. Our first site was where the creek met the ocean where we tested pH, turbidity, salinity, dissolved oxygen, temperature and the types of macro-invertebrate that live there. We did the same test at the other three sites. We then went back to school and recorded our results.

When we were at the creek we tested it to see how healthy the water was. We found that as we travelled further up the creek away from the ocean the acidity levels rose. We are not sure of the cause yet but we intend to find out.

We tested all the sites with five pH testers, one being really good quality and effective, and they all showed similar results. This data was recently collected when we went to Burgess Creek for testing. Overall there is no pattern, but there is an anomalous result in site four's pH.

“ We need to use water carefully and make sure it doesn't go to waste because there are places that have limited water and in Noosa we are using too much! ”
Stella, Australia

Alexander Dawson School, U.S.A.

Water resources in our community

We live in Boulder County.



The Big Thompson Project was to transport water from the western slope to the eastern slope with a tunnel that goes through a mountain.



In Colorado 80% of precipitation falls on the western slope whereas 80% of the population live on the eastern slope.



Boulder County owns its own glacier, Arapahoe Glacier, which is Boulder's water source.



The size of the Arapahoe Glacier has decreased 50% from 1900—1999



Boulder County has two water treatment plants.



Our water treatment plants treat 55 million gallons of water per day.



In Boulder County, 90% of the water is used for agriculture and 10% is used for domestic use.



Alexander Dawson School, U.S.A.

Water issues

The students have made two excellent videos on water issues.

In the first video, they have discussed the issues with water and made suggestions about how the situation can be improved. Each student has taken a specific topic to investigate.

The areas that have been investigated are:

| | |
|------------------------------------|-------------------------------------|
| hydraulic fracturing | pharmaceuticals and other chemicals |
| lead in water | high use of domestic water |
| microbes in water | nutrients in water |
| watershed and watershed protection | hydraulic water energy |
| water usage in hotels | economic benefits of saving water |

Their message is "***Working together we can make a difference.***"

This video can be viewed on YouTube: https://youtu.be/_hg0nl8wtmY

In the second video, the areas that have been investigated are:

| | |
|------------------------------------|---------------------------------|
| crop irrigation | mining |
| effect of fertilizers on water | aquifers |
| effect of hydro-electric dams | chemicals and microbes in water |
| hydraulic fracking and water usage | contamination of watersheds |
| domestic water wastage | green infrastructure |

Their message is "***Let's work together to protect our water.***"

This video can be viewed on YouTube: <https://youtu.be/yJYaczLgHZQ>

Alexander Dawson School, U.S.A.

Water use in our community, the impact on our water and ways to minimize the impact.

We did research on the different ways that water is used in our communities and the impact that it has on water availability and water quality. Then we summarized our research into the impact on our water and ways to minimize the impact.

Water use and hotels—Impact on water resources

Hotels that are placed in areas where water is scarce can be a huge problem. This is because they use so much water. There have been multiple cases where citizens do not get water because of the amount of water hotels are consuming.

Ways to minimize water usage in hotels

Hotels can install low flow toilets and shower heads. Wash sheets and towels only when necessary and plant landscaping that does not require a lot of water. If hotels installed these, they would save millions of gallons of water per year.

Hotels must be responsible where they build. If a hotel is built in an area where water is scarce it can create huge problems. Hotel developers must find out how much water they can use and how much is available before building a hotel. This is very important.

Green infrastructure

Green infrastructure actually helps the environment. Green roofs are now put on buildings to absorb more water and they provide a habitat for many living things. Another thing is artificial wetlands, this is a man-made wetland that helps clean water and evenly spread it through the wetland so it does not flood.

Green infrastructure is one of the most beneficial designs to manage stormwater runoff. This can help with as big a water problem as drought by saving that runoff water for later use.

Water use and paper mills

Paper mills use 17,000 gallons of water per ton of paper. This wastes a lot of water, and the polluted water makes the crops around it inedible. By focusing on recycling water during the bleaching process, paper mills can reduce the amount of water used to only 4,000 gallons per ton. State of the art filters can be put in so the water being drained off isn't toxic to the land around it.

Chemical and microbial pollution

Chemicals and microbes can pollute water making it unsafe to drink or swim in. Polluted water can cause diseases when people drink it or swim in it.

Water treatment plants play a major role in minimizing the impact chemicals and microbes have by removing them from water or neutralizing them. Testing for harmful effects of new chemicals and carefully monitoring the chemicals and microbes already in water also helps minimize the impact.

Water use with crops and irrigation

Irrigation systems have been creating runoffs ruining streams around them.

To help minimize the impact from the runoffs farmers have been levelling out their fields

so the runoffs don't happen in the first place allowing the water to stay on the field. Another way to minimize impact is by surge flooding which is pushing the water back upwards towards the crops stopping the runoffs from being created. The last way that is most popular to minimize impact from runoffs is by collecting the water from the runoffs and reusing it on the crops.

A big problem going on in The Western United States is that when we are using the method of spray irrigation which is shooting the water as far and high as possible to reach all of the crops, but when doing so the water either evaporates or blows away before even reaching the crops. To help minimize impact farmers have been hanging a pipe over the soil and gently spraying or dropping the water onto the soil not even allowing the water to get higher than a couple feet which has lowered the amount of evaporation with irrigation by quite a bit.

Water use and energy

Energy has a huge impact on water because of the amount of water it uses. Coal cooling processes use about 25,000-50,000 gallons of water per megawatt hour. Also, the washing process of coal uses 200-700 million gallons of water per day. Also the emissions let out from the geothermal plants contain sulphur dioxide, which later goes into rivers, lakes, and oceans, and kills the fish and makes bad water quality.

To minimize impact:

1. A way of minimizing the impact of the cooling process for coal, is by using a different system called recirculating, which uses 15,000- 45,000 gallons less water than Once-through, which is used a lot more.
2. A way of minimizing the impact of the air emissions that the geothermal plants let out, is by using Mercury filters, which will filter the bad emissions, and only let out clean air.

Domestic water use

One problem that occurs from domestic water use is the amount of water that is taken out. People are taking way more water than they are actually consuming. This is bad because the water level in rivers goes down. When the rivers go down, the fish population and other organisms suffer.

One way to resolve this issue is to save water at any chance you can. Do things like turn off the faucet when brushing teeth and filling up dish washers and laundry machines to the top before running them. Another thing would be to get water-friendly appliances. Low-flow toilets, water-saving shower heads, and drip irrigation systems are all better for saving water.

Hydroelectric dams

Above the dam in the reservoir the water becomes slow and warm. This kills many aquatic animals. Below the dam the riparian zones don't get flooded annually and the vegetation doesn't get nutrients replenished. When this happens the vegetation dies.

Some dams like the one in the Grand Canyon purposefully open its doors to flood the riparian zones to replenish the nutrients. People are putting mixers into the bottom of reservoirs to make the water move and so nutrients from the bottom go up to the top and vice-versa.

Alexander Dawson School, U.S.A.

Colorado River facts

The Colorado River is one of the main water sources in the western U.S.



The Colorado River source is from snow mountains and rocky mountains.



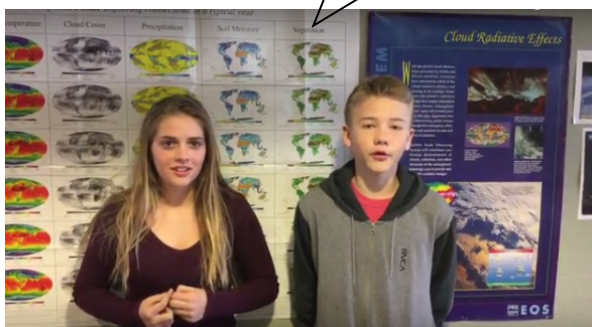
The Colorado River is 1450 miles.



Some of the states that use water from the Colorado River are Arizona and Colorado and Utah.



Other states that use water from the Colorado River are Nevada, Utah, California and Wyoming.

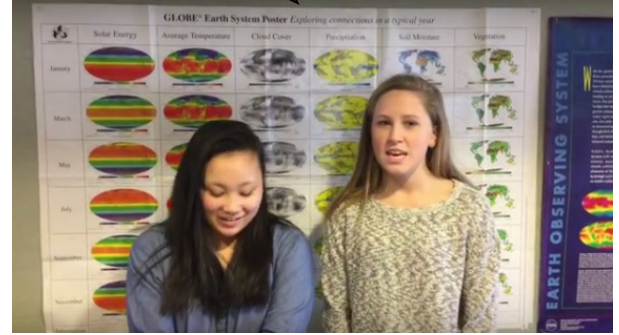
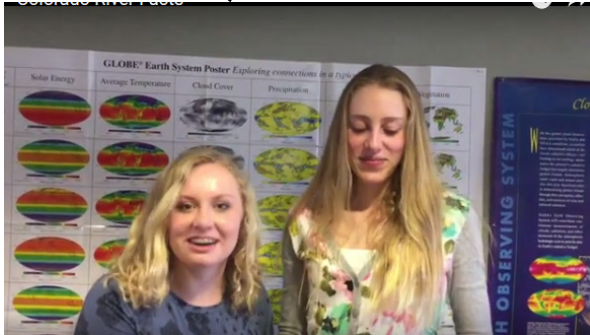


There are 33 million people who depend on the water from the Colorado River.

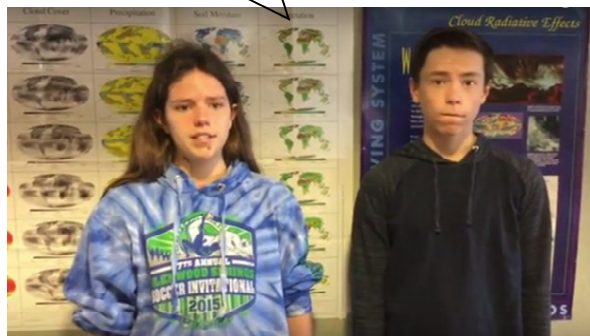


Water uses: 79% is used for irrigation, 17% is used by the public, 2% is used by mining and industry and 3% is used for livestock and agriculture.

In Nevada the water is used for domestic use. In Colorado and Arizona it is used for agriculture.



The Colorado River has 15 dams.



“ In my house, my parents tell me to conserve water. After washing vegetables, Mom will use the water to water the flowers. We have water-saving toilets. And we take a shower instead of bath. In my school, we have water-saving faucets, and equipment that can collect rainwater. These methods can help us waste less water. Let’s save water together!

Joanne, Taiwan

Cardross Primary School, Australia

Visit from Mallee Catchment Management Authority

Our class was very lucky to receive a visit from Rian and Rebecca, who work for the local Mallee Catchment Management Authority. They brought along the 'Water Watch' trailer which has a fantastic model of our local river system and can demonstrate what happens when water flows or floods in our local region. They also talked to us about the importance of the eco-system and the damage caused to our waterways by carp. We learned that carp are known as a 'noxious aquatic animal' and we discussed the ways they have affected our waterways and why our river would be better off without them in it. It was great to be able to contribute the knowledge that we had already found out about the carp and pollution.

Our research topics

My name is Montana and I am working with Nate and Maggie. We are doing the diseases that are caused by polluting water. Some of the diseases caused by polluted water are called malaria and amebiasis.

Our names are Chelsea, Dusty and Maurice. We are researching the KHV virus which is a virus that they (the CSIRO scientists) are going to put in the Murray River to kill off the carp. The KHV virus is a virus that kills carp. The virus affects the carp and the carp gets bleeding gills, lack of energy and eventually kills them. We want the virus in the Murray River because the carp eat native fish, they dirty up the water and they are just a pest.

My name is Lucy and my partners are and Jhett and Millie, and we are doing our *Water is Life* project on "Save the Murray hardy-head". We know that while the KHV is active lots of hardy heads could die or live. The best chance you have of looking at a Murray hardy-head in person is if you catch one in a shrimp net. They are native to the Murray River.

Our names are Jude, Kira and Connor. We are working on contaminated water in the river. We have started a poster on contaminated water.

It's Jude, Kira and Connor. A few days ago we had a exhibition at our school. We were excited. We learned that 5,000 kids die a day in Africa and India because of diseases caused by contaminated water. And we learned that wells cost \$7,000.

Hi my name is Deniz. I am working with Samantha and Tamika and we have decided to do our project on people around the world that don't have clean, healthy water. We are also looking at the diseases people can get from unhealthy water. We have learnt about countries that have polluted water like Afghanistan and India. We have also learnt that cholera is a disease that you can get by drinking polluted water.

In our group there is Brenton, Dillon and Cody and we are making a diorama about the Murray River ecosystem.

My name is Hudson and in my group is Alexi and Noah. We are working on wells in African towns that aren't supplied with clean and safe water. We are learning about them and how they're supplied to towns. We can help by raising money to buy wells and some towns are effected by unclean and unsafe water. Our goal is to find out how much money a well costs and how they help the towns.

Hi my name is Xavier and my group members are Tommy and Jaida. Our project is about providing safe drinking water in Africa and the effects of drinking contaminated water on the African population.

Our names are Bryan, Jack and Cooper. We are doing waterborne diseases. 3,400,000 people die a year from waterborne diseases. A waterborne disease is a disease you can get from drinking a lot of dirty water You can die from waterborne diseases

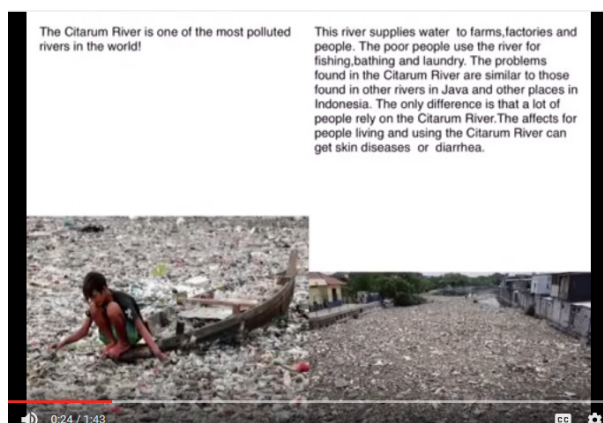
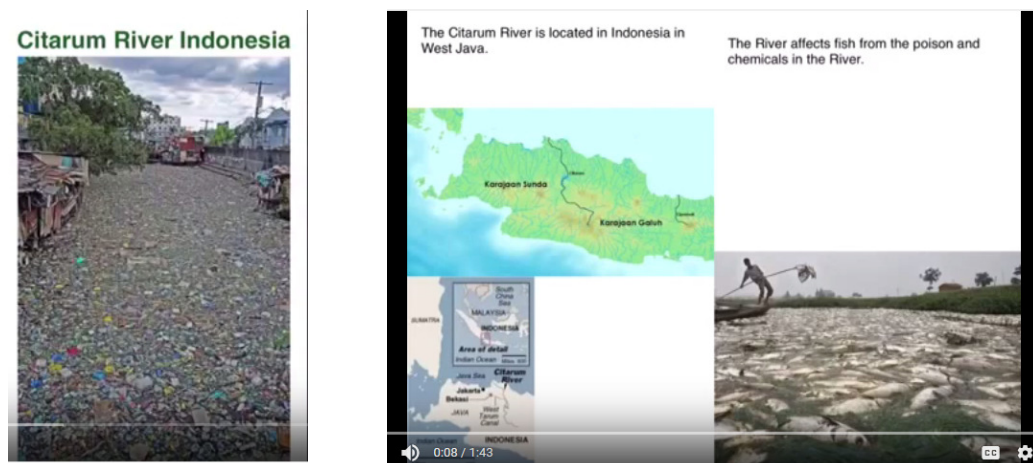
My name is Taya and my group members are Lucas and Zane. Our project is about the food bowl and if we didn't have clean water we wouldn't have the food bowl. Why we call it the food bowl is because we have rich soil, great sun light and lots of plants growing near the river system.

We are Renee, Aj and Alicia. We are learning about ocean pollution and how and where people are polluting the oceans.

Our names are Rihanna, Nat and Bella. Our group is doing a poster and book on the water in Rwanda.

My name is Jess. I am in a group with Rylan and Lexi. We are going to study the pollution of the Citarum river. The Citarum River in Indonesia is in West Java. My group has learnt that the Citarum River is the most polluted river in the world. The poison and chemicals affect fish and people rely on the river a lot. The workers in West Java have a 15 year plan to clean the Citarum River. We have learnt that every two weeks the workers in West Java have organised a clean up to support the river. The Citarum River is a river that a lot of people rely on. We have worked really hard to find more information about the Citarum River in Indonesia.

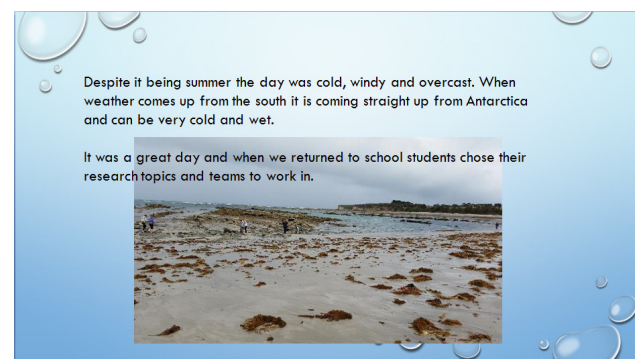
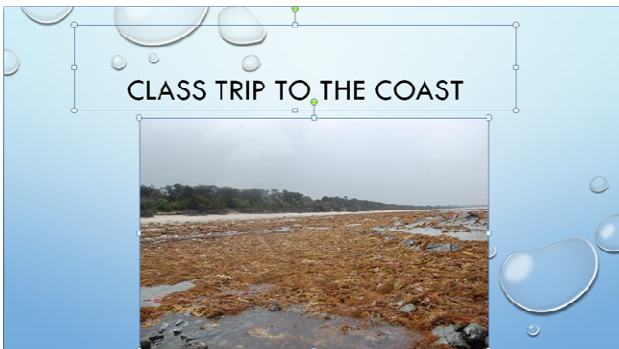
We made a video.



Mirboo North Secondary College, Australia

Class trip to the coast

Students visited the nearby coast as a start to their project work. They have made a PowerPoint presentation of their visit.



Oil drilling in the Great Australian Bight

By Nathan, Dustin and Seth

Threat #1: BP has a shocking environmental track record. The Gulf of Mexico oil spill was not even a one-off. BP is also responsible for oil pipeline spills in Alaska and an oil refinery explosion in Texas.

Threat #2: In addition to the oil spills risks, turning the Bight into a mining industrial area will have massive impacts on a peaceful marine environment. The loud and disruptive underwater blasts of seismic exploration and drilling into the sea floor will be devastating.

The Gulf of Mexico: On April 20, 2010, BP's Deep-Water Horizon oil rig in the Gulf of Mexico exploded. The oil rig sank to the bottom of the Gulf of Mexico two days later and oil gushed out of control from the seabed for 87 days.

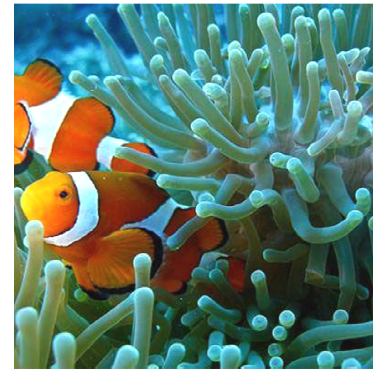
Falling short: Oil giant BP's application to drill in the Great Australian Bight has been rejected after it fell short of environmental standards.

Survival of the clownfish in the Great Barrier Reef

By Ben, Caleb and Leigh

Clown fish survive by hiding abilities which causes them to be easy targets for other fish.

Clown fish and damsel fish are the only species of fish which can avoid the potent stings of an anemone. For this reason, clown fish never stray far from their host. The anemone protects the clown fish from most predators, who know not to go near the anemone's tentacles. The anemone's tentacles kill other fish that touch them, but the clown fish seems to be immune.



The movie 'Finding Nemo' created quite a demand for home aquariums. The bad news is that the clown fish require anemone and not all anemone are suited for home aquariums.

What harms clownfish?

The cause of loss in the number of clownfish is due to the increase of CO2 levels and the increase of acidification in the ocean. This affects the anemones because they rely on the coral.

How can we help clownfish?

To help the clownfish we could try and stop ocean acidification and not litter. We could also stop mining because it affects the coral which will affect the clownfish.

Ghost fishing

By Anabel, Shakya and Charlee

What is ghost fishing?

Ghost fishing is what happens when marine life get caught in nets, fishing line, hooks, wire and other fishing gear that have been lost at sea from boats.



How damaging is ghost fishing?

- At least 136,000 seals, sea lions and whales are killed each year.
- There is around 640,000 tonnes (which is around 90,000 double decker buses) of gear (wire and nets) thrown or lost in our ocean each year.
- Birds, reptiles, and mammals that must return to the surface to breathe air face drowning when caught in or dragged under by "lost gear".
- By 2018 rescue crews will have saved one million marine life from ghost fishing gear.

How to reduce ghost fishing?

- Currently when fishermen go fishing and their nets get caught they just cut the net or the wire. Being more mindful of how much is being left in the ocean, and doing your best to minimise this flotsam will decrease the problem. When your nets or wires fall off your boats you should go and pick them up.
- Industry needs to invest in creating nets and gear that break down quicker in the ocean environment. The fishing community could then purchase this more friendly gear.

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Mirboo North Secondary College, Australia

Rubbish debris pollution

By Grace and Jemma

How much rubbish is dumped into the ocean every year and how much is floating around our coasts?

Eight million tons of plastic is dumped into ocean every year. A study last year estimated the amount of floating (around coast lines) trash to be 245,000 tons at most. West Australian beaches are the most polluted in our country.

What animals are being affected/what is their health and how many die each year?

A wide variety of animals are being affected. Over 1 million sea birds die from ocean pollution and being tangled in our rubbish. Hundreds of thousands of whales and sea turtles die from being tangled and choke on our waste. They ingest rubbish, thinking it's food and suffocate. If this continues we will lose more species, the oceans will be toxic and we will lose our oceans as a food source, being fatal to people who depend on it for food. This waste consumed by fish can also damage coral reefs. One hundred thousand sea mammals are killed in the ocean by pollution each year.

How can we help to stop this?

In these situations there are lots of different things you can do to help reducing marine debris. (every little bit helps):

- Participating in clean up activates.
- Responsibly dispose of your rubbish in marine environments to stop it becoming marine debris - use available facilities .
- Helping to clean up our oceans and coastlines. Maybe organizing local schools or community groups to clean up your local beach.

What is being done today to stop this in Australia?

Australia has recently been undertaking a 'plan' this includes:

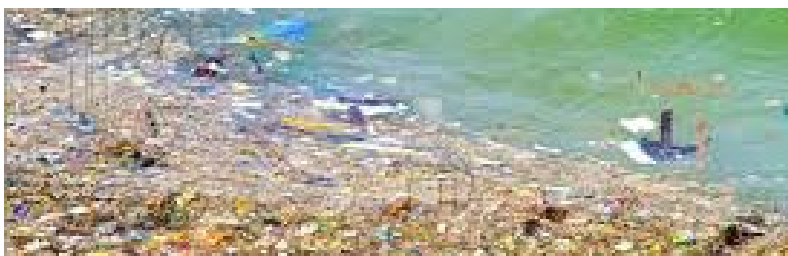
- Reviewing existing policies, codes of practice, conventions and activities to determine their effectiveness.
- Examine the effectiveness of joint agreements with other nations to address the issues of marine debris (rubbish pollution) and its impact on wildlife.

Funded projects under the plan:

- Regional and marine debris monitoring and clean up, including education and awareness raising
- Lots of clean up days being undertaken by communities/schools around Australia and of course 'Clean Up Australia Day'. For more information visit:
<http://www.environment.gov.au/marine/marine-pollution/marine-debris>

What is the goal for this topic:

One of the goals for this topic is: By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.



How does the rubbish get there?

Apart from the great Pacific garbage patch, rubbish can get into the ocean by: Some people, when visiting the beach are careless with what they do with their rubbish. They leave it behind and it floats to the ocean. A lot of plastic rubbish falls into sewers, lakes, rivers and creeks that lead into the ocean. A piece of rubbish hundreds of kilometres away can end up in the ocean.

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Overfishing in Australia

By Mirboo North Secondary College

What is overfishing?

Overfishing occurs when more fish are caught than the population can replace. Catching too many fish is a problem because there will not be enough fish to breed, which will cause some species to go extinct. Then we won't have enough fish to catch.



What causes overfishing?

Overfishing is caused by people catching too many fish (according to the marine scientists). Today the number of fish caught worldwide is shrinking because of years of overfishing.

Affects of overfishing

Shark populations have been greatly affected by overfishing (as mentioned by the IUCN's list of endangered animals). There are already 135 species of shark on the endangered animals list, and more are being added each year. For example the scalloped hammerhead shark has decreased by 99% over the past 30 years.

Many oceans are losing species of fish and sea plants. The life cycle of marine species is also being changed, causing cycles of premature reproduction and relative decreases in the size of smaller fish across generations. Overfishing has lessened the amount of fish in the oceans, affecting sea birds and sea mammals, causing them to starve.

How to help reduce overfishing

If the demand for fish gets lower there would be less overfishing, helping the different species of fish breed, so then the population of fish will increase, and we can fish sustainably.

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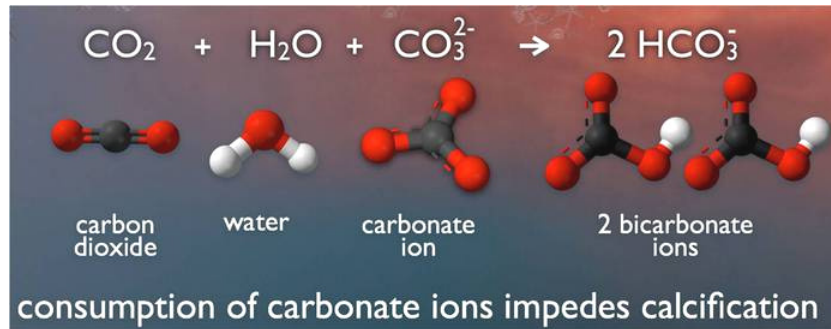
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Acidification

By Josh

What is ocean acidification?

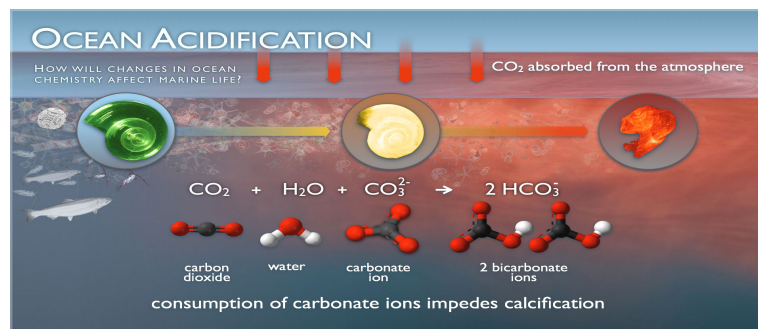
Ocean acidification refers to a reduction in the pH of the ocean over an extended period time, caused primarily by uptake of carbon dioxide (CO₂) from the atmosphere.



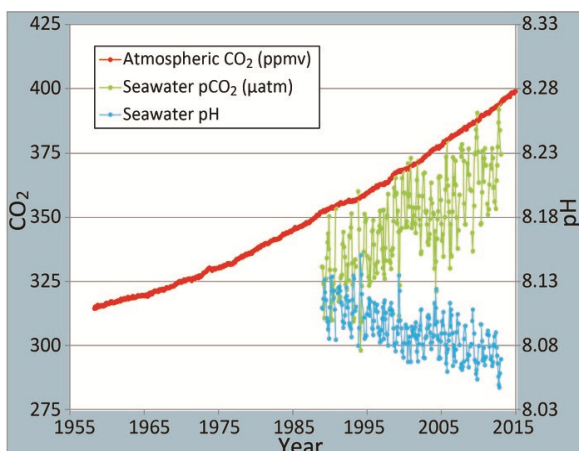
<http://www.pmel.noaa.gov/co2/story/What+is+Ocean+Acidification%3F>

How is ocean acidification caused?

Ocean acidification is the ongoing decrease in the pH of the Earth's oceans, caused by the uptake of carbon dioxide (CO₂) from the atmosphere. An estimated 30–40% of the carbon dioxide from human activity released into the atmosphere dissolves into oceans, rivers and lakes.



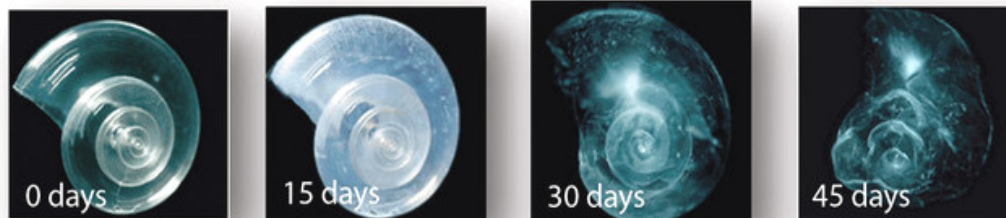
<http://www.pmel.noaa.gov/co2/story/What+is+Ocean+Acidification%3F>



This graph shows us how much carbon dioxide (CO₂) has dissolved into the sea water. As the seawater pH lowers, the sea water becomes more acidic, which means more deformed shells.

What happens to the shells when ocean acidification occurs?

This is what happens when ocean acidification occurs. The shells start off strong then they become fragile by 15 days, then they start to deform by 30 days and then they fully deform and become inhabitable for some of the sea creatures.



<http://www.pmel.noaa.gov/co2/story/What+is+Ocean+Acidification%3F>

Other problems with ocean acidification.

Some other problems with ocean acidification are that shell fisherman won't be able to haul in their maximum income. Which mean that we lose jobs which means more homeless and less jobs.

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Great Barrier Reef - dredging

By Melissa, Stephanie and Mikaeli

Dangers affecting the Great Barrier Reef

Since 1987, 283 oil spills have occurred in the waters of the Great Barrier Reef. In 2010 a massive coal carrier, Shen Neng 1, crashed into the reef leaving a 3km scar and the coral is yet to grow back. At the moment 4000 ships are travelling through the reef, up to 100 reefs have been affected by this. There is an average of 2900 reefs.

Effects of expanding ports

The government is dredging up the sea floor in the Great Barrier Reef to be able to fit bigger cruise and cargo ships into the ports. After the area has been dredged the fine sediments are thrown into the water at a different area of the ocean, but these particles can drift up to 100km from their dumping ground, thus ruining the quality of the water and the clearness. There are plans to expand 5 more ports on the Great Barrier Reef, increasing the amount of ships travelling through the area.



This is where the Great Barrier Reef is, on the East Coast of Australia.

Effect on the coral

The coral is being affected a lot by the bleaching and dredging near the Great Barrier Reef. The cycle of the coral is like this, the coral will be a nice pinkish-orange colour which means it is healthy and alive, but then it will turn white due to the fine sediments in the water, then it is possible that the coral will die.

Breeding and feeding grounds for animals

Many of the areas that are getting dredged on the Great Barrier Reef are feeding and breeding grounds for sensitive species like turtles and dugongs. Several turtle and dugong deaths were blamed because of the major dredging and dumping operation in 2010-11 in Gladstone Harbour. The sensitivity of these animals means that they need specific areas that they can breed and feed in, and not being dredged and re-dredged every couple of years.

Mirboo North Secondary College, Australia

Oil spills in Australia

By Mia and Jaime

Oil Spills in Australia

By Mia and Jaime.

What is an Oil Spill?

An oil spill is tonnes, litres, gallons of different oils spilled or flowed into oceans causing animal suffocation and damage to the earth. Oil spills are a terrible kind of pollution, an oil spill isn't always a "spill" it can be as little as the oils from cars on roads that have been washed into the ocean.



20/05/1988 Cape Cuvier Western Australia

What causes an oil spill?

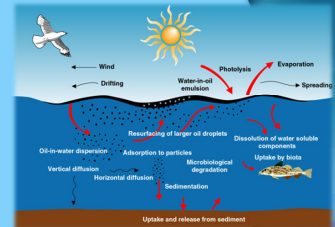
- Most oil spills are caused by ship pipeline accidents, sometimes exploration processes, natural disasters, like floods bushfires and sometimes can even be a deliberate act by terrorists, countries at war, vandals and illegal dumpers.



29/5/2010 Great Barrier Reef, One of the ships fuel tanks was damaged creating a narrow oil slick of heavy fuel oil 2 miles.

What happens during an Oil Spill?

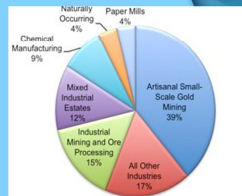
- Oil floats on saltwater oceans and usually floats on fresh water rivers, if the oil is so heavy it can sink in the fresh water, but this rarely happens.



- oil usually spreads quickly across the water to form a thin surface of oil we call an "oil slick"

How much Oil flows into the ocean every year?

- Australia has been fortunate enough not to have large oil spills. It has been recorded that very few of Australia's oil spills are over 1000 tonnes. Although that is still 400 million gallons a YEAR.!



What are some oil spills in Australia?

| Date | Place | Tonnes of Oil spilled |
|------------|-------------------------------|-----------------------|
| 03/03/1970 | Torres Strait Queensland | 1100 tonnes |
| 10/09/1979 | Botany Bay New South Wales | 95 tonnes |
| 20/05/1988 | Cape Cuvier Western Australia | 600 tonnes |
| 21/07/1991 | Western Australia | 17,280 tonnes |
| 28/06/1999 | Port Stanvac South Australia | 230 tonnes |
| 09/01/2012 | Christmas Island | 102 tonnes |



Western Australia 21/07/1991

How can we help prevent oil spills?

- We can help prevent oil spills by: Installing solar, wind, or geothermal to generate your own green energy. Buy green energy, and politically support clean energy instead of oil.

PREVENTING OIL SPILLS

- Reduce the generation of oily waste.
- Store waste oil and oily waste.
- Monitor oil and oily waste.
- Transfer or offload waste oil and oily waste to shore facilities.
- Process oily waste.
- Reduce the generation of oily waste. Store waste oil and oily waste. Monitor oil and oily waste. Transfer or offload waste oil and oily waste to shore facilities. Process oily waste.
- The training officer must ensure that formal training is provided to key personnel who maintain and operate pollution control equipment.
- The training officer is responsible for training that achieves an acceptable level of expertise. As a supervisor, you should be sure that all engineering personnel are familiar with the sources of oil spills and oil waste that may cause pollution.

How do oil spills affect animal life?

- Oil spills affect animal life in so many ways.
- 1. suffocation to marine life.
- 2. birds eating marine life stuck in the slimy plug and dying.
- 3. land animals drinking contaminated water,
- 4. kills the plants that feed off the water to survive (corals)
- 5. oil sticks to birds wings, leaving them flightless.



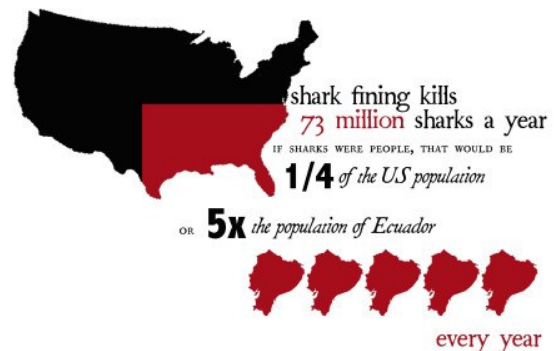
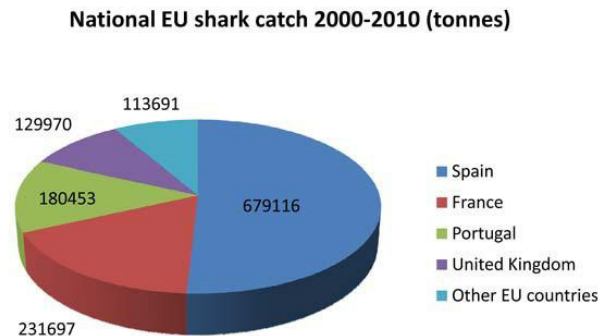
“ I like working and protecting the environment because clean environment means clean water. ”
Levis, Uganda

Shark finning

By Ruby

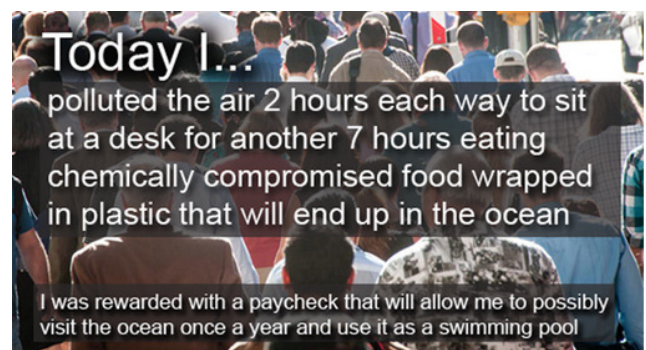
Why should shark finning be illegal all over the world?

Sharks play a very important role in our ecosystem and in the food chain. If we kill all the sharks, it will make the food chain fall apart. In the ocean, sharks are the top of the food chain. If the sharks go, the seals' population will grow and the fish would die out, then zooplankton would die and out and so would krill. After the krill die out, so would whales because they have no food to eat and then the whole ocean food chain won't exist because of the people who slaughter sharks **just** for their fins to put in shark fin soup. The fins have no nutritional value, no nothing, they are purely just for texture and at \$350 per bowl of shark fin soup, that's just ridiculous.



Facts about shark finning

- The shark population has decreased by 60 to 90 percent in the last 15 years.
- Most shark species will die out in 10 years or so.
- Up to 97% of the shark is wasted.
- 400 hundred million years of survival for the sharks is now getting thrown away.



How can you help?

There is three easy ways you can help fight against the fisherman that kill sharks and the three simple steps are:

- If you live in a country where shark finning happens, then make a petition and send it to your government telling them to put and end to this practice.
- If you travel, don't go to countries that legalize shark finning, deny them your tourism dollars.
- If you must travel in those countries where finning is legal, **don't** order shark fin soup.

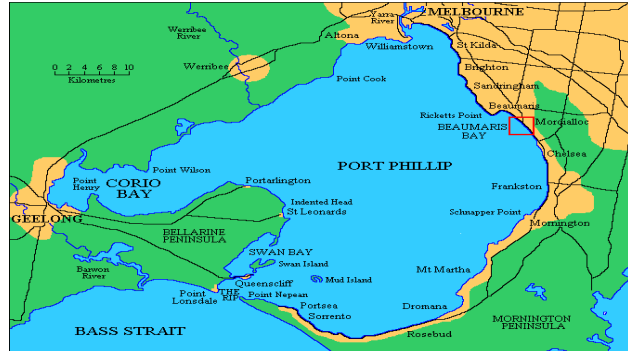
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Mirboo North Secondary College, Australia

Port Phillip Bay - water pollution

By Taleisha and Georgia



Pollution at Port Phillip Bay

Port Phillip Bay has more than 300 stormwater drains going into the bay every day. The polluted stormwater can result in litter on our beaches and smelly beach water.

How is pollution affecting our beaches?

Pollution is affecting our beaches in dramatic ways. More and more rubbish is exposed to marine life and our beaches and ocean.

The dramatic effects of pollution to our beaches



What are we doing to prevent this problem?

People in Melbourne are becoming more aware of this problem every day. Nearly every stormwater drain has now got a grid over it to stop large rubbish going in to the sea.



Rubbish does not just get to our oceans by storm water drains. Litter is very likely to find its way in to the sea by wind.

Storm water drains also carry in fresh water so when salt water organisms are placed in fresh water they will swell as water moves into their bodies and they die because the concentration of salt is too low.

Ways you can help

- Support organizations working to protect the oceans
- Help take care of the beach
- Use fewer plastic products
- Influence change in your community
- Don't purchase items that exploit marine life
- Take time off to help clean our beaches



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Sustainable fishing - The Prom

By Rivan, James and Luke

Licences

You will need to obtain a fishing license if you are over 18 y/o and under 70 y/o or you are not a holder of a Victorian senior card or a Commonwealth pensioner concession card. A 3-year fishing licence for \$66, a 1 year licence for \$24.50, a 28-day licence for \$12 and a 2-day licence for \$6.

Fishing

Wilsons Prom has Victoria's largest marine national park. The only places you can fish are Tidal River and the north-west side of Norman Bay. Squeaky Beach is a very popular place for surf fishing.

Illegal fish

Sea horses, sea dragons, pipefish, trout cod, Australian greyling, Tasmanian whitebait, brown and dwarf galaxias, white shark, grey nurse sharks and a lot more. It is illegal to catch a protected fish and if caught they need to be put back; other wise you will be fined.



Why we need sustainable fishing

If we don't keep these rules and regulations in place fish will slowly become extinct and the marine ecosystem will die out. A lot of fish play a very important role in sustaining other things other than their own species. So this is why we must follow these rules.

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Sustainable fishing on the Western Australian coast

By Jordan, Johnny and Patrick

Why we need sustainable fishing

We need sustainable fishing so the fish populations stay the same or rise, instead of decreasing. We need sustainable fishing so we can feed future generations.

Protection for smooth and black stingrays

These two stingray species are now protected in the South Coast and West Coast bioregions. If caught in these regions, these stingrays must be returned to the water immediately without causing them further injury.



Fishing licences

You need a recreational fishing licence for these types of fishing within Western Australia.

- Recreational fishing from boat \$30.00
- Rock lobster \$40.00
- Abalone \$40.00
- Marron \$40.00
- Freshwater angling \$40.00
- Net fishing (set, haul, throw) \$40.00



Ways to catch crabs legally

You can legally catch crabs by:

- Hand: Wire hook – you can use a hand-held blunt wire hook to catch crabs. Hooks must not be capable of piercing the crab.
- Drop net – they must be no wider than 1.5 metres in diameter. There is a maximum limit of 10 drop nets per person or 10 drop nets per boat, regardless of how many people are aboard.
- Scoop net – hand-held wire or plastic scoop nets must be bowl-shaped, made of rigid mesh that is not capable of entangling a crab, have an internal diameter no bigger than 375 mm and a depth of no more than 210 mm.

Catching crabs by any method other than those listed above is illegal.

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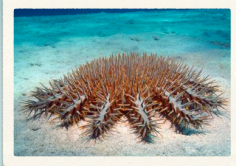
The Crown of Thorns

By Bridget, Alissa and Ashleigh

What Is It?

The crown of thorns is a sea star native to some Australian waters. It can have up to 40 arms and is covered in thorns that are poisonous but not enough to kill you.

The Crown Of Thorns is also known as a 'COT'.



A COT can produce up to 65 million eggs per breeding season! (October to February)

They can grow up to the diameter of 80cm.

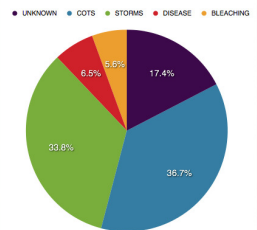
They can not grow from an arm that has been cut off like some other starfish.

Damage

The Crown Of Thorns sea star is a major problem facing the Great barrier Reef. It moves slowly through the warm tropical waters of Northern Australia, eating every piece of coral in its way, killing it as it goes.

The COTS can eat and kill 50 year old coral in a matter of days doing more damage than disease, bleaching and the unknown put together.

Coral Damage

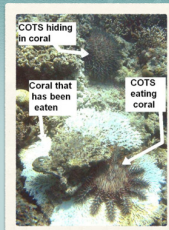


The Problem

The Crown Of Thorns is eating coral faster than the coral itself can grow back.

During a twenty minute swim on the reef around one COT is the amount considered to be sustainable, but any more management activities are said to be needed.

The reef is dying fast and needs to be protected and if we are not fast there will be nothing left to protect.



Overpopulation

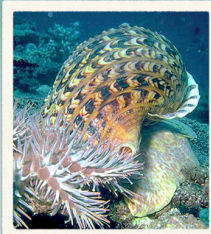
The overpopulation of the Crown of Thorns has been said to be due to fertilizer run off. The run off would have boosted the COTS diet and giving them the boost they need to dominate. Although this is only one explanation to the problem.



predators

The Crown of Thorns do have predators, although they are not enough to keep control of the COTS population. For example the Great Triton Snail only eats about one COT per week. Other predators include:

- Great Triton Snail
- Starry Puffer Fish
- Humphead Maori Wrasse
- Titan Trigger Fish



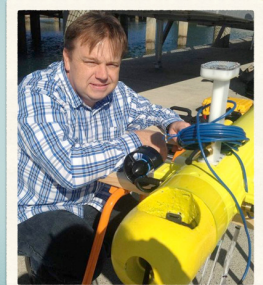
The COT Bot

During the past 10 or so years, Queensland researchers have been working on a robot known as the 'COT BOT'.

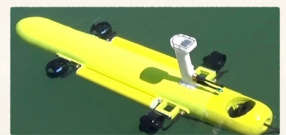
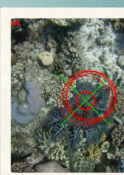
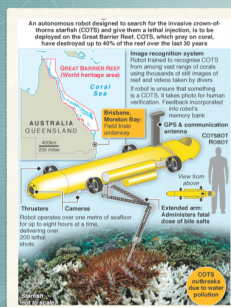
The robot will search and identify a COT through its cameras and then injecting a poison to kill it without any pain or affect on the reef.

The cot bot is able to kill a COT with one shot unlike doing it by hand which can take up to 20.

It also can take a photo of what might be a COT when its not sure and send it back to HQ for confirmation.

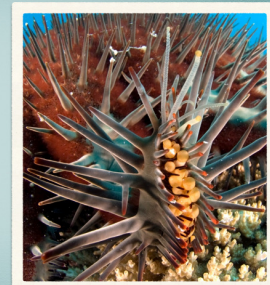


More Of The COT Bot



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Mirboo North Secondary College, Australia

Rubbish pollution in our oceans!

By Meaghan and Natalie

Our coasts and beaches

Our closest beaches are Inverloch, Walkerville, Shallow Inlet and Kilcunda. All of these beaches have beautiful scenery. It takes about 1 hour to get to all of these beaches

What type of rubbish is polluting our oceans?

Common items of marine debris include plastic bottles, fishing nets, food packaging, crates, cigarette butts, gloves, buckets, rope, fishing gear, packing materials, light globes and plastic bags.

Animals in nets

All marine life can get caught in nets and then slowly die because they are being strangled. Some other problems are starvation, entanglement and strangulation.



Turtles and plastic bags

Turtles like to eat jellyfish and when we drop our plastic bags they eventually get washed into the ocean and turtles mistake them for jellyfish.

What happens when plastics break down?

When plastics break down until we cannot see them, the plastics release chemicals into the water. The chemicals get into the fishes' bloodstream and then the fish die.

We do not want these beautiful beaches to turn into polluted beaches. If everyone did their bit in helping keep the oceans clean we could have beautiful, clean oceans and beaches.



What are we doing now to stop marine pollution?

In this video it shows some of the things that Australia is doing to help keep our oceans clean and beautiful.

<http://www.abc.net.au/btn/story/s3591476.htm>

What are some large scale actions for ocean pollution?

- Stricter government regulations on industry and manufacturing
- Renewable energy sources so off-shore drilling is no longer needed
- Limit agricultural pesticides
- Proper sewage treatment
- Cut down on waste and contain landfills

What happens when we drop our rubbish?

- We drop our rubbish.
- Washes into a drain and eventually goes into the ocean.
- Marine life mistake the rubbish for food, they eat the rubbish (usually plastic) and then they die.

What are some ways you can help keep our oceans clean?

- Don't use plastic bags when you go shopping, instead use a bag made out of calico, denim or cotton.
- Use reusable water bottles and bags.
- Pick up litter – rubbish travels down the storm drain and into the sea.
- Organise a beach clean up.
- Reduce your rubbish
- Take care of local streams and rivers.

Facts about ocean pollution

Millions of tonnes of rubbish enter the oceans every year. Australians use over 10 million plastic bags a day. Up to 80% of rubbish in the oceans comes straight from beaches and stormwater drains. Most of this is plastic. 267 marine species are affected by plastic garbage. Nearly every piece of plastic still exists on Earth!!!

Reduce, Reuse and Recycle
Reduce your rubbish!
Reuse it for something else!
Recycle it- make it into something you can use in your daily life!

Video Links

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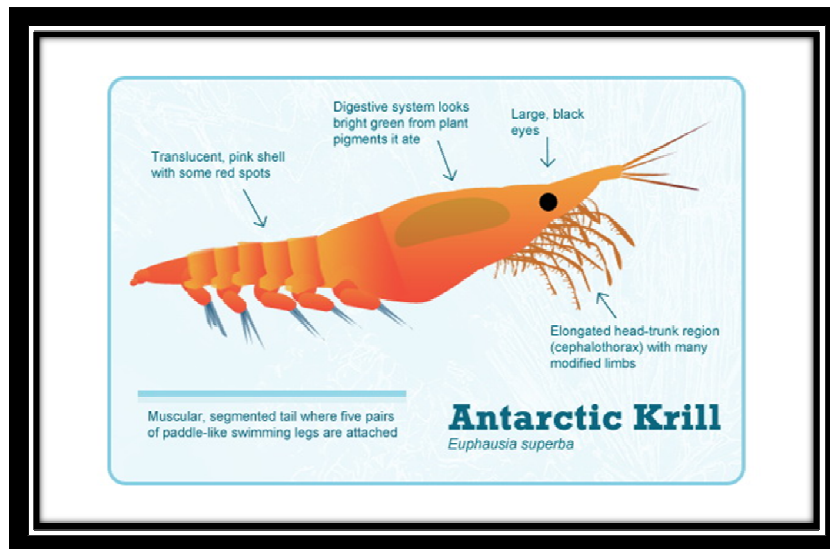
Put your rubbish in the bin!!!
Be a part of the solution not a part of the problem!!

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The oceans eco-systems

By Eryn and Abbey

What is krill?



Krill or euphausiacea superba

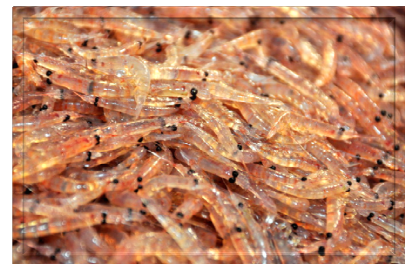
Krill are small crustaceans that are found throughout all of the ocean especially in Antarctica. The name krill came from the Norwegian word krill which means 'small fry of fish.'

Its physical appearance:

They have large black eyes and are mostly transparent, but their shells do have a little bit of a red tinge to it. Strangely you can see their digestive system which has a bit of a green colour to it because of all the microscopic plants that they have been eating. The average adult Antarctic krill are about six centimetres in length and weigh approximately a gram.

Fishing

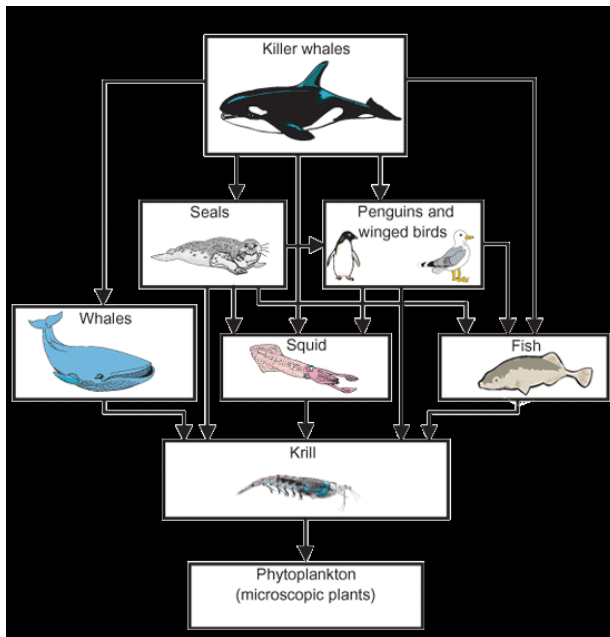
In the early 1970s people began to fish krill and it was also then that the vision for a free-for-all fishing system in the Antarctic began. This led to the unique fishing agreement in 1981. The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) was planned to defend the Antarctic eco-system from rapid expansion of fishing. Scientists at the Australian Antarctic Division are studying krill so they can understand the krill's life cycles so, consequently the fishing can be better managed.



Sustainable fishing

The CCAMLR was founded in the 1980s as there were concerns that krill fishing had been expanding and causing a large impact on the eco-systems in the Southern Oceans. Since that year krill harvesting has been achieved in a very safe way because krill plays a huge role in the Antarctic eco-system and is a key species. When we are fishing we need to sustainably fish for krill so that we do not take too many krill out of the sea, so consequently there would be enough for their predators to eat; such as whales, seals and penguins. Basically, the CCAMLR's tactic to handling krill fishing is to decrease the impact on the ocean's eco-system instead of increasing the size of krill fishing.

What depends on krill?



Whales

There are eight different species of whale that live in Antarctic water. They may be the largest consumers of krill. The largest animal on Earth, the blue whale, can eat 4 tons of krill daily.

Penguins

Penguins are the biggest species of bird in Antarctica. Several of these species depend on the survival of krill, although they do also eat crustaceans and other fish as well. If krill died away the population of penguins would decrease, but penguins are one of the largest species that have a big impact on krill fishing.

Seals

There are six species of seal in the Antarctica oceans, although only five of these are true seals; the fur seal is actually an eared seal because true seals have no ears whereas fur seals do. But over 60% of the seal population in the world lives in Antarctic waters, so without krill the seals would eventually die off, especially the smaller species of seals as krill is their main food source, although some of the bigger and more aggressive seals, for example leopard seals, could possibly survive on penguins or even younger seals.

What is krill oil? Why do we need it?

Benefits

After we fish krill we then extract the oil from them and put it in capsules, then we put it in a box and on the shelf of a supermarket. We use krill oil for heart disease as well as high cholesterol. But people also use it for high levels of specific blood fats, high blood pressure, strokes, cancer, osteoarthritis, premenstrual syndrome (PMS) and depression.



How does it work?

Krill oil includes fatty acids which are alike to fish oil; those fats are thought to be helpful for swelling and lower cholesterol as well as making sure that blood platelets stay less sticky. Consequently, when the blood platelets are less sticky there is less chance that they will cause clots.

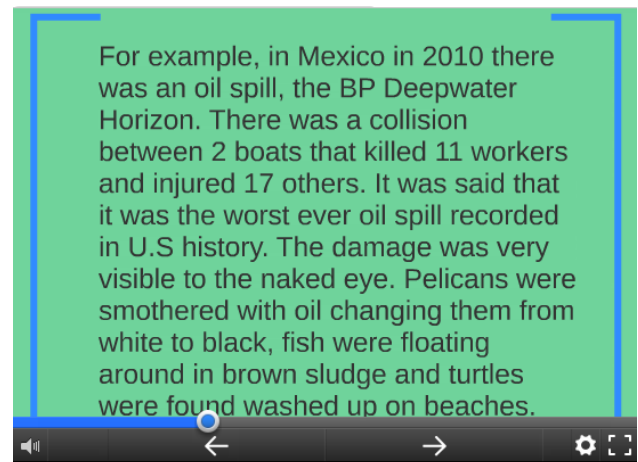
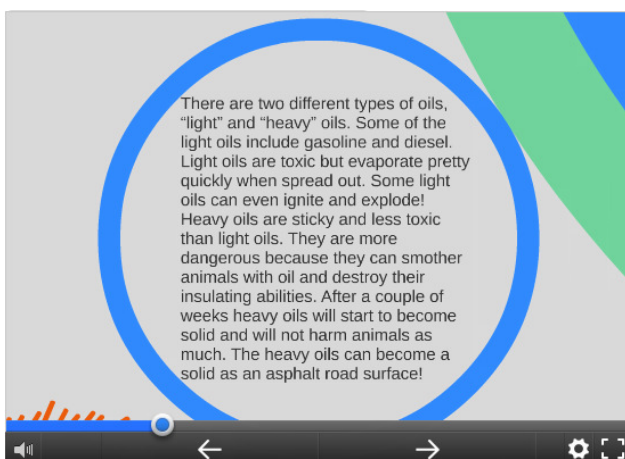
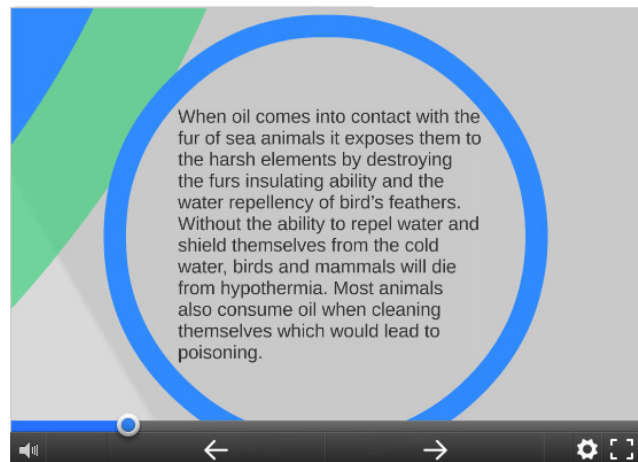
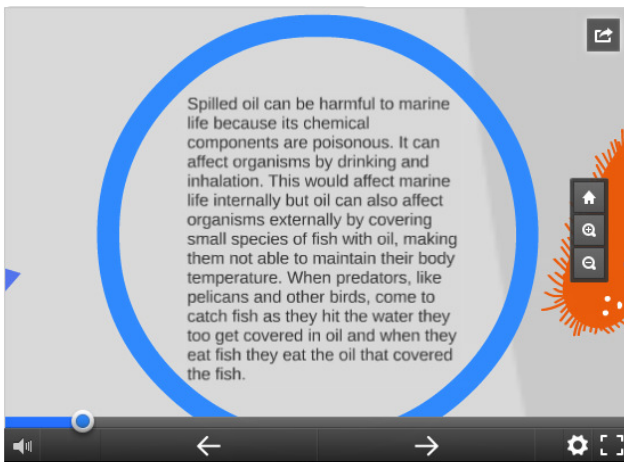
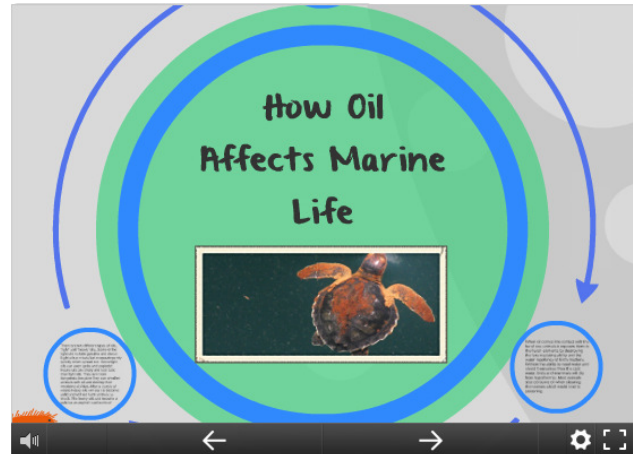
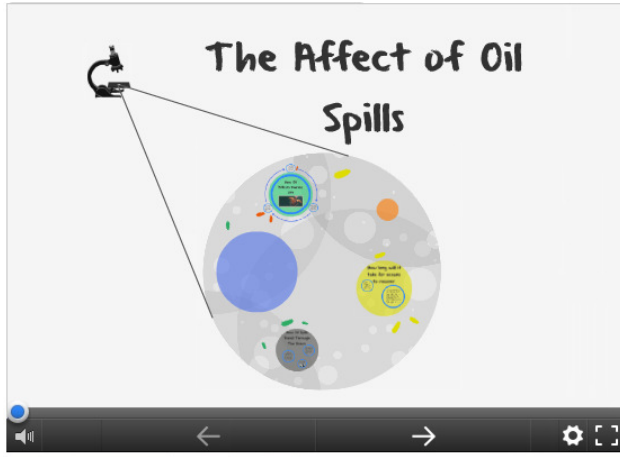
Non-benefits of krill oil

If we fish too much of the krill the whole of the sea animals would slowly die away. This would mean that we couldn't sustainably fish other animals to eat like gummy shark, calamari and fish.

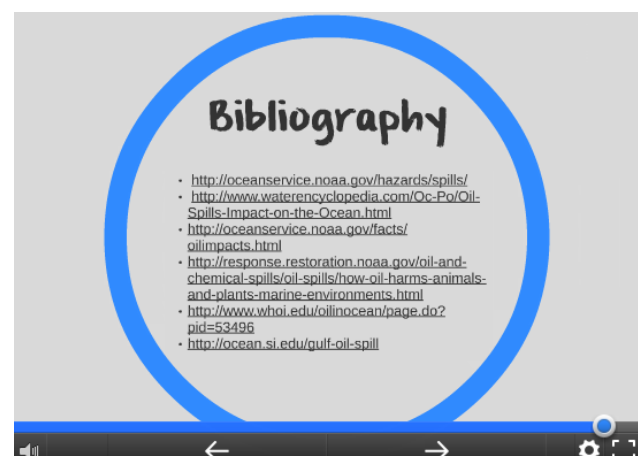
Mirboo North Secondary College, Australia

The effects of oil spills

Chloe Palmer has created a Prezi on *The effects of oil spills*.



Spilled oil can be harmful to marine life because its chemical components are poisonous.



How Oil Spills Travel Through The Ocean

Table of Contents

- 1. Introduction
- 2. Physical Properties of Oil and Water
- 3. Environmental Impact of Oil Spills
- 4. Conclusion

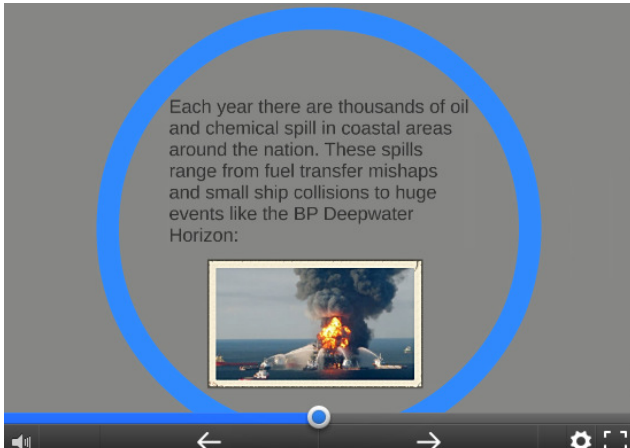
Physical Properties of Oil and Water

Oil and water are immiscible, meaning they do not mix. This is due to the difference in their chemical structures. Oil is a hydrocarbon, while water is a polar molecule. This difference in polarity causes the two liquids to repel each other, resulting in the formation of separate layers. This property is crucial in understanding how oil spills behave in the ocean.

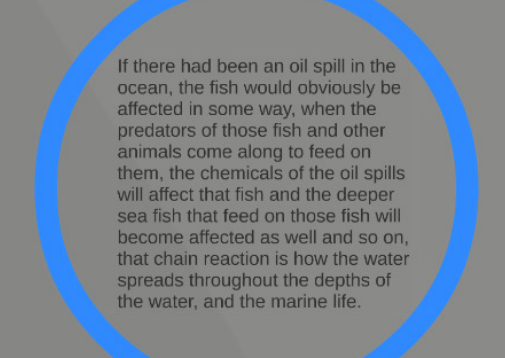
Environmental Impact of Oil Spills

Oil spills can have a devastating impact on the environment. The oil can coat the feathers of birds, the fur of mammals, and the gills of fish, leading to death. It can also contaminate the food chain and destroy habitats. The cleanup process is often costly and time-consuming, and the long-term effects on the environment can be significant.

Each year there are thousands of oil and chemical spill in coastal areas around the nation. These spills range from fuel transfer mishaps and small ship collisions to huge events like the BP Deepwater Horizon:



When oil is spilled in the ocean, it initially spreads in the water (primarily on the surface), depending on its relative density and composition. The oil slick formed may remain cohesive, or may break up in the case of rough seas. Waves, water currents, and wind, force the oil slick to drift over large areas, impacting the open ocean, coastal areas, and marine and terrestrial habitats in the path of the drift.



The Chain Reaction

If there had been an oil spill in the ocean, the fish would obviously be affected in some way, when the predators of those fish and other animals come along to feed on them, the chemicals of the oil spills will affect that fish and the deeper sea fish that feed on those fish will become affected as well and so on, that chain reaction is how the water spreads throughout the depths of the water, and the marine life.

How long will it take for oceans to recover

The time it takes for an oil spill to be cleaned up and the ocean to recover depends on many factors, including the size of the spill, the type of oil, the location of the spill, and the weather. In general, it can take several months to several years for the ocean to fully recover from an oil spill.

The most basic method of cleaning up an oil spill is to contain the spread of the oil with physical barriers. When oil hits water, it will float to the surface and spread out into a few millimeters thick. The workers first surround the oil with a floating barrier called booms to keep it from spreading any further. Then they have to remove the oil. They will either use skimmers, booms that skim across the water's surface through the oil, gathering it so it can be sent to a refinery.

Once oil is spilt into the ocean it is difficult to clean up. The main problem when cleaning up is that oil spills are never the same and depending on the amount also depends on the speed of the recovery. The amount and type of oil affects how it spreads. Some spread faster than others and depending on the type of water e.g. seawater fresh water. Air temperature, water temperature, wind speed and direction and existence of ice also effect the spill rate.

The most basic method of cleaning up is to control the spread of the oil with physical barriers. When oil hits water it either floats to the surface and spreads out into a few millimetres thick. The workers first surround the oil with a floating barrier (called booms) to keep it from spreading any further. Then they have to remove the oil. They will often drive skimmers, boats that skim across the water's surface, through the oil, gathering it so it is easier to collect.

A black and white photograph of a dead bird, possibly a frigatebird, lying on a sandy beach with its beak open. The photo is framed by a thick blue circle on a yellow background.

Mirboo North Secondary College, Australia

Water pollution in oceans

By Josh, Paul and Richard

How much garbage is dumped into the ocean each year?

A estimated eight million tons of trash gets dumped into the ocean each year, most of it coming from China, Indonesia, The Philippines, Thailand and Vietnam.

The effect of plastic pollution

Over one million seabirds are killed by plastic pollution each year as well as 300,000 dolphins caught in discarded fishing nets. Also 100,000 different sea mammals are affected by plastic pollution.

What can happen to plastic?

Plastic debris can absorb toxic chemicals from ocean pollution, therefore poisoning whatever eats it. As a matter of fact, plastic pollution is one of the most serious threats.



What plastic can do if decomposed

Plastic cannot decompose, instead it gets smaller and smaller until it is nearly nothing and then it can be absorbed into living organisms. It poses a significant health threat to the various sea creatures.

How long does it take for garbage to break down?

Time it take for types of litter to break down: glass bottle - 1 million years; monofilament fishing line - 600 years; plastic beverage bottles - 450 years; disposable diapers - 450 years; aluminium can - 80-200 years; foamed plastic buoy - 80 years; foamed plastic cups - 50 years; rubber-boot sole - 50-80 years; tin can - 50 years; leather - 50 years; nylon fabric - 30-40 years; plastic film container - 20-30 years; plastic bag - 10-20 years; cigarette butt - 1-5 years; wool sock - 1-5 years; plywood - 1-3 years; waxed milk carton - 3 months; apple core - 2 months; newspaper - 6 weeks; orange or banana peel - 2-5 weeks; paper towel - 2-4 weeks

What we can do to stop rubbish from getting in the ocean

We could all try to stop pollution getting into the ocean by taking pride in our planet and going the extra distance to put your rubbish in the bin and you could also put some of the more ignorant people away. We could put fly wire over the drains going into the ocean and have someone go down and clean it every week. We could also recycle more too.

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Plastics cannot decompose.

Water and plastics

By Georgia, Kane and Imogen

Breaking down of plastics

- Breaks down into smaller pieces, but never goes away.
- Marine animals eat it and become sick or die.
- Entangles and injures the animals.
- Unknown numbers of animals die this way each year.
- Toxins are making their way into our food stream.

Rubbish amount

Scientists figured roughly 15% to 40% of littered or dumped plastic enters the ocean each year. It is believed that the amount of rubbish will be doubled within 10 years. Researchers report online that about 4 million to 12 million metric tonnes of plastic washed offshore in 2010 alone.

Hazardous plastics

The last estimate was in 1975, when a National Academy of Sciences study hazarded a guess that about 0.1% of global plastic production sweeps out to sea annually, based on using ten lightweight plastic bags per week over a 2-year period. A lightweight plastic bag consumes about 4.5 times more energy in its manufacture than reusable green bags.

“ Water scarcity is a serious issue in my country. I hope participating in this project will help me and my friends to adopt a greener lifestyle.

Paniz, Iran

“ Well, I'm here to protect our planet against all kind of pollution. For me water is the most important substance on earth. If there wasn't water there would be no life on earth. That's why we all must try to help each other to warn people about the dangerous impact of pollution.

Rym, Tunisia

Gymnasium #2, Ukraine

Survey on water quality and water usage

Опитування виконали учениці 9-А класу Пентелюк Анастасія та Малишевська Інна. Pentylyuk Anastasia and Inna Malyshevskiy conducted a survey of students in grade 9 in relation to water quality and water use.

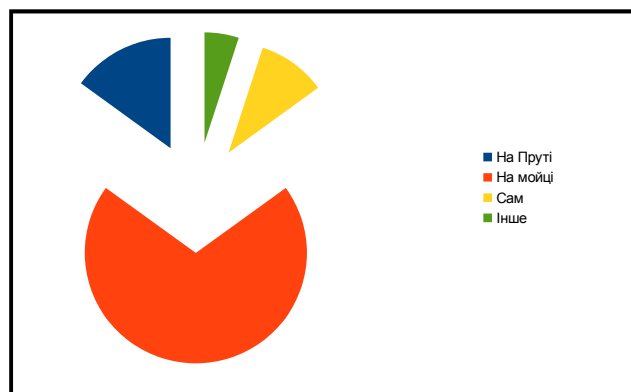
Водá, H_2O — хімічна речовина у вигляді прозорої безбарвної рідини без запаху і смаку, (в нормальних умовах). У природі існує у трьох агрегатних станах — твердому (лід), рідкому (вода) і газоподібному (водяна пара). Молекула води складається з одного атома кисню і двох атомів водню. Атоми водню розташовані в молекулі так, що напрямки до них утворюють кут $104,45^\circ$ із вершиною в центрі атома кисню. Таке розташування зумовлює молекулі води дипольний момент у 1,844 Дебая. При заміні атомів водню (протонів) на атоми дейтерію утворюється модифікація, яка називається важкою водою.



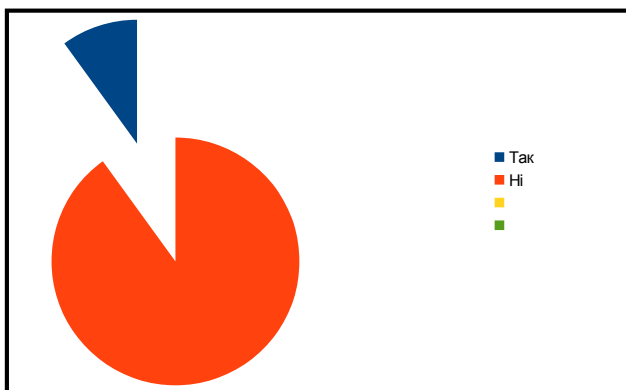
1. Яку п'єш воду ?
What kind of water do you drink?



2. Де ваш тато миє машину ?
How does your dad wash the car?



3. Чи знаєте ви номер водоканалу ?
Do you know the utility room?



4. Чи подобається вам купатись на водоймах вашої області ?
Where do you like to swim in waters in your area?



5. Чи часто ви бачите, як люди забруднюють воду ?
How often do you see people pollute water?



March 22, World Water Day

By Marina Boyko

Some project participants were involved on the day at the house of flowering plants. We also learned about the quality of drinking water in Chernivtsi, where we live. Our city uses surface water - the Dniester and Prut. The Dniester water supply system was not built to meet our personal needs and for a number of companies of the then military-industrial complex. The water from the Dniester has been contaminated by several man-made disasters.

Clean water - sign of a civilized country.



“ I too think that we need to save Earth and that it is being destroyed by Man. People truly don't know what they are doing to the environment.
Trevor , U.S.A. ”

Officer Secondary College, Australia

Experiments to clean water

On the 15th of March, 2016, a group of students from Officer Secondary College went on an excursion. We went to a nearby lake and gathered samples of dirty water, similar water to the water people are having to drink in third world or developing countries.



We took the samples back to a laboratory and tried two experiments, seeing if they would make the water clean and safe for people to drink and use. The first experiment was filtering the water through various resources. The resources consisted of paper towel, cotton wool, charcoal and sand. All of these ingredients were compacted into a mini plastic drink bottle with the bottom cut off. We were working in pairs and we slowly dribbled the water through the ingredients. The sand grabbed all or many solid pieces, followed by charcoal, absorbing any oils and chemicals. The cotton wool, just made sure that if anything was left out, it would pick it up. Last but not least, the paper towel dribbled the water in the beaker and out came clean water. All different pairs had different results, some were still dirty and some were very clear. The theory we had behind this was the different levels of how tight and compacted everything was. The less compacted, the more unsafe particles were let through.

The second experiment was the distillation process. That involved using heat to evaporate water and whatever evaporated was purified and clean. Unfortunately we were unable to see the final result, due to a spillage. Nevertheless, before that, we were able to see evaporation and condensation at its best. From that excursion we got to go deeper into the research and now understand that there are things that can be done to prevent water scarcity or to decrease the amount of water scarcity in countries and the world.



Water scarcity research

The average person uses 20 litres of water daily in Sub-Saharan Africa. Whether it's for drinking, watering plants or anything else, there are many ways they use their water. 20 litres of water isn't much. Most of the time the people have to go and collect water from ponds and creeks. But then they realize that that water is not drinkable because it contains bacteria like animal droppings and oil slicks.

The people in my chosen country, Sub-Saharan Africa, access their water from rainfall, trucked water from dugouts along dry rivers, traditional and unsanitary sinkholes and natural holes in rocky areas. The people that live in this country do not have much water to access at all, most of the water they consume or use in various ways is contaminated and filled with many, if not all types of bacteria.

The people in my chosen country are using their water for agriculture, since the water is contaminated and undrinkable, they feed their plants and environment with it. There are many types of plants in their country and they respect their land, environment and plants. Sub-Saharan Africa's agriculture is formed and used up by all the water they access. The reason why water is scarce in Sub-Saharan Africa is because the water was compounded by the destruction and looting of water supply installation during the civil war. Some countries are lucky to have enough water to survive long enough, but others like Sub-Saharan Africa and India have a poor amount of water and each have reasons for their water scarcity. There is also a lack of maintenance and erratic rainfall.

Water usage in Australia

Victorians access safe drinking water by water managers and the ten catchments. The water managers are in control of lands that provide water and waterway management. Each of the ten catchments have responsibilities for waterways too, the water managers and catchments produce safe clean drinking water that forms from rain and the surface.

Each day, the average Australian uses 100 litres of water but some use 800 litres per day, that is if they live in a dry inland areas. Many average Australians consume water that is clean enough to drink but also to have showers, brush their teeth, wash the dishes and a lot more. Water is used in many important ways by the average Australian and is used a lot with regard to how much water Australia produces and contains.

This graph shows how much water is used by doing certain things that involve using water. The garden sprinkler per hour uses the most amount of water, it can use up to 1000 litres in just 1 hour. The least amount of water used from a water-using objects are brushing your teeth with the tap running and using a hand basin which both use up 5 litres of water.

| | |
|--|-------------|
| Toilet flush (single flush cistern) | 12 litres |
| Bath | 100 litres |
| Shower (10 minutes) | 200 litres |
| Dishwasher load | 50 litres |
| Washing machine load | 150 litres |
| Brushing teeth with tap running | 5 litres |
| Drinking, cooking, cleaning per person per day | 10 litres |
| Hand basin per use | 5 litres |
| Garden sprinkler per hour | 1000 litres |
| Garden dripper per hour | 4 litres |
| Car Washing with hose | 200 litres |
| Hosing driveway | 100 litres |
| Total daily consumption per household | 900 litres |

Officer Secondary College, Australia

Water usage in Australia

How do Victorians access safe drinking water?

Mackenzie: Victorians have access to safe drinking water by chemically altering our storm water, rain water and recycled water to make water safe for human consumption. The stages of this comes with a huge process which is when water from the sky soaks into the ground then moves through a massively large cord of pipes. Water flows through the pipes, when all the water is finished flowing then it chemically and magically changes into safe drinking water. That then goes to our house pipes for baths, showers, washing dishes, cleaning the car and washing the dog

In what ways is water used in Australia?

Chloe: Different ways water is used in Victoria are watering plants, drinking it, showering, washing hands, feeding animals, fish tanks (if you have fish), water fights with water balloons, cooking, doing the laundry, cleaning, filling fountains (for display not for drinking), flushing toilets, brushing teeth, dishwasher, filling a spa/pool, freezing for ice, to put out fires, washing your car, cup of coffee/ tea and loads more – sometimes we don't even know we are using water!

Kiara: Water is used in many ways around Victoria. Mostly water is used around the residential gardens and indoor use such as sinks, showers, toilets and air conditioners. We also use water for cleaning dishes in the dishwasher or in the sink, washing machines, brushing our teeth, drinking, cooking, cleaning, garden sprinkler, garden dripper, car washing with hose and hosing the driveway.

Kieran: In Victoria, water is mostly used for agricultural needs but it is also used for industry and domestic use. The reason for so much water being put to agriculture is that it's the most important industry in Australia because it produces a lot of our food requirements. Water is also used for other things like: air conditioning, washing dishes, washing clothes, showers, pools, spas and the list is just endless! A lot of water is wasted on some of these things like pools and spas. We need to become more water efficient otherwise more and more water just gets wasted on things that make us happy, instead of thinking about the future.

Lexxi: Water is used in a lot of different ways, for household activities, flushing the toilet is one of them. Then there is brushing your teeth, cleaning, drinking, eating, shower/bath, dishwashing load, washing machine load, hand basin, garden sprinkler, garden dripper, washing car with hose and hosing driveway. Then for other things there are residential coolers 10%, residential pools 1%, residential indoor 10%, non-revenue water 5%, institutional 7%, recreational 5%, commercial 7%, industrial 5% and residential garden 50%.

Eh Tha Boe: 70% of the water is used for farming in Australia and 22% of the water goes to industry, 8% of the water goes to your home for drinking, watering, washing and finally cleaning in the house. Also 50% goes to the residential gardens, 7% to commercial, 5% to recreational, 1% to the residential pools.

Tony: Households are using up to 900 litres of water a day for things such as the dishwasher, shower, tap (to wash hands), cooking and consumption.

Angelo: Water is used for so many things in Australia such as washing dishes or washing the car but some of the main reasons we use water is agriculture, industry, water for humans and sanitation. Agriculture uses more water than anything else because they sprinkle the fields with water to help grow plants such as vegetables and fruits. Industry also uses a lot of water for food, products, plastic bottles and many more by either inserting water in the product or using water to cool the product if it's hot. But still water is used a lot in everyday life like the first examples washing dishes, washing the car or doing the washing and having a bath.

Tai: Water is used in many ways in Victoria. Victorians use water for big important things like businesses, lands, schools, roads and a lot more. Other things like flushing the toilet, having showers and brushing our teeth. We also use it to drink but we can only drink clean safe water. Water is life: how it is and how we use it. If we didn't have water we wouldn't have education, jobs or even a life. There are different types of water needs as well, water is important in many ways and it's what we need.

Acelya: Australia has a lot of water supplies. On the 30th of June 2014 Australia carried 63% capacity and it's all so worth 51,000 gegalitres. The estimated total water uses across Australia was 23,500 GL at the end of 2013-14. The main irrigation use is in the Murray-Darling basin and was just over 9500 GL in 2013-14. Outside the basin, around 3900 GL was used for irrigation mainly in the Queensland and Victorian coastal regions. Urban residential use in 2013-14 was 185 KL per property.

Ben: Victoria uses water for sanitation, mining, agriculture and household uses. Most of the water goes to agriculture which is mainly farming. 12 percent of the water goes to households and only 3 percent goes to mining.

Ruby: The top two water uses were irrigation and urban consumption. The main irrigation use is in the Murray-Darling basin. The three main uses of water are growing food, producing foods, electricity and using it in our homes. Farms also use water for their crops. Even schools use water with the water in ink for our pens and water for the drinking taps.

Cailin: Victorians consumes water in many ways, from flushing the toilet to producing food. Victoria uses water on a large scale, maybe even too much. Victoria uses water daily by drinking it, flushing the toilet, washing our hands, cleaning cars, bathing, washing clothes and our hands, producing and preparing food and producing infrastructure. Anything that is made or used, is in some way shape or form, has water in it, including us. We are 75% made up of water. The biggest demand on water comes from agriculture and farming: giving animals water to grow, so they are healthy and can soon be changed into meat and food; giving water to plants and crops to grow and give vegetables and various others. Other ways water is on high demand is from urban, plantations, farm dams, stock and domestic bores, mining and electric generation.

Holly: In Victoria water is used in many different ways. Some of these ways are commercial and industrial. There are different ways in everyday use that you wouldn't think they use much water but they may use a lot of water. For an example, a single flush toilet uses twelve litres of water. Water can be used in many other ways such as drinking, cooking and cleaning. This task may take up ten litres a day. When you think of how much water a simple task takes you start to realize how much water it uses.

Thomas: A single flush of the toilet contains up to 12 litres, a bath is 100 litres, a shower for 10 minutes is 200. As you can see just doing everyday stuff uses a lot of water. Some main usage goes towards residential gardens and residential indoors coolers.

Officer Secondary College, Australia

Water usage in Australia

How do Victorians access safe drinking water?

Thomas: A single flush of the toilet contains up to 12 litres, a bath is 100 litres, a shower for 10 minutes is 200. As you can see just doing everyday stuff uses a lot of water. Some main water usage goes towards residential gardens and residential indoors/coolers.

Leah: Water is used in different types of ways. Here are some of the ways water is used for everyone's hygiene such as taking showers and brushing our teeth which keeps us healthy. A lot of water goes on our personal hygiene. Another way water is used is for everyone to have a drink because we need water to drink and stay alive and happy. If we don't have water to drink that could cost our lives and could make us suffer. Water is also used for us to eat so we don't starve. It is used for jobs.

Levi: Victorians use their water in a variety of ways. Some of the more popular ways are having showers and flushing the toilet. The most common way of using water is drinking it. We also waste a lot of water which is using up our water. Another big water usage is the industrial market which includes mining, electrical and a lot more. One of the bigger demanding water consumers is the agriculture market. Thousands and thousands of litres of water go into our fruit and veggies. We don't even realise it. We use water for washing our cars, watering the garden, washing our clothes and other sanitation needs.

How much water does the average Australian use each day?

Ben: In urban residential areas they use around 185 KL per property. Each Australian resident normally uses around 900 litres of water per day. This is a lot more than what it used to be due to the population growing.

Kiara: Average daily water use ranges from 100 litres per person in coastal places. They use more than 800 litres per person in the dry land areas. The current average daily water usage is 340 litres per person or 900 litres per household on average; an average of 150 litres of water per person. Australians use most of their daily water for cleaning and cooking. It consumes a lot of water in the average; it is about a quarter to a half of the daily consumption.

Noah: The household use of water is: toilet flush - 12 litres, bath - 100 litres, shower - 200 litres, dishwasher load - 50 litres, washing machine load - 150 litres, brushing teeth with tap running - 5 litres, drinking, cooking, cleaning per person per day - 10 litres, hand basin per use - 5 litres, garden sprinkler per hour - 1000 litres, garden dripper per hour - 4 litres, car washing with hose - 200 litres, hosing driveway - 100 litres. Total daily consumption per house 900 litres.

Kieran: The average daily water use ranges from as little as 100 litres per person in some coastal areas, to more than 800 litres per person in the dry inland areas. The current average water consumption is 340 litres per person and 900 litres per household. That's an unbelievable number! If we don't cut back, we could end up as a water-scarcity suffering country. The way we are going right now, that is looking like our future. Currently, Victoria's water storage levels are only at 45%! That's really low, especially when we have to provide for 23,783,500 people and businesses!

Leah: The average Australian uses about 80 - 100 gallons a day. That is a lot, but in regards to what we use water for each day, I can understand that this is how much we do use every day. Everyone takes a shower, which uses water. Every day people brush their teeth and that takes up water. Every day we need water to drink. We also use water in a lot of other ways each day too, so no wonder we use that much water everyday.

Angelo: The average Australian uses 340 litres of water a day with an extra 150 litres of water at that person's job. Also, the household can use up to as many as 900 litres of water which includes everything like brushing our teeth and flushing the toilet. But in some places the daily water consumption in coastal and dry inland places go from 100 to 800 litres a day.

Acelya: In Victoria we use a lot of water for all sorts of reasons but for good reasons we use water to clean our hands, wash the dishes, flush the toilet, for everyone to drink, to have a shower and most of all for food. If we had no water in Victoria everyone will be sick and everyone will be dying slowly because Victoria is very popular in some ways. In most parts we use most water for drinking and making food.

Tai: Each day, the average Australian uses 100 litres of water but some use 800 litres per day, that is if they live in a dry inland areas. Many average Australians consume water that is clean enough to drink but also to have showers, brush their teeth, wash the dishes and a lot more. Water is used in many important ways by the average Australian.

Lexxi: In Australia, on an average day for household activities, flushing the toilet is 12 litres a day, bathing is 100 litres a day, showering (10 minutes) is 200 litres a day, dishwashing load is 50 litres a day, washing machine load is 150 litres a day, brushing your teeth with water running is 5 litres a day, drinking, cooking or cleaning per person is 10 litres a day and the total daily consumption per day is roughly around 900 litres.

Thomas: Water consumption levels vary throughout Australia. Average daily water use ranges from as little as 100 litres per person in some coastal areas to more than 800 litres per person in the dry inland areas. The current average daily water consumption is 340 litres per person, or 900 litres per household. In addition, an average of 150 litres of water per person is used every day in the workplace by industry and commerce, community uses such as watering of public parks and gardens, fire fighting and system leakage.

Cailin: The average Australian citizen uses approximately 340 litres and the average Australian family uses 900 litres. This just goes into food, drinking water and work around the house and at occupations. None of the countless other general demands on water from the country as a whole are recorded.

Holly: The average amount of water an Australian uses each day is around nine hundred litres. Different ways that a person can consume water are things like showers, doing their teeth and flushing the toilet. When you're doing things like using the toilet, having showers and drinking water you wouldn't think that you're using much water. Brushing your teeth with the tap running uses a whole five litres.

Brandon: The average daily usage of water by an Australian is 340 litres. The lowest daily usage is 100 litres and the highest is 800 litres per person. There is also 150 litres used per person at the work place on average. We use it for watering plants, giving to animals, making fruit and vegetables, showering and swimming pools.

Officer Secondary College, Australia

Water usage in Australia

How much water does the average Australian use each day?

Eh Tha Boe: The average of water use for a person in a day is 149 litres. That is only one person. Think how much it will be when you have 9 people in your home. So think before you are wasting water.

Levi: The average Australian uses 900+ litres of water. If you break that up we use it for a variety of thing and sometimes we don't realise that we use that many litres. This includes sanitation. Some of the attributes of sanitation is washing our self and flushing the toilet. Another big part of the water consumption is preparing food and drinking water.

We need to become more water efficient otherwise more and more water just gets wasted on things that make us happy, instead of thinking about the future.

Where are Victorian's accessing their water from?

Noah: The graph is telling us that we access water in may ways.

| | |
|--|---------------|
| Storages at 30 June 2014 (63% of capacity) | 51 600 litres |
| Surface water | 23 000 litres |
| Groundwater | 7 000 litres |
| Marine desalinisation plant | 630 litres |
| Recycling plant | 940 litres |

Ben: They access the water from water storages and surface water. We get around 51,000 gigitalitres from water storages and 23,000 gigitalitres from surface water. They are our top two sources. Melbourne mainly use surface water.

Kiara: We access safe drinking water from catchments such as the Murray-Darling Basin. Also catchments can collect rainfall water which then goes into the water system to become safe and drinkable water. We have a system that the water goes through in order to be clean and drinkable. We also get safe drinking water from our rain tanks and recycled water. We can also collect it by using buckets.

Kieran: Victorians have access to safe drinking water because of many different ways - rain water, storm water and recycled water. The Murray-Darling Basin is Australia's biggest river system. It goes from north of Roma in Queensland to Goolwa in South Australia! Most of Melbourne's water is sourced from the Murray-Darling Basin but there are also many, many other places we are getting our water from. Dams are also used to supply water for towns, cities and industry. Surprisingly there are about 450,000 dams in Victoria! Altogether, Victoria's dams are able to hold 13,400,000 megalitres. With dams, outlet pipes are put through the bottom of the dam wall while it's being built. They are used to supply water from the dam and to empty the dam when needed.

Holly: Victorians can get water from many places, but one of Victorians' main sources of water is the Murray-Darling Basin. The Murray-Daring Basin is a catchment that adds chemicals to make the water drinkable. Catchments are built into natural structures and made into structures like dams. The Murray-Darling Basin can hold up to nine thousand and five hundred gigitalitres of water.

Cailin: Australian citizens access clean and safe drinking water through various ways such as rain water, storm water and recycled water. These types of water are actively consumed daily by Australian homes, businesses, schools and communities. Whilst having a sustainable amount of water, with a growing population, many efficient products, services and programs exist to help Australians use water productively and save energy costs. The most common and effective way Australia produces safe drinking water is water catchments. A water catchment is a piece of land where rain falls and we collect it. Water catchments are normally bound by hills, so rain is able roll down. A water catchment filters water and then sends the water to a plant where the water is combined with chemicals such as fluoride and chlorine, thus making it drinkable, and then distributing it to all houses across Victoria. The biggest Victorian water catchment is the Murray-Darling Basin. Storage levels of water is 45%.

Angelo: Australians access safe drinking sources from water reserves that then go to all the taps in the houses to access safe drinking water. But it's not just that, we also get our water from rainwater and ground water and most of our water is from the Murray-Darling Basin.

Lexxi: Victorians have extensive water supplies. On the 30th of June 2014 the capacity of water was 63%. In gicalitres, this equals 51,000gl. Victorians mostly get their water from the surface entitlements as the water taken from the surface is 23,000gl. 7,000gl is taken from the ground entitlements, 630gl is what is taken from marine desalinization plant capacity and 940gl is what is taken from recycling plant capacity.

Thomas: Australia's main water access is from the Murray-Darling Basin, although we do have many water catchments which is where we catch water in big dams or reservoirs and then it goes through pipes and gets filtered. We also have lakes that are very clean that can be bottled and then gets sold.

Leah: Victorians access safe drinking water from dams, because they are clean and safe. But we also access safe drinking water from water tanks. Rainfall also provides safe drinking water. These are the best and safest ways to access safe drinking water for everyone.

Eh Tha Boe: Australians can access water in different way, such as the water from the rain, storm rain and recycle water. But most of the water comes from the famous Murray-Darling Basin.

Levi: Victorians access safe drinking water in many different ways. We have lots of water catchments all around the place and from there the water is distributed to households around Australia. Chemicals are also added to the water such as small amounts of chlorine. The most used water catchment is the Murray- Darling Basin catchment.

“ The theme of this project is very interesting for me. ”
Aliya, Russia

Kaohsiung Municipal Jhengsing Junior High School, Taiwan

Taiwan's water problems

By Jessica

Taiwan's annual rainfall is about 2000 millimetres, about 2.5 times of the world's average; it should be a country without water problems. But our rivers are short, and most of the rainwater rapidly gets into the ocean. Besides, we have a lot of population; if each person is assigned to annual rainfall, it is only about the world's average $\frac{1}{5}$. Taiwan became a country with water scarcity problems.

Water pollution

Chemical fertilizers used in agriculture, industrial toxic waste and garbage produced in daily life make rivers and oceans heavily polluted.

Groundwater

Fish farming use groundwater in the south western coastal areas of Taiwan, causing land subsidence. In recent years, agricultural, industrial and domestic wastewater discharge increases contaminated groundwater. Our water pollution becomes serious.

Solutions

1. Making laws to protect our water resources.
2. Teaching people to protect water resources.
3. Saving water, such as use the water-saving faucets, toilets.

Love River

By Joanne

Several years ago, Love River was very dirty and smelly. To solve this problem, our government built a sewage treatment works beside it. After that, the river became cleaner. Now it is a good sightseeing spot and many activities are held there. Also, our government formulated some laws to stop the dirty water emission into rivers.

Water and typhoons

By Lydia

We have water tanks on the houses, buildings and schools. We also have some reservoirs to save water in the river upstream. We live in Kaohsiung, the second largest city of Taiwan, with a lot of commercial and industrial areas here. The countryside outside the city is used for farming, so we still can buy a lot of local food. The damages of typhoons are terrible, such as floods, mudslides, landslides, destruction of houses and roads, loss of agriculture and power outage. Serious typhoons even caused hundreds of deaths.

Tap water

By Vivi

We can't drink water from the tap. Even the naughtiest child here won't be curious about the flavour of tap water!

Water problems in Taiwan

Taiwan is an island in Eastern Asia, across the Taiwan Strait from China. To the north is Japan; to the south is the Philippines. Taiwan's total land area is about 36,000 square kilometres, about the size of the Netherlands. It is shaped like a leaf that is narrow at both ends. The northern part of Taiwan has a rainy season that lasts from late October to late March; the southwest monsoon takes its turn from early March to late September, causing rain in the south.

We live in Kaohsiung. Kaohsiung is a city in the south. It's the second largest city and the biggest harbor in Taiwan. Kaohsiung has a lot of rain in the summer but less in the winter. Kaohsiung's rainfall mainly comes from typhoons in July and August, and sometimes we have water shortage in early spring.

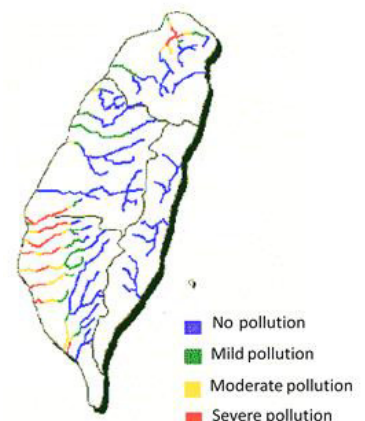


<http://www.taroko.gov.tw/English/?mm=2&sm=2&page=1>

The annual precipitation of Taiwan is 2000 millimetres, about 2.5 times more than the world's average. It should be abundant. But you may not know, Taiwan ranked 18th for water shortage in the world; the average per capita water allocation in Taiwan is less than the world average. The main reasons that causes the lack of sufficient available water resources are the geographic and environmental factors. Taiwan has steep mountains and short rivers so that rain water tends to flow into the ocean rapidly. The other causes are as follows:

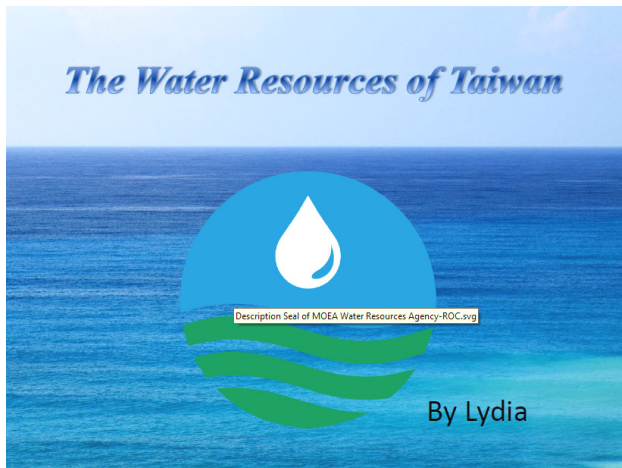
1. Water pollution: Taiwan has about 129 rivers; the pollution of the rivers is divided into three levels: 61.65% with no pollution, 9.08% in mild level, 15.38% in moderate level, and 13.16% in severe pollution.

It shows that the river pollution problems become more and more serious, which makes the available water become less and less. In addition, chemical fertilizers used in agriculture, industrial toxic waste and the waste water made from everyday life, also make Taiwan's water resources be polluted.

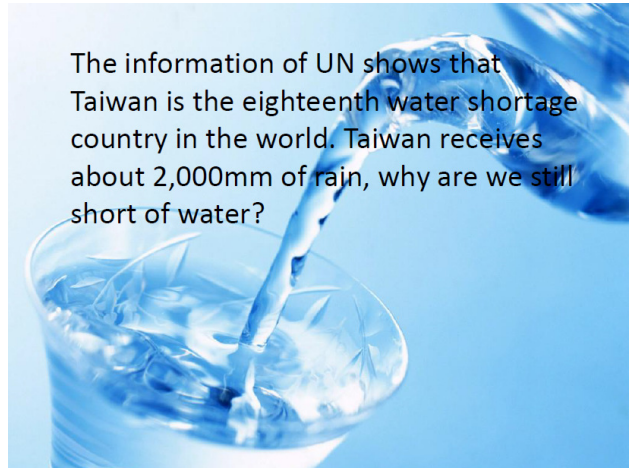


2. The effect of extreme weather: Typhoons and flash floods are the two biggest natural disasters in Taiwan's tropical climate. June to October is the typhoon season in Taiwan. Typhoons bring intense rain and strong winds; they can also cause the southwest airflow, producing more rain after typhoons. In the recent years, global warming causes extreme weather, getting more strong typhoons, making rainfall and flooding heavier. As we couldn't manage water resources properly, droughts in the dry seasons have become a common problem.

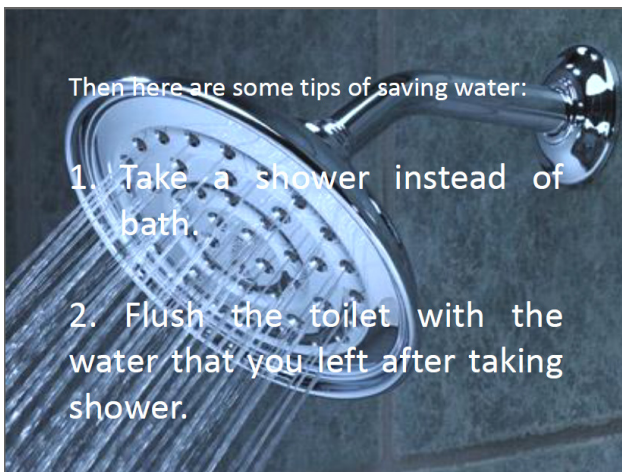
Kaohsiung Municipal Jhengsing Junior High School, Taiwan



The information of UN shows that Taiwan is the eighteenth water shortage country in the world. Taiwan receives about 2,000mm of rain, why are we still short of water?



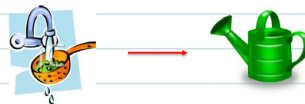
We have to face to the serious problem of water resources, but what should we do?



3. Wash the car or mop the floor with the water that you left after washing clothes.

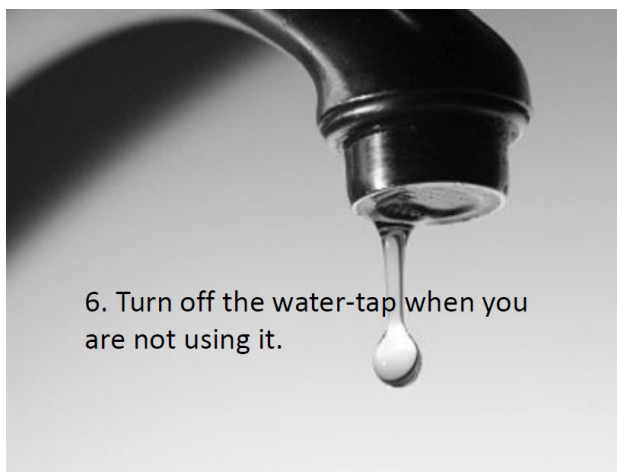


4. Flower the plants with the water that you left after washing rice or vegetables.



5. Use the appliances that have the provincial water mark.
For example, washing machine, toilet, and faucet.





Water scarcity in Taiwan

By Joanne

Although there is abundant rainfall in Taiwan and we have a lot of rivers and reservoirs, Taiwan is the 18th water shortage country in the world.

Precipitation

Rainfall in Taiwan is not average. Plum rain and typhoons in summer would cause flood; In winter, southwest Taiwan is in leeward slope of the northeast monsoon, its precipitation is not very much. If plum rain comes late that year, we won't have enough water to use.

Conserve

There are many high mountains in Taiwan. Those steep slopes cause the rivers to be short and water flows to the ocean rapidly, so it is not easy to save water. The Government built more reservoirs to solve this problem, but the reservoirs aren't good for nature. It will destroy the home of some animals, and because of heavy rain, water in reservoirs become turbid quickly. A reservoir can't be used for a long time.

Water pollution

In addition, the pollution of water is another serious issue. Dirty water from industry, livestock and family aren't dealt with well. If the farmer uses dirty water to water the plants, and people eat it, they will get sick. Or if people drink the water that has some metal, they will have more possibility to get cancer.

Waste

Furthermore, a lot of water leaks out. Taiwan doesn't have enough money to repair the sewer. Many sewers are too old and some are broken. Many Taiwanese take water for granted. They don't really care about water because it is cheap and easily accessible. They waste it and even sometime use it for fun.



References

http://a1.att.hudong.com/83/61/01300000294092122741613153807_s.jpg
<http://www.yucc.org.tw/water/features/masterplan/96dc9805/pdf856d65b0714c>
<http://library.taiwanschoolnet.org/cyberfair2012/hyjhes/know2.html>
<http://www.ctci.org.tw/public/Attachment/01021151519774.pdf>
<http://library.taiwanschoolnet.org/cyberfair2012/hyjhes/know2.html>
http://www.wealth.com.tw/article_in.aspx?nid=3637&pg=

Leongatha Primary School, Australia

There were two groups of students at Leongatha Primary School. Each group looked at what their focus was to achieve the UN Sustainable Development Goals.

Group 1:

What our focus is

Water means a lot to us and we all couldn't survive without it, and this why we are trying to improve the accessibility of fresh water for everyone. People across the world are dying at young ages because of the lack of fresh drinking water. They wash their dishes, themselves, wash their clothing and all their sewerage goes into the same water that they drink. This is not the life that we want people throughout the world to live. This project means a lot to us so we will try our best to achieve it and raise awareness in others.

Some facts we've found

- We use 80-100 thousand gallons everyday 1 gallon = 1000L.
- We have used over 2,000,000,000 this year world wide.
- Stage one water restrictions in Victoria were lifted 1/12/12.
- 35% of all freshwater species are gone.
- 95% of the water that we use in our homes goes down the drain.
- 2.4 billion - 1 in 3 people do not have access to a toilet.

What our community is doing

- South Gippsland water has responsibility for the current operation and future system planning for ten separate town water supply systems in its district.
- 15 out of 19 towns in south Gippsland, including Leongatha, have permanent water saving rules.

Plenty of people in south Gippsland live on farms. If you have a farm you are most likely to have at least 1 dam if not more. This way you collect the rainwater and use that for most things like your toilet or your hose outside.

References

<https://www2.usgs.gov/water/>
<http://www.melbournewater.com.au>
<http://www.water.org>

Group 2:

What our focus is

In the next 10 years, we are aiming to lower the amounts of marine pollution and stopping fertiliser, snail pellets and other things being put into the water as well as stopping rubbish being put into the ocean which kills marine life such as dolphins, turtles, pelicans and so much more.

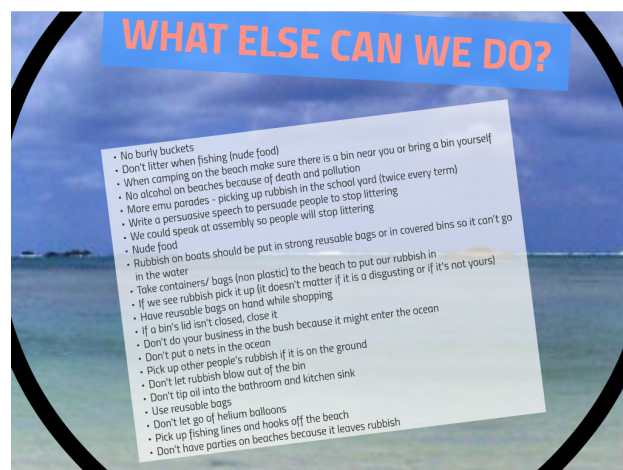
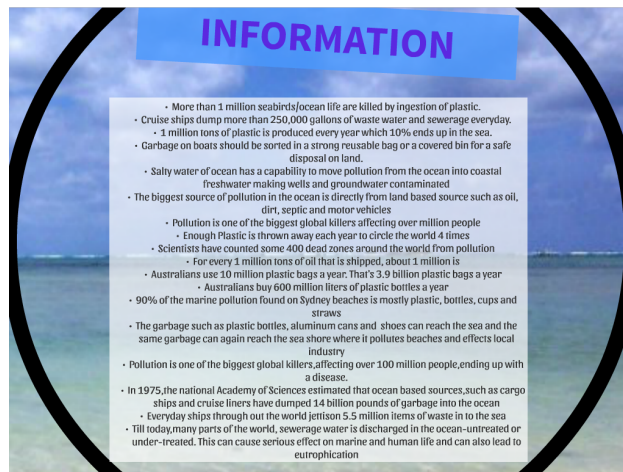
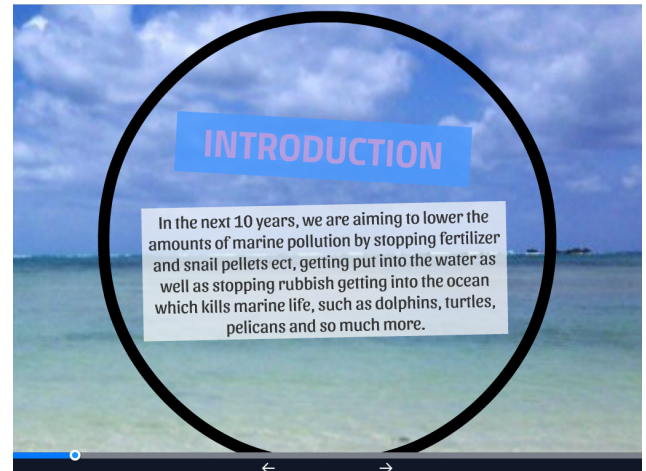
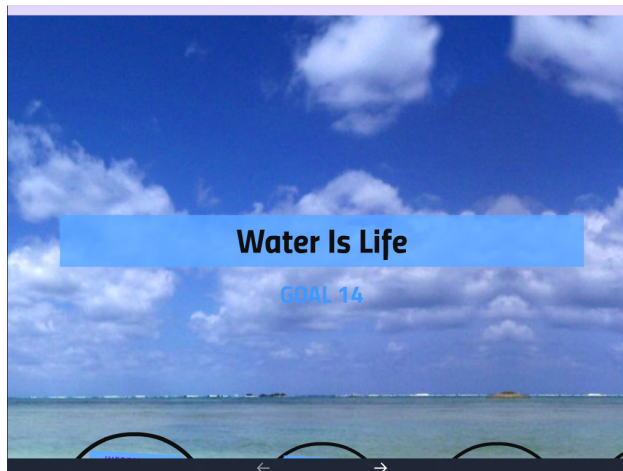
- We are using reusable bags that are stronger and don't get chucked away.
- We are trying to find ideas on how to eliminate plastic and marine pollution.
- We are trying to get fisheries to lower limits.
- Our goal is reducing netting getting chucked in the ocean, preventing dead animals and fertiliser washing into the ocean and infecting the water.

Some facts we've found

- Australians use 10 million plastic bags a year. That's 3.9 billion plastic bags a year.
- Australians buy 600 million litres of plastic bottles a year.
- 90% of the marine pollution found on Sydney beaches is mostly plastic, bottles, cups and straws (www.marineconservation.org.com).

Water is Life

Group 2 looked at marine pollution, focusing on Goal 14. Maya created a Prezi showing their findings.



Cleaning up our campsite at Wilson's Prom before we left. It's amazing how much we found!



Leongatha Primary School, Australia

Group 1 presented their research project in a Prezi, *Water is Life*.



What we are focusing on

By 2030 our goal is to reduce the amount of water our community uses and to find ways to achieve it. We want to make it so everybody knows how much water we waste and try to prevent all of us using amounts of water above the limits.

Water means a lot to us and we all couldn't survive without it, and this is why we are trying to improve the accessibility of fresh water for everyone. People across the world are dying at young ages because of the lack of fresh drinking water they have. They wash their dishes, themselves, wash their clothing and all their sewerage goes into the same water that they drink. This is not the life that we want people throughout the world to live in.

This project means a lot to us so we will try our best to achieve it and raise awareness to others.



What facts we have found

- At home we use 65% of water, that's equivalent to 160L per person.
- Millions must walk over 4 miles a day to find water.
- 1 in 6 people do not have access to fresh water.
- A low flow showerhead can reduce water usage by 40% and during a 10 minute shower you can save 15 gallons of water.
- We recycle 1% of the water that we use.
- We use 80-100 thousand gallons everyday 1 gallon = 1000L (water.usgs.gov/wordmetres.com/)
- We have used over 2,000,000,000 this year worldwide (2/3/16) (wordmetres.com/)
- Stage one water restrictions in Victoria were lifted 1/12/12 (Melbourne.water.com.au/)
- 35% of all freshwater species are gone ([national geographic](http://nationalgeographic.com/)).



More facts we have found

- 95% of the water that we use in our homes goes down the drain ([national geographic](http://nationalgeographic.com/)).
- Waters chemical formula is H_2O (water.org).
- 2.4 billion-1 in 3 do not have access to a toilet (water.org).
- A review of rural water system sustainability in 8 countries in Africa, South Asia and Central America found an average water project failure rate of 20-40% (water.org).
- In low and middle-income countries 1% of all healthcare facilities lack access to water sources (water.org).
- The average person flushes a toilet 5 times a day (csmonitor.com).
- Water can be contaminated with many harmful viruses bacteria and parasites (deplivic.gov.au).
- Websites: melbournewater.com.au, [national geographic](http://nationalgeographic.com/), wordmetres.com



What are we doing?

- The Inverloch water cluster (the name of the group) are developing a complex pumping design. The source of water is the disused Inverloch water basin. (offfarmonline.com.au)
- In Korumburra they have made a water restriction.
- South Gippsland make sure they provide healthy safe water for us to drink (<http://www.sgwater.com.au/services/water/water-restrictions/dot.point3-6>)
- There are 5 options to prevent water scarcity.
- South Gippsland water has responsibility for the current operation and future system planning for ten separate town water supply systems in its district.
- 15/19 towns in South Gippsland including Leongatha have permanent water saving rules.
- Plenty of people in South Gippsland live on farms. If you have a farm you are most likely to have at least 1 dam. If not more, this way you collect the rainwater and use that for most things like your toilet or your hose outside.
- In 2005, the government created <http://www.sgwater.com.au/services/water/water-restrictions/dot.point3-6>



By 2030 our goal is to reduce the amount of water our community uses and to find ways to achieve it.

What else can we do?

- We could have a clean up day and clean Leongatha. To prevent the rubbish going into the seas. (Kind of doable)
- We could put water is life in the newspaper. Write what we are doing.
- We could make a video and show it on the wiki page of water is life.
- We could put a piggy bank in every classroom to raise money for water is life.
- We could put signs/posters around town and write down facts on the signs/posters.
- We could make pamphlets saying do you know what you are doing with water.
- We could go to Leongatha Shire, and we can talk about the water is life project. We can get the whole Leongatha involved in stopping wasting water.
- We could make a video to show what we are doing in water is life and how to stop wasting water and letting rubbish get into our seas.
- We should use less water when showering and brushing teeth. 3 minute showers.
- Make an app/game with saving water mini games. Add facts in between mini games



We have surveyed 12 people from our school about the water that they use. We hope you learn from the data how people use their water, we also hope that it makes you think about your water use and if you need to reduce it.

Below are the questions we asked and some of the results we found.

1. What type of water do you drink?

A. Bought water
B. Tank water
C. Tap water
D. Other

2. What do you use your water for?

A. Toilet
B. Shower
C. Dishes
D. Washing
E. Drinking
F. All

3. What water is around you? (See Pie Chart)

A. Dam
B. River
C. Lake
D. Beach
E. Other
F. Nothing

4. Do you reuse water? (See Pie Chart)

Yes
No

5. Do you think you waste water?

Yes
No

6. How many times do you refill your drink bottle/cup daily?

A. One
B. Two
C. Three
D. Four
E. Five
F. More

7. Do you wash your car? If so what is your water source?

A. No
B. Yes-bought water
C. Yes-tank water
D. Yes-tap water
E. Yes-reused water
F. Yes-other

Question 3
Students of Leongatha Primary School

Question 4
Students of Leongatha Primary School

Some water saving tips we found at Wilson's Prom while on camp.

Water is a precious resource

Tidal River Water Treatment Plant

The water supply to Tidal River campground is collected from our local river and fully treated on site at our Water Treatment Plant to World Health Standards as required by the Victorian Safe Drinking Water Act (2003) and Regulations (2005).

Like elsewhere in Australia, Wilsons Promontory is currently impacted by the El Nino phase of the Southern Oscillation, with decreasing rainfall and yield from the limited (2000 hectare) catchment area flowing into Tidal River.

Every drop counts. To use less water:

- Take shorter showers (no more than 4 minutes)
- Use the half flush button on the toilet
- Turn the tap off while brushing your teeth
- When shaving, fill the basin instead of letting the water run
- Use only as much water as you need to wash your dishes at dishwashing stations
- Collect a full load of washing before using washing machines
- Turn off taps tightly but gently so they don't drip
- Report persistent dripping or leaking taps, toilets and showers to the Visitor Centre in Tidal River

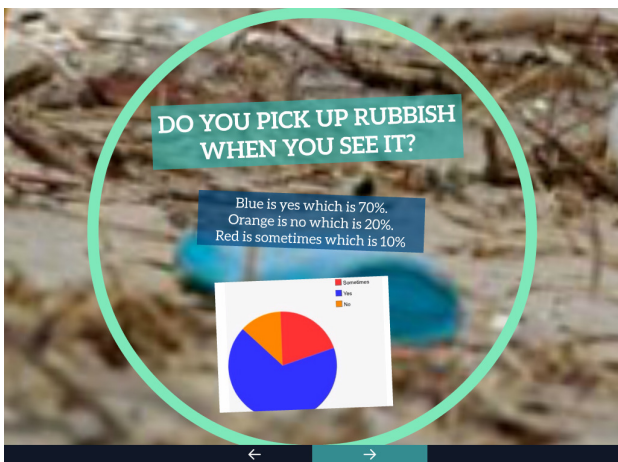
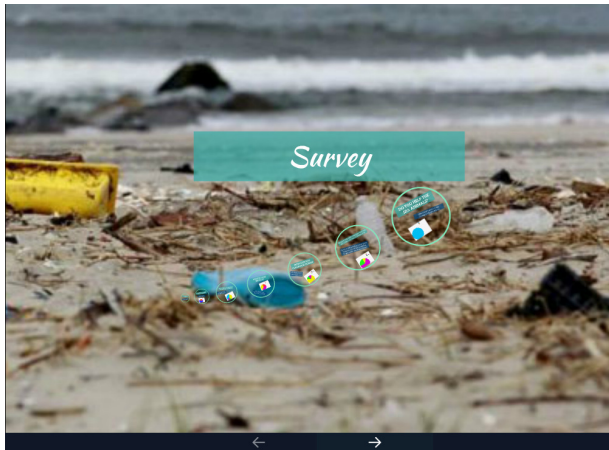
Using less water ensures our local river can also sustain the native fish, animals and plants that rely upon it.

Parks Victoria Healthy Parks Healthy People

Park Information 13 1963
www.parks.vic.gov.au

Leongatha Primary School, Australia

The students in Group 2 conducted a survey. James presented their findings in a Prezi.



Farhat Hached Pioneer Preparatory School, Tunisia

Plans for our research

1) Research phase

Investigate about :

How serious is the water crisis in Tunisia ?

What are the water resources in Tunisia ?

What are the long-term solutions adopted by the government to conserve water for the future generations ?

2) Action

What can we do daily to save and conserve water?



A brief description of water resources in Tunisia

Water resources in Tunisia:

Rainfall : From 1500 mm in the north to less than 50 mm in the south. Average: 36 109 m3/y (11-90 109 m3)

Available conventional water resources: 4.875 109 m3. - Surface water resources: 2.7 109 m3. - Underground water resources: 2.175 109 m3. Non renewable: 0.615 109 m3y, Renewable: 1.56 109 m3/y

Ratio per capita: 480 m3 (now) 350 m3 (2030/12 millions capita)

Available water resources: 4.275 109 m3

Deduction: 2.07 109 m3. (0.85 + 1.23)

Boreholes: 140000

Deep wells and springs: 6255 (6167 + 88)

Observation wells: 2159

Quality Network: 876

91 overexploitation aquifers

55 surface aquifers

36 deeper aquifers

General Directorate of Water Resources - MA - TUNISIA

“ This topic is very interesting for me. I’ve written a report *Interesting Facts about Water* this year and presented it at our school meeting.

Yaroslava, Ukraine

Saba School, Iran

Purifying of water by activated carbon prepared from banana peel

By Dorsa Ehsani and Paniz Marboot Sadegh

Introduction

Water is one of the vital necessities for the survival of human beings. Nearly 80 percent of disease in developing countries is linked to bad water and sanitation (1). Waste-water reclamation, recycling and reuse are vital to meet the water requirements for agriculture, industry and domestic use due to increasing population and development in many parts of the world. In this project banana peel which is a discarded fruit waste was used to prepare environmental friendly bioabsorbent for the absorption of impurities from water.

Making banana peel activated carbon

Collected banana peels were cut into small pieces and burnt turning into carbon. Some others were sliced and dried using the oven until the weight was constant. These slices burnt turning into carbon too.



Carbon banana peels were immersed in 98% sulphuric acid for 5 minutes. The mixture was stirred and water added to it. Then pieces were washed 5 times with tap water and 2 times with distilled water. They were kept in an oven for 4 days at 52° C to get banana activated carbon (Fig. 2). Later we prepared more banana activated carbon in the same way.

Making the filter

To make the filter we used black soft cotton gloves. We cut the gloves fingers and used them as bags. The bags were filled with banana peel activated carbon and their open ends were sewed.

Then we got the tube of a 60ml syringe and pressed a piece of sponge at bottom of the tube. Our activated carbon bags were put on the sponge. We placed as many bags as we could and pressed them tightly so that no opening space would remain between or around the bags. Another piece of sponge was pressed on the bags, too.

Testing the filter

To test the efficiency of our filter, we collected some muddy water and some rain water and purified these waters with our filter.





Testing results

The photo below shows the color differences of the water before and after purification with our filter. The left samples contained water that was not purified while the right samples had water that was purified. As it can be observed, the color of the muddy water disappeared upon filtration. This indicates that the banana peel activated carbon filter could effectively filter out the mud.



Conclusion

The present work explores a new method of development in the field of purification of water through minimal energy input, less labor and low investment. It also proves to be biodegradable and effective in improving the taste, odour and clarity of water, absorbing of harmful pollutants including heavy metals and killing the microorganisms lying in the water.

Future plan

New science shows banana peels can pull heavy metal contamination from water (2). We tried to test the effectiveness of using our filter, which is based on banana peels activated carbon, for adsorptive removal of heavy metals from water, but we were not able to measure success. Measuring the percentage removal concentration of heavy metal such as lead, copper, mercury and cadmium by a filter based on banana peels activated carbon is our future plan.

References

- (1) <https://www.sciencedaily.com/releases/2012/05/120501134315.htm>
- (2) <http://news.nationalgeographic.com/news/2011/03/110311-water-pollution-lead-heavy-metal-banana->

Rubongi Secondary School, Uganda

The students at Rubongi Secondary School have created four PowerPoints about water pollution.

Water is Life: effects of pollution



EFFECTS OF POLLUTION OF WATER SOURCES BY RUBONGI SECONDARY SCHOOL

Water Pollution Facts

1. Fourteen billion pounds of garbage, which is mostly plastic, is dumped into the ocean every year.
2. The Ganges River in India is one the most polluted rivers in the world with sewage, trash, food, and animal remains.
3. According to United States Environmental Protection Agency (U.S. EPA) estimates, 1.2 trillion gallons of untreated sewage, storm water, and industrial waste is dumped into U.S. waters annually.

4. About 700 million people globally drink contaminated water.
5. Aquatic animals face an extinction rate of five times more than that of terrestrial animals.
6. Over 30 billion tons of urban sewage is discharged into lakes, rivers and oceans every year

7. The massive oil spill that was caused by British Petroleum (BP) in the year 2010 caused over 1,000 animals to die. Many of them were on the endangered species list.
8. According to UNICEF, more than 3,000 children die every day all over the world due to consumption of contaminated drinking water.

9. Pollution is one of the biggest killers in the world, affecting over 100 million people.
10. Lack of proper sanitation in water leads to diseases like cholera, malaria and diarrhea.
11. At least 320 million people in China do not have access to clean drinking water

Effects of water pollution

The effects of water pollution are not only devastating to people but also to animals, fish, and birds. Polluted water is unsuitable for drinking, recreation, agriculture, and industry.

- Polluted water contains *pathogens* like bacteria, viruses, and parasites that infect humans and cause illness especially when human or animal waste washes into the water.

Destroyed ecosystems

- Stagnant polluted water breeds algae growth that causes the growth of many more water organisms affecting fish and other aquatic animals by absorbing and reducing their oxygen supply.
- Algae growth chokes fish and alters the entire food chain affecting food supply

Diseases caused by polluted water

- Typhoid
- Cholera
- Dysentery
- Polio
- Hepatitis
- Cancer
- Reproductive problems
- Typhoid fever
- Skin rashes

DISRUPTED FOOD CHAIN

- The food chain is damaged
- When toxins in the water, travel from the water the animals that drink it to humans when the animals' meat is eaten.

Acid rain

- It contains sulfate particles, which can harm fish or plant life in lakes and rivers.
- Pollutants in the water will alter the overall chemistry of the water

LITTER

- Human-produced litter of items such as plastic bags and 6-pack rings can get aquatic animals caught and killed from suffocation.
- Water pollution causes flooding due to the accumulation of solid waste and soil erosion in streams and rivers.

Industrial waste

- Inorganic mercury is a common by product of a number of industrial processes.
- The level of mercury in fish is mostly dangerous for small children and women who might become pregnant, are pregnant or are nursing.
- Mercury has been found to interfere with the development of the central nervous system in fetuses and young children, which could potentially lead to a large amount of long-term side effects.

Agricultural chemicals

- Pesticides – can damage the nervous system and cause cancer because of the carbonates and organophosphates that they contain. Chlorides can cause reproductive and endocrinal damage.
- Nitrates – are especially dangerous to babies that drink formula milk. It restricts the amount of oxygen in the brain and cause the “blue baby” syndrome.
- Lead – can accumulate in the body and damage the central nervous system.
- Arsenic – causes liver damage, skin cancer and vascular diseases

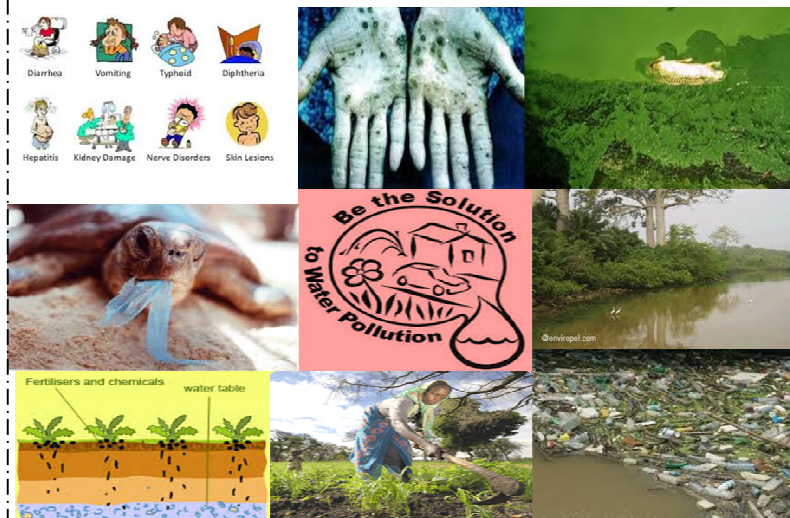
Economic cost

- It costs a lot more to purify drinking water that takes its source from nutrient polluted water bodies.
- In places where there are water activities or sports like swimming, lots of money is spent to clean up the water from algae blooms
- Of course the cost of treating humans from water born diseases especially in children.

Death of animals

- Animals, including water animals die when water is poisoned for various reasons.
- 16,000 miles of a US coastline was affected by an oil spill leading to death of *over 8,000 animals (birds, turtles, mammals) in just six 6 months*

WATER POLLUTION AFFECTS PEOPLE, ANIMALS, FISH, BIRDS AND PLANTS



Rubongi Secondary School, Uganda

Causes of water pollution

CAUSES OF WATER POLLUTION

- **Industrial and Chemical Waste** - Chemicals or industrial waste dumped seeps through the water sources in ground polluting it.

Gasoline, Oil and Additives

- Oil spills reach water sources affecting all forms of life e.g. leaking fuel tanks and places near petrol stations oil seeps through the ground polluting water

Mining

- Dangerous chemicals used in mining processes are carried into rivers and lakes and have devastating effects on the water e.g sulfur and Cyanide
- Soils and other wastes are dumped directly in water by mining companies affecting human and plant life

Plastics

- Thousands of tons of plastics are ending up in our landfills and bodies of water yet they take years to disintegrate and are slowly ingested by sea animals
- Household Chemicals and Pharmaceuticals
- Most house hold items are made of some chemicals and disposal methods are not safe e.g broken bottles, needles

Sewerage

- Disease-infested wastewater is being discharged directly into the water sources e.g broken sewage pipes, over flowing toilets, defecation in water.



Solution to pollution of water sources

EVERY PERSON MUST TAKE ACTION AT HOME

Do not deposit

- used oil, cleaning solvents, polishes, pool chemicals, insecticides, and other hazardous household chemicals in drains, sinks, and toilets.



- Many of these products contain harmful substances such as sodium hypochlorite, petroleum distillates, phenol and cresol, ammonia that find their way into water sources hence polluting water
- Don't defecate/deposit any waste or litter in any water system especially



PLEASE

- Use environmentally-friendly household cleaning products and personal products.
- Recycle and dispose household waste properly.
- Install water filters to help clean the water in your home.
- Clean drinking water by boiling and keeping it in clean safe container

- Grow and purchase organic food products, since these crops can grow without using pesticides, herbicides and fertilizers.
- Choose fertilizers with low or no phosphates
- Limit overuse of ordinary household cleaning chemicals to limit its effects as they drain away.

Properly dispose toxic products such as: paint, oil and other hazardous materials.

- Enforce and obey anti-litter bylaws.
- Report polluters and participate in anti-litter campaigns.
- Refrain from using fertilizers or pesticides on lawns or gardens.
- Preserve our forest, which are natural water purifiers.
- Support reforestation by planting trees to control polluted runoff water.

- Maintain vehicles to prevent oil leaks.
- Keep all boats and water crafts well maintained.
- Industrialists should maintain sewerage treatment plants so as not to discharge toxic substances in water.

- Volunteer for a beach or stream, well clean up.
- Ensure protection for wetlands and other aquatic ecosystems .
- Plant appropriate shoreline vegetation
- Reduce erosion
- Fence boreholes and wells
- Clean water tanks regularly



Rubongi Secondary School, Uganda

Pollution of water sources

What is Water Pollution

- Pollution is the act or process of making land, water, air dirty and not safe to use.
- Water is life in that all creatures human beings, animals and plants need for life.
- Pollution of water occurs in many forms e.g. water pollution, air pollution, noise pollution and land pollution
- Other forms of pollution eventually end up contaminating water for all living things.

Types of water pollution



Causes of water pollution

- Agricultural
- Fertilizers
- Nitrates and phosphates used in fertilizers not fully absorbed by the soil, end in water runs off as water of mouths of major rivers.
- Pesticides
- Pesticides used in farmer's fields run across roadsides into the drainage, sewerage system mingling with the water making it unsafe
- Sediment
- Soil exposed through poor farming practices, causes sediment pollution in the nearby rivers and streams. This has a disastrous effect on the fish and aquatic life in these bodies of water.



Rubongi Secondary School members
admiring bottled safe water

“ We need to make sure rubbish does not flow around the streets because if there is rubbish on the streets it wrecks the environment and if it goes to the ocean the sea animals will die. ”

Malakai, Australia

Riadh Nassr Preparatory School, Tunisia

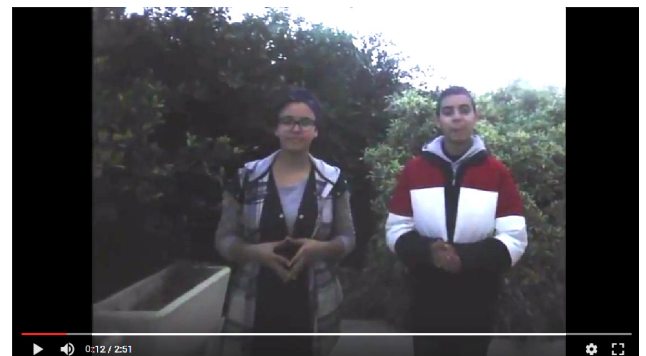
The students, Rym, Cyrine, Kenza, Yassmine, Wissem, Ashref, Misslaryèm, Eya, Mehdi, Nelly, Sarrah and Aziz have made two videos to share.

In the first video we performed a song about water.

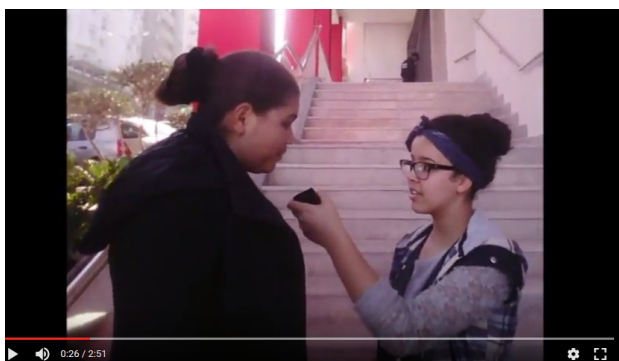
We have made a news program and interviewed some students to find out their use of water in their daily lives. The two questions were:

Do you have a shower or bath?

To water the garden, do you use a bucket or hose?



Welcome to Earth News. During our program we will report about water.



Twice a week I have a shower. I water the garden with a hose. I have a big garden. It is the best way to do it.



A shower is quicker than a bath. I use a bucket to preserve water.



I use a bath. It is more relaxing. The bucket of course because I have a little garden.

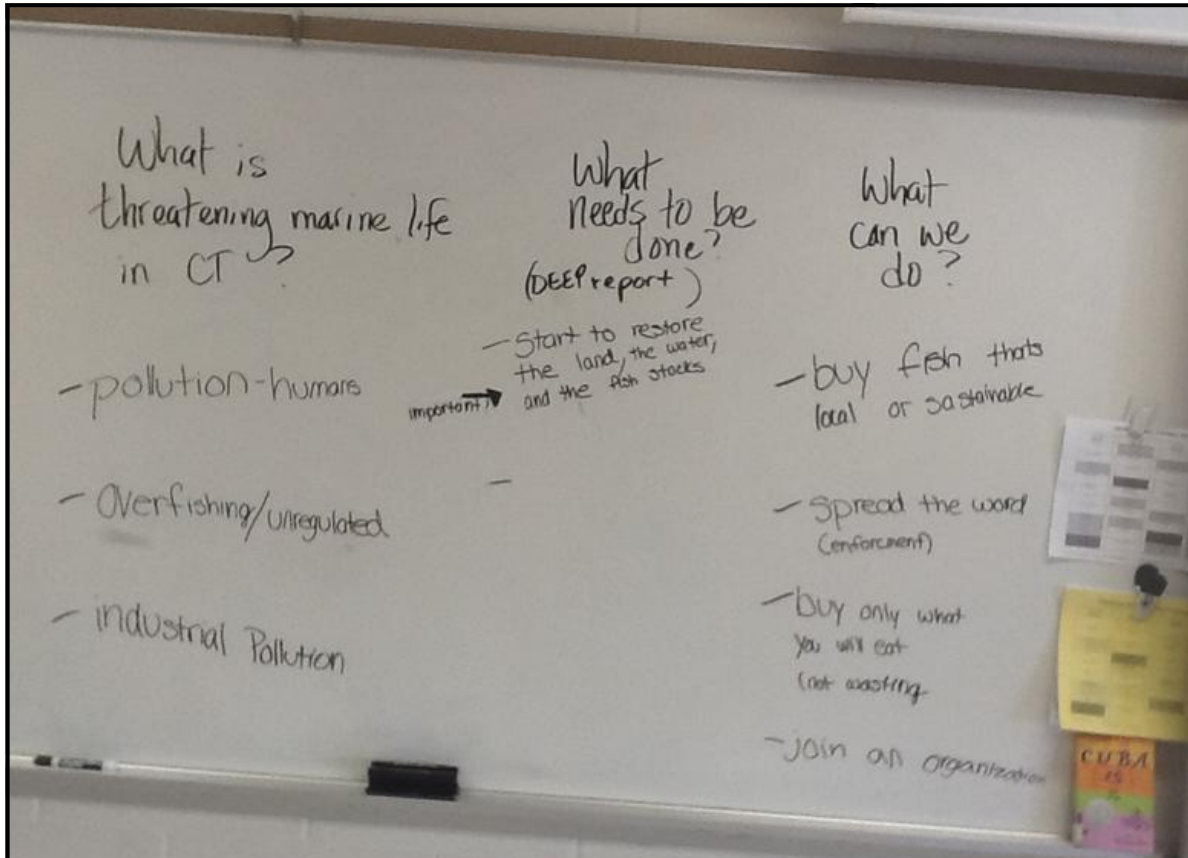


I prefer a shower. I don't water the garden.

Helen Keller Middle School, U.S.A.

Overfishing: Connecticut and Long Island Sound

The focus of our research was Goal 14 which is to conserve and sustainably use the oceans, seas and marine resources. We started with an overview of the global problem. We defined overfishing. Then we focused our attention very specifically on CT and the Long Island Sound.



Jobs in fishing and the aquaculture industry have grown faster than the world's population. Fish continues to be one of the most widely traded products around the world (FAO). It supports the livelihoods of tens of millions of people and billions rely on fish as a source of protein. Without the fishing industry, many families would be in economic trouble. Governments around the world have spent billions of dollars each year to expand their fishing fleets and aquaculture programs.

Currently the global economy gets more than \$80 billion dollars from the fishing industry. Approximately 200 billion pounds of fish are caught worldwide each year. High demand has resulted in catastrophic overfishing of the world's oceans. Current estimates show that 30 percent of all ocean species of fish are overfished. Although some efforts are in place, many have been unsuccessful and current practice of this highly valuable resource is not sustainable. (Smith 2012).

An important organization in the U.S. is The National Oceanic and Atmospheric Administration (NOAA). It reports on the status of U.S fisheries. They determine what fish stocks are subject to overfishing. They have done this since 1997 as a part of the U.S.'s continued progress towards sustainably managing fish stocks. NOAA has tracked the Earth's temperature since 1880. They say 2015 was the hottest year on record.

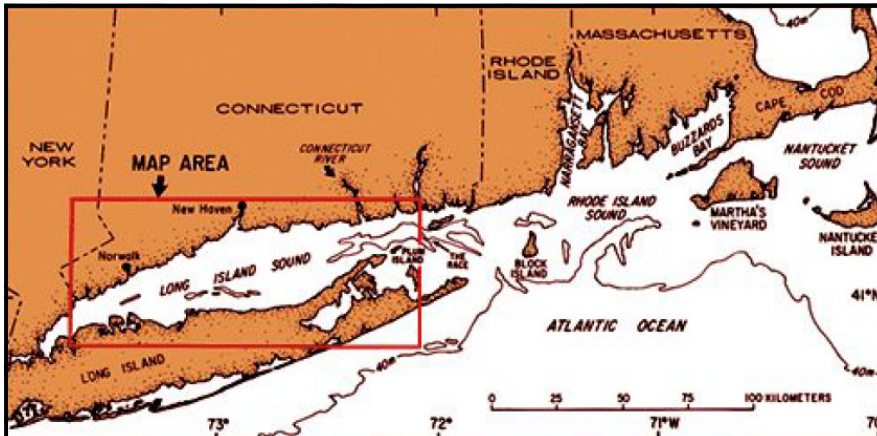
What is overfishing? Overfishing occurs when more fish are caught than the population can replace through natural reproduction. Unsustainable fishing practices and overfishing over the last few decades have pushed our oceans to the limit. Scientists say that certain species of fish may now be on the verge of a collapse. (eSchool 2015).

Overfishing started around the 1950s to 1960s due to the advances in technology that allow fishermen to locate large schools of fish and stronger machines to lift larger catches. Currently it has grown into a global and catastrophic problem (National Geographic 2006). Massive nets used to catch swordfish and cod for example sometimes haul up dolphins, gulf shrimp, sea turtles and sharks.



These animals are usually tossed overboard, injured and often left to die. In fact, several U.S. fisheries actually throw away more marine life than they keep. Researchers estimate that an average of 20 percent of what is caught in the U.S. is thrown away each year, wasting approximately 2 billion pounds of seafood and killing hundreds of thousands of whales, dolphins, sharks, seals and sea turtles (Morrison, NOAA).

In Connecticut, the Long Island Sound is an important natural resource. More than 8 million people live along the coast. Activities such as fishing and tourism contribute nearly 6 billion dollars a year to the state's economy. Additionally, 120 species of finfish and many other varieties of birds and other animals depend on the Long Island Sound. Connecticut has been participating in programs that are helping to restore past damage and protect the future of the Long Island Sound. Pollution caused by human activities has been a major problem.



... the Long Island Sound is an important natural resource

The Connecticut Department of Energy and Environmental Protection released a report in January of 2015 that contained many actions steps that are needed to meet the goal of restoring an additional 532 acres of tidal wetlands and 200 miles of fish riverine migratory corridors between 2015 and 2035. These actions will restore coastal regions and the plant and animal populations along the Long Island Sound (DEEP 2015).

Many of these actions are in line with UN goal 14.4 which states that by 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.

These actions will restore coastal regions and the plant and animal populations ...

Helen Keller Middle School, U.S.A.

Current list of Extinct/ Endangered/Threatened marine species in Long Island Sound:

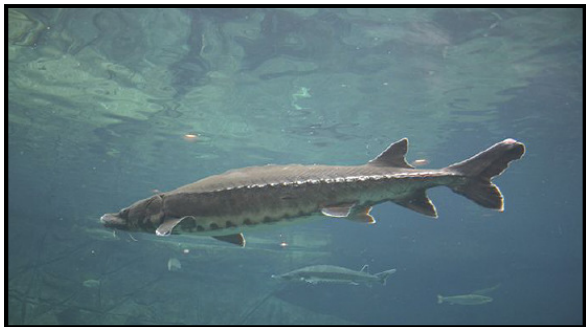
- Atlantic Sturgeon
- Atlantic Green Sea Turtle
- Loggerhead Sea Turtle
- Salmon
- Bluefish
- American Eel
- Horseshoe Crab (been around for 300 million years)
- Lobster
- Seahorses (in high demand in Asia markets for medicine)
- Striped Bass

<http://maritimeaquarium.org/longislandsound/animals/flis>

http://wwf.panda.org/about_our_earth/blue_planet/problems/

Several species of marine life are threatened and/or extinct. For example, since the 1990s the Long Island Sound has seen a dramatic decrease in the amount of lobsters. According to the research, a combination of warmer temperatures and contaminated water quality made lobsters susceptible to disease and limited their ability of reproduce, causing a rapid drop in population. There is currently a ban on harvesting lobsters from Long Island Sound.

Another example is the Atlantic Sturgeon which are overfished along the entire east coast including Connecticut. According to the Connecticut Department of Energy and Environmental Protection, the Atlantic Sturgeon is highly threatened because of constant inland fishing.



The Naugatuck Atlantic Salmon is another species facing collapse. The Naugatuck River is the ideal habitat for Atlantic Salmon. However, industrial pollution has decreased the quality of water in the middle to lower portion of the river resulting in a decrease in the Atlantic Salmon population. As the Atlantic salmon's population decreases, the population of its prey increases. Such prey includes Atlantic herring, alewives, rainbow smelt, young cod, sand lances, flatfish, and small Atlantic mackerel. A decrease in the Atlantic salmon will also leave the predators of this fish hungry, because it will be harder for them to find food. Predators that would be affected by the extinction of many marine fish include marine birds, seals and larger fish.

Scientists also predict the population of Atlantic Cod will be depleted off the coast of New England due to rising temperatures in the ocean. According to Andrew Pershing of the Gulf of Maine Research Institute in Portland, "the gulf is warming at a rate 99 percent faster than anywhere else in the world, and as a result, too many of the fish aren't living past age 4 or 5. Cod can live to be older than 20".

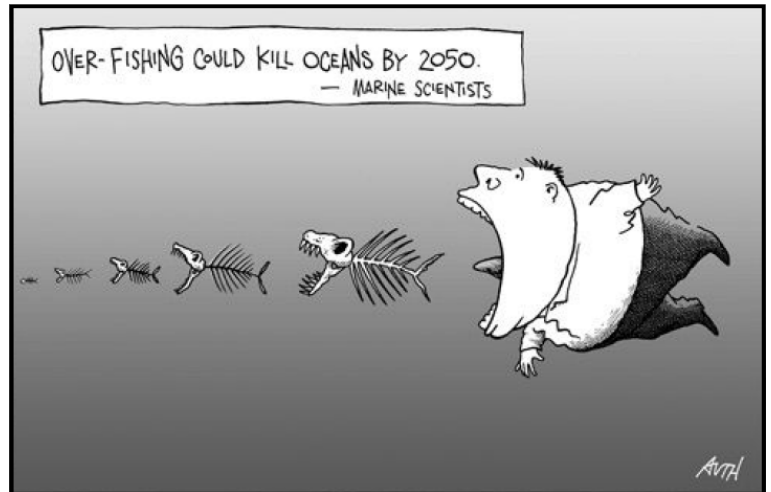
The state of CT needs to act fast. Because of our coastal location, many people will be negatively impacted as well. According to a study by University of Connecticut (UConn), Connecticut's maritime economy contributes nearly 40,000 jobs to the state. The maritime industry contributes more than \$7 billion to the CT economy. In order for growth to continue the state and businesses need to adopt an economic model that includes policies and practices that are more sustainable. However, local fisherman say these drastic steps aren't needed and the results would be damaging to the industry. Clearly they are going to have to work together. (Pomeroy, Plesha, Muawanah 2013).

Some jobs in the maritime industry

- shipbuilding
- commercial fishing
- aquaculture
- marine manufacturing
- construction/engineering
- port services and other transportation
- recreation and tourism

Something that is being done is that there are laws in place intended to prevent overfishing and reduce the number of fish unintentionally caught and the number that are illegally dumped.

Over the past several years, there have been measures aimed at controlling overfishing but not many succeeded. There is a catch limit. Fisherman have designated fishing areas. There are certain days when fishing is allowed, so the fish are able to reproduce at other times. Bottom trawling is severely damaging to seafloor ecosystems. The net catches every life and object it encounters (eSchool 2015).



Some of these include:

- Increased monitoring of fisherman and enforcement of the rules
- Ban on trawling dragging huge nets through the water capturing all fish around
- Initiatives to spread awareness of the problem
- Strict fishing season calendar

Destructive fishing practices refers to any type of fishing technique that destroys fish habitat and devastates the marine environment including bottom trawling, the use of poison and explosives and ghost fishing. Ghost fishing is when a net is cut and let to drift in the ocean. All the time it is still catching fish and killing marine life.

It is clear that overfishing and industrial pollution and human activity are greatly impacting the health and sustainability of the Long Island Sound.



Our next steps are to examine our role in the problem and what steps we can take toward meeting Goal 14.4

TED TALK: Overfishing CT

https://www.ted.com/talks/paul_greenberg_the_four_fish_we_re_overeating_and_what_to_eat_instead?language=en

Hsin Chya Elementary School, Taiwan

The importance of clean oceans

Taiwan is an island. We are surrounded by water. Therefore, our focus has been on the importance of clean oceans. We also discussed the importance of water. First, our teacher showed us some films related to ocean pollution. And then our class was divided into seven groups and we discussed the following questions:

1. Is water important in our lives? Why?
2. What can we do to conserve water?
3. Taiwan is an island. Are oceans important to us? Why?
4. What's the impact of marine debris?
5. What can we do to make the oceans clean?

The results are as follows:

Is water important in our lives? Why?

Yes, we think water is very important to us because you can't live without water. We need water to clean, grow crops and live.

What can we do to conserve water?

- a. We can use water-saving taps instead of regular taps.
- b. Don't play water balloon games or other games that need a lot of water.
- c. Take showers instead of baths.
- d. Reuse the water; for example, use water from laundry to flush the toilet.

Taiwan is an island. Are oceans important to us? Why?

Yes, we think oceans are important to us. We eat a lot of seafood and fish from the oceans. If the ocean is polluted, the seafood and fish will be polluted, too. We will get sick when we eat polluted fish and seafood. We also get sea salt and seaweed from the ocean. The oceans are very important to us because we depend on them a lot.



What's the impact of marine debris?

According to Wikipedia, marine debris, also known as marine litter, is human-created waste that has deliberately or accidentally been released in a lake, sea, ocean or waterway. Floating oceanic debris tends to accumulate at the center of gyres and on coastlines. The vast majority of marine debris, however, is plastic. Plastic waste in the ocean has caused a lot of health problems to the sea animals and birds. A lot of animals eat plastic bags and caps by mistake and die from it. Plastic can break into small particles

and spread everywhere. The fish eat the particles and the people eat the fish. There are reports that these plastic particles can affect our immune system and endocrine system.



What can we do to make the oceans clean?

- a. We can take part in beach cleanup activity.
- b. We should reduce using plastic products including plastic bags and plastic bottles.
- c. We should reduce the amount of garbage.
- d. Don't wrap the gifts with a lot of decorations.
- e. Bring your own bags and containers when you go shopping.

“ People, in my opinion, should be more wary of what they put in their trollies and take on the beach. If people use reusable bags instead of using those plastic bags commonly found in shops the world will be so much cleaner and less full of dumpsters!!!! ”

Trinity, Australia

“ We need to save our planet earth. It's getting destroyed by man. People are not aware of this impact. People these days are careless. They don't care about their environment. ”

Wissem, Tunisia

Swan Reach Primary School, Australia

Our water filter research project

We're in grade 5/6. Today we did a water filter project to try and make really dirty water clean, and it did work but it was not as clean as pure water. We had a water bottle that was cut in half and we used the top of it to put stuff in like fluff, gravel, sand, tissues and paper towel, then we poured dirty water through it and into the other half of the bottle.

Darci and Jazelle

Today we made some filters out of cotton wool, rocks, sand, tissues, paper towel and pillow stuffing. It was awesome. Our filter was the cleanest at the end. We used water that was very dirty. The water had bark, sticks, dirt, paper and water in it.

Kelsey and Alana

Mackenzie and Hope made a water filter and they made it out of gravel, paper towel, cushion stuffing and a plastic water bottle cut in half. Firstly they put the top half of the bottle into the bottom half. Secondly they put cushion stuffing at the neck of the bottle. Thirdly they put paper towel on top of the cushion stuffing. Finally at the tippy top they put gravel.

They poured a cup of vile water in the filter and..... Wow, Double Wow, Ta Daa! The water was super-duper clean. Although after a while it kind of looked yellow. They thought it was clean then they drank it and they felt sick because there was bacteria in it that they didn't know was in there.

Mackenzie and Hope

Last week J.P. and I (Carissa) made filters. We tried to make pure water from the filters and started out with very dirty water.

In the filter there was cotton wool at the bottom, sand in the middle and gravel at the top of the filter. When we poured the water in it was clean (sort of).

Carissa and J.P.

We did this clean up water experiment. We could only use a plastic drink bottle cut in half, gravel, sand, paper towel, cotton wool, cushion stuffing and a sample of dirty water. The sample of dirty water looked disgusting. We used everything but sand. Our layers are cushion stuffing, then cotton wool, tissue, paper towel and then gravel. It was not ready.

Charlotte and Alec

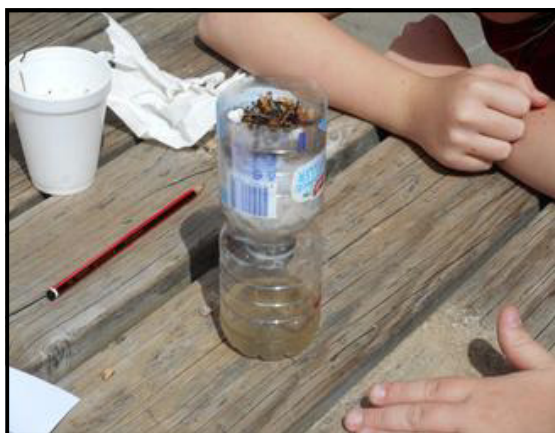
Last week Tom and I made a water filter using a bottle cut in half, gravel, sand, cotton, wool and we used dirty water and filtered it.

Our water came out 1/3 off clean. The water sample we started with looked gross. The water filtered in about 30 seconds. Most of the water came out except for what the tissues absorbed.

Abby and Thomas

Our class had an experiment some days ago we had to clean dirty water and turn it to clean water. We cut a bottle in half and put the top half on the top of the bottom half and stuffed the top with cotton wool and cushion stuffing, paper towel, gravel sand and tissues. We put it all in the top half and paper stuff at the bottom of the top half and the rocks on the top of the top half and pour the dirty water on the rocks .

Alec



When we looked at the dirty water we saw lots of dirt, seeds, hay and pieces of paper. We had to choose if we could drink it or not and, of course, we said no!

We poured a cup of the dirty water into our filter and it took it about 2 minutes and it was fairly clean yet we would not drink it unless we had to.

Trinity and Amelia

Last week we made a cleaning water filter out of a plastic drinking bottle (cut in half), gravel, sand, paper towel, tissues, cotton wool and cushion stuffing and a sample of dirty water.

When we made our filter we put the cotton wool in first, second the gravel, third the sand, fourth the paper towel, fifth the tissues and last but not least the cushion stuffing. In our water sample I can see that the water is not crystal clear but not too dirty. I think that if you were desperate for water you would be able to drink it.

It took about a minute and a half for the water to come out. The water wasn't very clean, but it was ok. It was almost to the line of clean water when the dirty water came out. What was left in the filter was leaves, dirt, mud, paper, gravel, sand, bark and sticks. We do think the water was safe to drink.

Aleisha and Jewel

We had to try to make a filter out of these materials:

- * Plastic drink bottle cut in half
- * Gravel
- * Sand
- * Paper towel
- * Tissues
- * Cotton wool
- * Cushion stuffing
- * Sample of dirty water

The dirty water had: dirt, bark, sticks, paper and water in it.
(you cannot drink it)

Alana and Kelsey

To make our filter we put in:

- Cotton wool
- Rocks and sand
- Tissues
- Paper towel
- Rocks and Sand
- Pillow Stuffing
- Sand
- Tissues

It took 30 seconds for the water to come through the filter. And it left almost half the water in the filter.

Swan Reach Primary School, Australia



Solar distillation



We made 2 solar desalination units and made them out of 2 plastic tubs, 2 jars, cling wrap, tape, water, 2 rocks and silver nitrate. We made two of these solar desalination units to see which one evaporates more water because we used two different-coloured rocks and trays (one tray was black and one tray was white and one rock was black and one rock was white.)

The one with the black rock on the top evaporated more water because black evaporates more heat than white and the white rock didn't evaporate as much. The experiment did work and when we tested the water with a drop of silver nitrate it didn't make the water cloudy which meant that there was no salt in the water.

Jewel, Jazelle and Carissa

Our river



This is our river, the Tambo River. The water comes from the mountains and people love fishing here and boating and swimming here. Some people throw rubbish in the river which is very bad.

Matthew

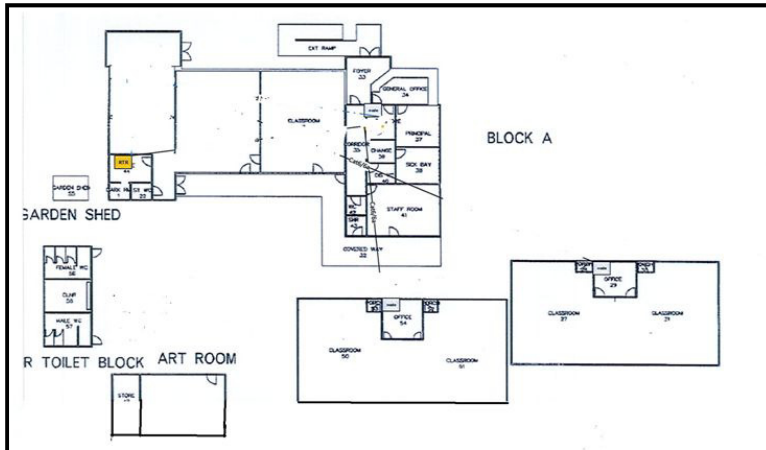
Most people enjoy swimming in our river. People like fishing but they mostly catch bream. Some of the fishes are flathead, bream and mullet.

Charlotte



The Tambo River is full of wildlife..... and salty water. This river is salty because they cut out an entrance in Lakes Entrance. (It was called Cunningham at first). They did this for all of the cargo ships that come here.
Mackenzie

Rain collection



First of all we walked around the school and measured the school buildings and we checked what the dimensions of the buildings were.

Once we finished we calculated the area which was 902 square metres. 1 mm of rain on 1 square metre equals 1 litre. If 1 mm of rain falls, we will get 902 litres.



The water goes into our tanks which holds 22,000 litres each. We need 48.7 millimetres of rain to fill our tanks.
Hope, J.P. and Liam

Bottle tap



Gary made a tap earlier this year as a idea for people that don't have water. First Gary stuck two poles into the garden bed and then he got a milk carton and put the stick through the milk carton and then tied the stick to the other two sticks in the garden bed and then stabbed a hole into the milk carton.

Then he tied a piece of rope to the milk carton and the tied a piece of wood onto the end of the rope and then you step on the wood and water comes out from the milk carton.

Recently he tied a piece of mesh onto the horizontal piece of stick and then he put some soap into the mesh so then you can wash your hands after you have been to the toilet.

Kelsey, Alana and Matilda.

Swan Reach Primary School, Australia

Zoe's water visit

On the 22nd of March a lady called Zoe from East Gippsland Water came and visited our school to teach us about saving water and not littering. We had to sit in a circle and Zoe passed around stickers that had animals on them and after everyone got a sticker Zoe called out our animals. When Zoe called out our animals we had to go up grab a container that had the sticker you got on it.

Zoe told us a story with her dolphin and once she mentioned your animal you grabbed your container and tipped the stuff that was in your container into the clean water. Once everyone tipped their stuff in we talked about how we can stop all the rubbish getting in the water.

After that Zoe called out the starting letter of your name and when she said the start of your name you went up and grabbed an item. Everyone got a different item and most of the items were showerheads, toilet, bath, pool, cow shower cap, hose with a trigger nozzle, a hose timer, elephant floaters, 4-minute hour glasses and the sponge and bucket to clean your car.

After everyone chose their item it had a little piece of paper with it and we had to act out what we had. Once we acted it out we had to ask someone if it was saving water or wasting water.

Abby, Aleisha and Alec

**“ I really want to help other countries get clean water.
I want to help as many people as I can. ”**
Brianna, Australia

“ It's everyone's responsibility to keep our planet clean. ”
Barry, Taiwan

Warringa Park School, Australia

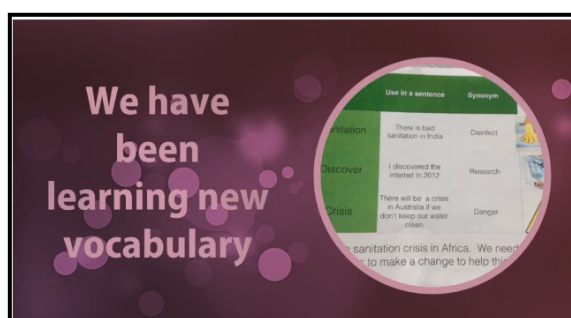
Clean water, saving water

On Thursday, 14th of April, we went to the Western Water Treatment Plant in Werribee. We participated in 3 activities. The first activity was an interactive video. We started as a rain drop and finished at the treatment plant to be recycled. We also looked at a map of our water supplies.

The second activity was a story about the Yarra River and how it changed from clean to polluted water. The third activity was a giant puzzle of the Yarra Catchment. We beat room 3 and 4. We learnt about recycled water, what goes in our sewers and the effects of pollution.

Kane, Dylan, Nathan, Gabrielle, Natasha and Ivan

This week we explored our three important words: frozen, groundwater and atmosphere. Thursday centres I learnt that the word groundwater is connected to filthy, polluted water and streams. Some of the things I explored were a globe for water around the world, mud from our school and ice cubes.



I also investigated how frozen is related to ice, snow and icebergs. In BRC 1 we are also working on our water tank fundraiser. We are making recycled paper jewellery to sell for profit to raise money for a water tank. We are going to complete our recycled paper bead bracelets and decorate water bottles ready to sell next week.

Abbey, Lenkin, Gabriella, Makiroa and Joshua

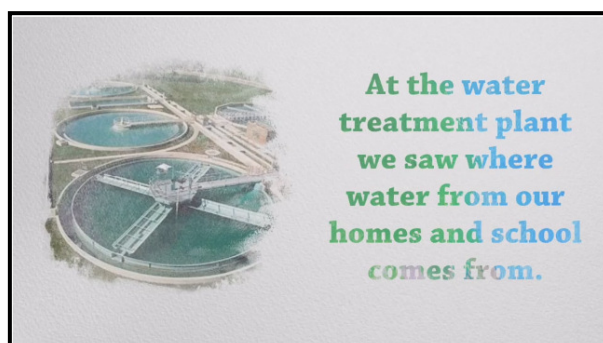
Yesterday we went to Western Water Treatment Plant. The woman was talking to us all about the dirty water and we visited the Waste Water Treatment Plant and we listened carefully when we are on excursion.

I learnt that new houses are getting built with purple pipes that means the purple pipes are for the recycled water. You can use recycled water for washing the school bus, car, truck, army tank, monster truck, boats and four-wheel drives.

Brandon

This week at school we have made a movie on how to save water. We are going to do fundraising to get a water tank. We have been reading about the Werribee River, how it's got green leaves in it. We could go round collecting litter at school and community because litter has a negative effect. When it rains we can collect the rain water for our garden.

Alex

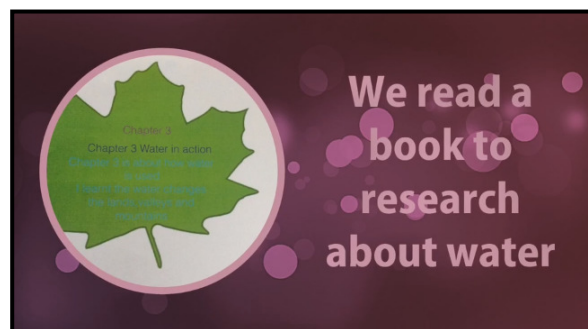
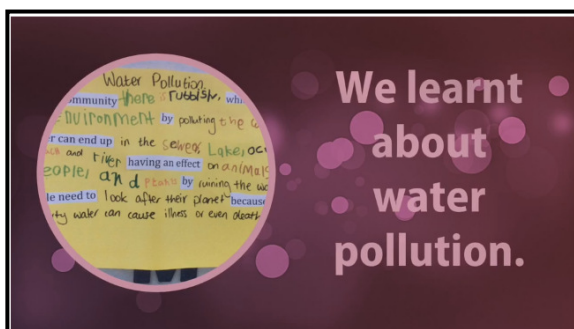


Warringa Park School, Australia

This week in my school my class read an article. It was about access to clean water and sanitation and how dirty water goes from some house pipes to the Yarra River. I also learnt that a lot of our clean water is used for irrigation. Irrigation means that farmers are using water from lakes, rivers and streams. Farmers should use a water tank to water the crops.

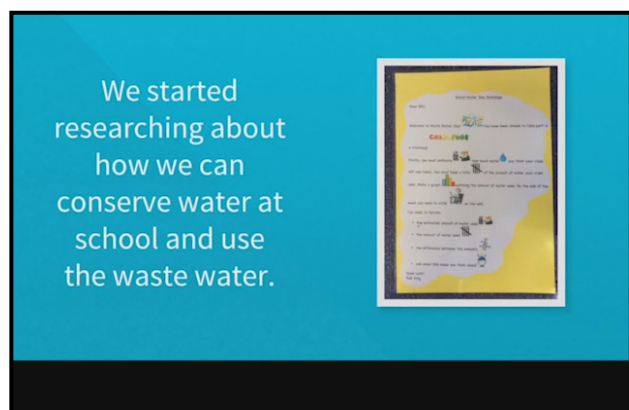
Two other classes and my class from my school went to the Western Water Treatment Plant. I learnt that they recycle wastewater from pipes underground. I also learnt that new houses in Melbourne have purple pipes. The treatment plant pumps recycled water to the houses through the purple pipes. People can use the recycled water for washing the cars and footpaths also watering plants and you can wash your pets. I really think this is a good idea because we can recycle the rain water in a water tank for our school.

Darren



I read an article about access to clean water and sanitation. I learnt that some people don't have access to clean water. Farms are using clean water to water their plants. They should be using recycled water for the plants. We are going to get a water tank for school so we can use recycled water for our garden. We went to a Water Treatment Plant. We learnt something we did not know. New houses have purple pipes going through them with recycled water.

Alex

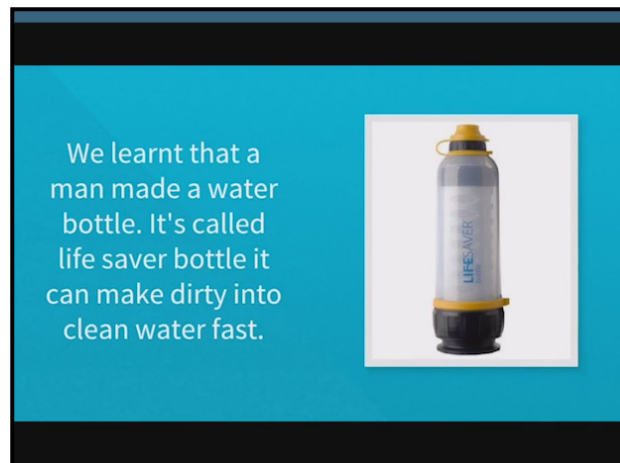
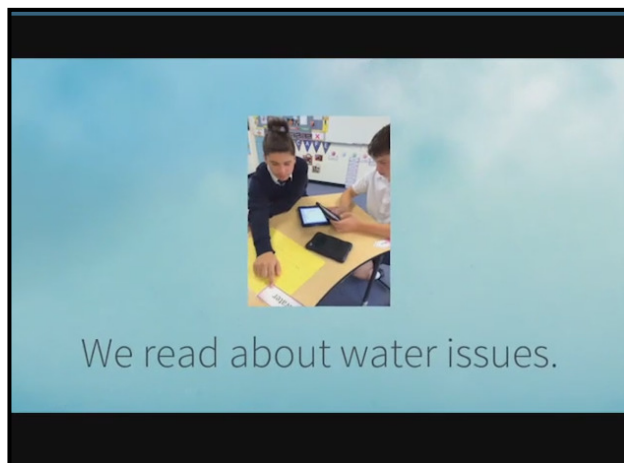


World Water Day is on 22nd of March. We can change communities by giving them an idea to get a water tank. When the UN sees the idea we came up with at school, we could help countries that don't have clean water. We could maybe get people to get water saving things in their home. What is your school doing to conserve clean water?

Alex

We have been learning about water conservation. This week we went looking for leaks and other ways water is wasted. We went to the basketball court. We turned the tap on. We looked at the water. One of the taps was spraying water on the ground. That means it's wasting water for the school. We are going to ask our principal to get it fixed. We went to all the classrooms to check the taps. We turned the taps on. We turned the taps off. The water stopped coming out. The taps were working fine.

Sam, Alex, Darren and Aaron



We go to Bethany Road Campus, Warringa Park School. This week we checked the taps in our school. We turned taps on then we turned the taps off if they were working. We recorded the taps using our iPad. The taps in the bathroom were not leaking. There were no drips coming from the taps. The taps are OK.

Zac, Lachlan, Anthony, Aiden and Brandon

I tested the taps in the kitchen. The taps were working fine. We read about water conservation. We learnt that a lot of water is wasted. Did you know having a five minute shower wasted ten buckets of water? Using the big flush on the toilet wasted five buckets of water. We have started to making a movie about saving water.

Brandon



We are from BRC Warringa Park School. We are learning about saving water.

We went to look at the taps in the Staff Room. Richard noticed the water was inside the pipes. Taheymoo saw the tap turn on and water come out. Max turned the tap off and no more water came out. Daniel said the taps at our school are good.

Taheymoo, Richard, Max and Daniel

Community Action Days

Students in the *Water is Life* project have taken what they have learned into their communities. Some have focussed on a project to improve local water supply or have worked together to improve the quality of the water environment in their neighbourhood.

Some students, on their Community Action Day, have taken a message about the importance of clean, sustainable water supply to their fellow students, their school, family or town. In all cases, the students have taken their shared learning to a wider audience and have taken it upon themselves to make a difference.

Jessica Chang and **Eva Chen** from **Kaohsiung Municipal Jhengsing Junior High School, Taiwan** have taken responsibility for editing and preparing this section.



Getting ready to clean up the village water supply.
Rubongi Secondary School, Uganda

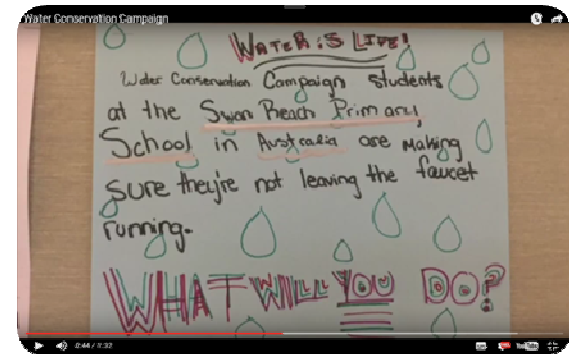
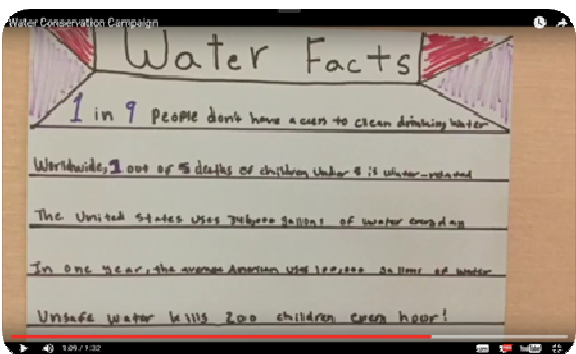
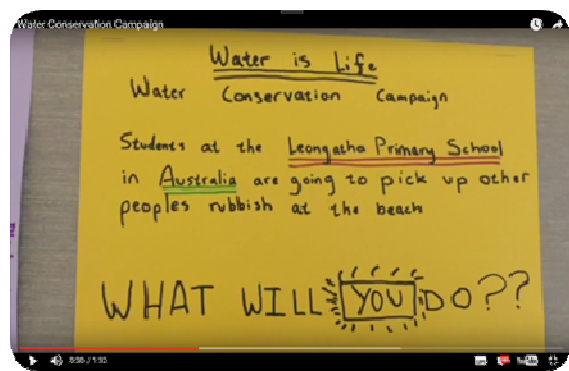
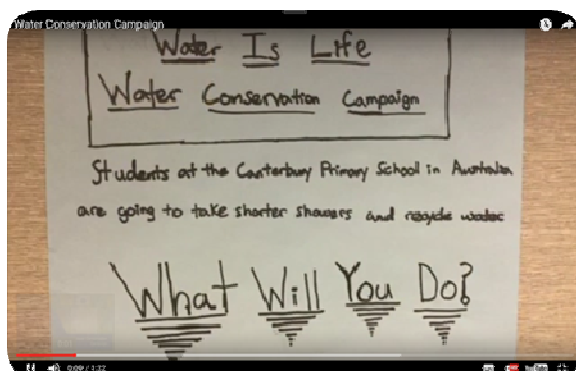
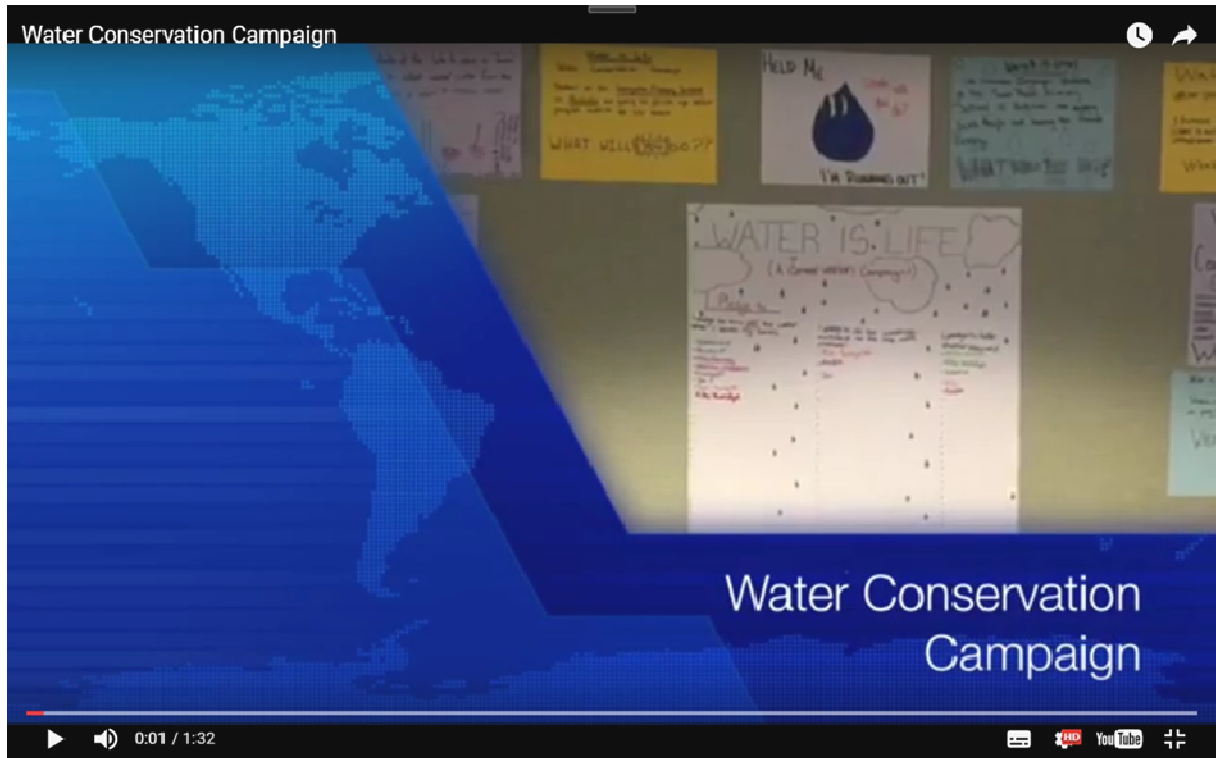


Sharing information about water at the Science Fair.
Al-Hassad Al-Tarbawi Schools, Jordan

Alexander Dawson School, U.S.A.

We have decided to organize a Water Conservation Campaign at our school. We have posted signs describing what other *Water is Life* schools are doing in the schools. We then have a poster where students in our school can pledge to do their part to conserve water. Here is a video showing some of the signs that we have posted in our school:

<https://www.youtube.com/watch?v=qWegqcz0ohY>



Saba School, Iran

Exhibition

Every year an exhibition of students' projects is held in our school. The exhibition is open to the public and gives the students a good chance to present their work to their schoolmates, families, students and teachers from other schools, local officials and the community at large.

Our school's 14th annual exhibition was held on April 30 and we found the opportunity to demonstrate our environmental conservation messages to the audiences. We conveyed our messages through different school boards and posters.



Water conservation campaign

We asked students, teachers and others to join our water conservation campaign by reducing their daily shower time by 3 minutes. We also used water bottle caps to write water conservation slogans.



Eat less meat to save water

Raising animals for food is the number-one source of water pollution. Meat consumption has increased in our country recently which has led to more and more water pollution. Therefore we started efforts for reducing meat consumption. We started from our school. We talked with our principal and our schoolmates. We told them that our meat choices have direct implications for our water and climate. Fortunately, our principal said that in addition to the school regular menu, a new meat-free and largely organic menu could be offered in school. We also tried to persuade our school chefs to reduce meat consumption in the food they cook for us.



Saba School, Iran

Displaying and presenting meat-free foods in our school

We exhibited and presented various kinds of meat-free foods. Teams of students, teachers and students' parents voluntarily helped us to prepare and present various kinds of meat-free foods such as healthy snacks, cakes, cookies, traditional foods and desserts. This was a great chance for us as we could convey our environmental messages to the visitors.



An informative school assembly

We delivered a fun and informative school assembly explaining to our schoolmates how we can conserve water by using clothing longer, buying less clothing and the importance of textile recycling.

We also shared the following facts with the participants:

- The fashion industry is the second largest user of water in the world when there are almost 1 billion people in the world with no safe drinking water source.
- The t-shirt on your back has a major impact on the planet. According to the National Geographic producing it took 2,700 litres of water, plus it takes a lot of energy to get it from the cotton fields to your closet.

We also displayed "How Your T-shirt Can Make a Difference", a video produced by the National Geographic.



Furthermore, we provided each student with a recycling sack and a brochure to take home and fill the sack with unwanted clothes and shoes and return it to school to be donated to a charity.



Our topic is about saving water. The students made a book to promote public awareness on water conservation. There are two main characters in the story, a drop of water and a young boy, meeting in Kaohsiung because of the water crisis.

Each student has set their own saving water goal and have started to take action in their daily life. The students wrote their personal action into the story to help people learn how to conserve our water in life.

Warning from the Future

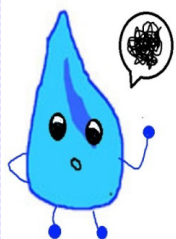
Joanne & Vivi



The sky was dark. It was raining cats and dogs.

Tong-tong Kao was walking home alone with his blue umbrella. It was wet everywhere, even his shoes and pants. All of a sudden, Tong-tong felt something on his leg. A weird thing caught his leg tightly.

"No...no...Please let me go...," he screamed. He was really scared.



"Hello, my name is Droppy. I'm a water genie from the future."

"Future? That's amazing." Tong-tong didn't feel as scared as a few seconds ago because Droppy looked so cute. "Why are you here?" He asked Droppy.

"People have serious water problems in the future world. I come to warn you the end of the world is coming. Let me show you the future." The genie held Tong-tong's hand. Suddenly, his surroundings turned dark. Droppy clapped its little hands. Meanwhile, a video was showed in front of him. "That's you with your son in 2040," whispered Droppy.

The man was standing in the kitchen with a boy. He opened the faucet, but no water.

"Dad, I'm thirsty. Is there any water?"

"Sorry, but today we still have no water."

"Honey! Our water bill is so high! I don't think we used so much water," the man's wife shouted.

"I don't, either. But now the water is really expensive. The worst of all is without enough water..."

Tong-tong was shocked.

"Now you can understand why I'm here. You guys have to do something to save the world. If you keep ignoring water problems, it would be like this. I am going to be extinct," said Droppy.

Tong-tong felt guilty. He liked to buy bottled water and took long showers.



"But how can I change the whole world? I'm not the only one who wastes water!" Tong-tong questioned.

"You can," said Droppy. "Take an action. Change the way you use water."

"How to...?" Tong-tong hasn't finished his question yet, Droppy disappeared.

"It's really a cool genie, come and leave whenever it wants." Tong-tong murmured. He walked back home with a little upset and confused.

"Hi, Mom. I'm home."

"Oh, dear. Can you help me to wash rice and vegetables? I need to go out to buy some food." Mom came out the kitchen and said.

"Sure."

"There are several ways to reuse water from washing rice and vegetables. Don't throw the water out!"

3

Tips for Reusing Water by Jessica, Vivi & Joanne

We can reuse water to wash things. Use the water that we wash vegetables to water the plants, or use the water that we mop the floor to wash the toilet. We can also reuse rice water in various ways, such as flushing the toilet, washing dishes. The water can clean the dishes without using detergent.



"Now I know." Tong-tong thought, "Saving water is not so hard. Maybe I can find other ways."

Ways to Use Less Water by Mina, Eva, Bennett, & Vivi

We can turn the tap on low. Don't open the faucet all the time. Use less water to brush teeth or wash hands. When doing the dishes, we can catch water in a pot. Then put the dirty dishes into the pot. Do the dishes with the water already caught in big pots, not using the running water. It can be easier to wash, and save water!



4

Then it was time to take a bath. Tong-tong walked toward the bathroom, thinking about Droppy. When he opened the faucet, he came up with some ideas. "The more time I take a bath, the more water I waste," thought Tong-tong.

| 星期一 | 星期二 | 星期三 | 星期四 | 星期五 | 星期六 | 星期日 |
|---------------------|---------------------|---|---------------------|---------------------|---------------------|-------|
| The Time of | Taking shower |  | | | | |
| | | | | 31'55 ₁ | 29'41 ₂ | 26'00 |
| 27'43 ₄ | 26'15 ₅ | 24'37 ₆ | 21'41 ₇ | 20'06 ₈ | 18'29 ₉ | 22'24 |
| 17'06 ₁₁ | 16'25 ₁₂ | 14'58 ₁₃ | 12'14 ₁₄ | 15'07 ₁₅ | 13'46 ₁₆ | 10'21 |
| 08'52 ₁₈ | 07'16 ₁₉ | 05'33 ₂₀ | 09'12 ₂₁ | 09'01 ₂₂ | 08'45 ₂₃ | 07'22 |
| 06'35 ₂₅ | 07'31 ₂₆ | 05'29 ₂₇ | 06'11 ₂₈ | 06'59 ₂₉ | 06'07 ₃₀ | |

5

Actually, saving water is not so hard.

"How about making it a habit?" That was Droppy's voice, but Tong-tong didn't see the little water drop.

"Hey, it would be good, right?" he smiled and told himself, "To save our water every day from now on. We can really make a difference!"



6

Lydia

Saving Our Water



Tong-tong Kao was walking on the way home happily. But then, his legs were caught by something. "Ouch!" He shouted. He was caught by a pool of water! Because it was rainy on that day, there was a lot of water on the ground. "Help..." The pool of water groaned. "Poof!"

Then the pool of water turns into a water genie. "Who...who are you?" Tong-tong asked. "Hmm...My name is Droppy, a water genie from the future. I come here for an important mission. You are going to have a big drought in the future. And I come here in order to warn humans not to waste water."



The water genie, Droppy said. "That's pretty serious. But how can we do?"



Tong-tong asked. "Well...Please take me to a place that has some water first, or I'm going to evaporate!"

1

Droppy said weakly. "Sure. We are close to my home. Let's go." Tong-tong said. And they rushed to Tong-tong's home.

After Droppy drank some water, Tong-tong and Droppy started to discuss the serious water problems. "How did you come here?" Tong-tong asked. "Well, I traveled by a heavy rain this afternoon." Droppy said. "And what does our future look like? Is it fine now?" Tong-tong asked nervously. "Hmm, let me show you." Droppy said. "But how..." Tong-tong didn't finish his words yet, but he felt a blow of hot wind on his face. A mini tornado surrounded them and brought them to the future.

Tong-tong saw a horrible scene. It was really hot. The ground was dry. There were no plants, animals, even people outside. Then, he saw a building full of people. Droppy hinted Tong-tong to go into it.

When they walked into the building, Tong-tong saw that everyone was wearing an oxygen mask. He looked around the building, it seemed like a supermarket before, but the shelves were empty. The supermarket only sold something like cookies or instant noodles. The people seemed to wait for something. Suddenly, a small shelf started to make noise.

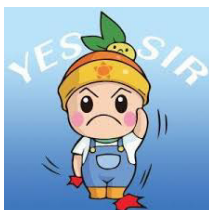
2

Then, dozens of bottled water rolled out from the shelf.

Everyone rushed to the bottled water and fought for it. They were fighting, shouting, screaming, and even biting each other in order to get the water. Unluckily, a bottle of water was broken.

Tong-tong found that a bottle of water cost 230 dollars. "How expensive!" Tong-tong thought. The people who didn't get water went out the supermarket disappointedly. With the moving people, Tong-tong felt a blow of cool wind surrounding him...

"How terrible it is!" Tong-tong said. "Can you realize the importance of water now?" Asked Droppy.



Tong-tong nodded his head. "We have to do something from now!" Tong-tong shared the story with his classmates and started their saving water actions together.

3

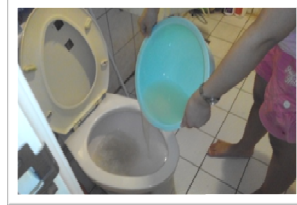
Tips to save water

1. Reusing water (by Jessica, Vivi, Joanne)

We can reuse water to wash things. Use the water that we wash vegetables to water the plants, or use the water that we mop the floor to wash the toilet.



We can also reuse rice water in various ways, such as flushing the toilet, washing dishes. The water can clean the dishes without using detergent.



4

2. Ways to use less water (by Mina, Eva, Vivi)

We can turn the tap on low. Don't open the faucet all the time. Use less water to brush teeth or wash hands. When doing the dishes, we can catch water in a pot. Do the dishes with the water already caught in big pots, not using the running water. It can be easier to wash, and save water!



3. Reducing shower time (by Lydia)

Reducing shower time saves time and water usage. I used to spend half an hour on taking a shower per day. Then I gradually changed the shower habit and take the shorter shower. Now I reduce my shower time to less than 15 minutes. I am glad I reach the goal and save water.

5

| 星期一 | 星期二 | 星期三 | 星期四 | 星期五 | 星期六 | 星期日 |
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After a month...

"Hey, Tong-tong. I really have to say that you are a water-saving expert now." Droppy said. "Thanks. That's all your work." Tong-tong said. "Well, I think I have to go. I really have a good time with you. Thank you." Droppy said sadly. "Wait! Where are you going?" Tong-tong asked. "Go back to my world, future. Maybe you can meet me again when you grow up. And don't forget to tell everyone how to save water!" Droppy said. A cloud went above Tong-tong's house, and Droppy jumped on it. "Goodbye, my friend. See you in the future..." Droppy waved his little blue hand. "Swoosh!" Then the cloud and Droppy flew away.

6

“We need to reduce the amount of plastics we use (for food supplies) to prevent oceans from being destroyed.”
Anonymous, Australia

Kaohsiung Municipal Jhengsing Junior High School, Taiwan

Tong-tong's Water Adventure

Jessica



One day, Kao Tong-tong walked home by himself. Suddenly, it began to rain, so he took out his umbrella. He walked quickly.



Just then, a raindrop flew in front of him, and said: "I'm Pocky from 2036. In 2036, you won't have enough water resources. Your life will be very inconvenient. Everyone is fighting for the water. If you don't save the water resources now, you will have water problems in the future!" "What? Wait! I don't know what you are talking about..." said Tong-tong. Suddenly, the environment around him turned dark.



"Let me show you the future." said Pocky. Just then, Tong-tong saw many people were fighting. "What are they fighting for?" asked Tong-tong. "They are fighting for the water." said Pocky. "The water isn't enough for people" Tong-tong said. "Yeah. And let me show you another view." Suddenly, Tong-tong saw a man kneeling on the ground, and there was a boy lying beside her. "Please give me some water! Please save my son!" that man said. "Who is that man?" Tong-tong asked. "That is you." Pocky said. "Is that boy my son?" "Yes." Pocky said. "That's really terrible, so what can I do now?" asked Tong-tong.

"There are several ways to save water." Pocky said.



1

Reusing water Jessica, Vivi, Joanne

We can reuse water to wash things. Use the water that we wash vegetables to water the plants, or use the water that we mop the floor to wash the toilet. We can also reuse rice water in various ways, such as flushing the toilet, washing dishes. The water can clean the dishes without using detergent.



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2

Reducing shower time Lydia

Reducing shower time saves time and water usage. I used to spend half an hour on taking a shower per day. Then I gradually change the shower habit and take the shorter shower. Now I reduce my shower time to less than 10 minutes. I am glad I reach the goal and save water.

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| 06'35 | 07'31 | 05'29 | 06'11 | 06'59 | 06'07 | |

"Actually, saving water is not hard." said Tong-tong. "Maybe I can find other ways." "Yes, now you know water is very important, and know how to save water. I finished my mission. It's time to go back to 2036. Goodbye!" said Pocky. "Bye!" said Tong-tong. "Save our water from now. We can really make the difference, and change the world!" Tong-tong told to himself.

3

Rubongi Secondary School, Uganda

Rubongi Secondary School held its community action day on Sunday, 17th April, 2016 by cleaning two boreholes and an area near a water tank.

One borehole within the school and the other a community borehole in the village where the school is located.

We were unable to reach the stream due to unfavorable weather conditions on the planned day before the day of cleaning the boreholes.



“ I think that water is becoming a bigger issue in the world. ”
We should act on it now before it is too late.
Sebastian, U.S.A.

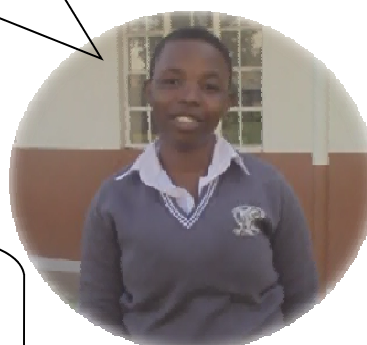
Rubongi Secondary School, Uganda

Reflections on our Community Action Day

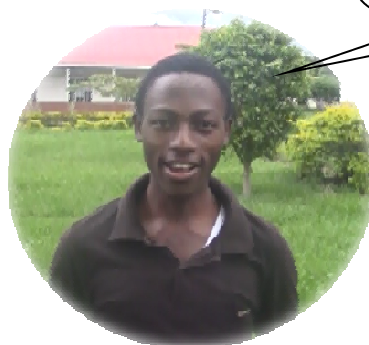
I felt very bad about how people were fetching water around the dirty places. I cleaned up around the place.



I first felt so bad and sad when I saw the polluted water around the dirty places so I committed myself and went and cleaned around the places. Later I saw the places were looking good. I felt so good when people were fetching water in the clean water sources and that makes us happy.



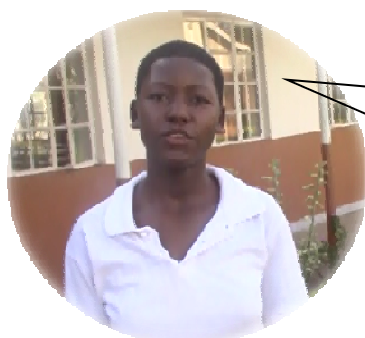
We should frequently clean the wells so that we have clean water. We should keep our lakes very clean and safe.



I would like to advise the community members that whenever they see the water sources becoming bushy that they try to carry out general cleaning like sweeping and slashing.



I'm here to tell you how I felt when I went to do the community work. I felt so bad to see people fetching water in the dirty places. I just got ready my tools and I started to clean around the water sources and through doing that I felt I made a smile on peoples' faces.



I felt sadness that people were using dirty water so we had to take an action as a group to clean around the water holes to ensure clean water.



It has been a wonderful experience working with my students in the project *Water is Life*. I thank all those who have been involved in this project. It has been an amazing collaboration to ensure safe and clean water for all.



“ We need to save Earth. It is being destroyed by man. ”
People truly don't know what they are doing to the environment.
Trevor, U.S.A.

“ I'm going to try and save as much water as possible by ”
recycling more water.
Sam, Australia

Leongatha Primary School, Australia

On Thursday the 23rd of June 2016, Leongatha Primary School held its *Water is Life* Community Action Day. The day involved our entire school and parent community. We also had special guest appearances from Rob King, South Gippsland Water, Russell Broadbent (Federal Member of Parliament) and a reporter from the local newspaper.



The Grade 6 students involved in the project worked in groups of four to plan and facilitate nine different hands-on activities for the day. All of the activities related to either conserving water (UN Goal 6) or reducing water pollution (UN Goal 14) and demonstrated actions that everyone can do to contribute to achieving these goals. The participating students rotated through three, 20-minute activities. Everyone was engaged in the activities they were doing, and were able to express what they had learnt throughout the sessions.

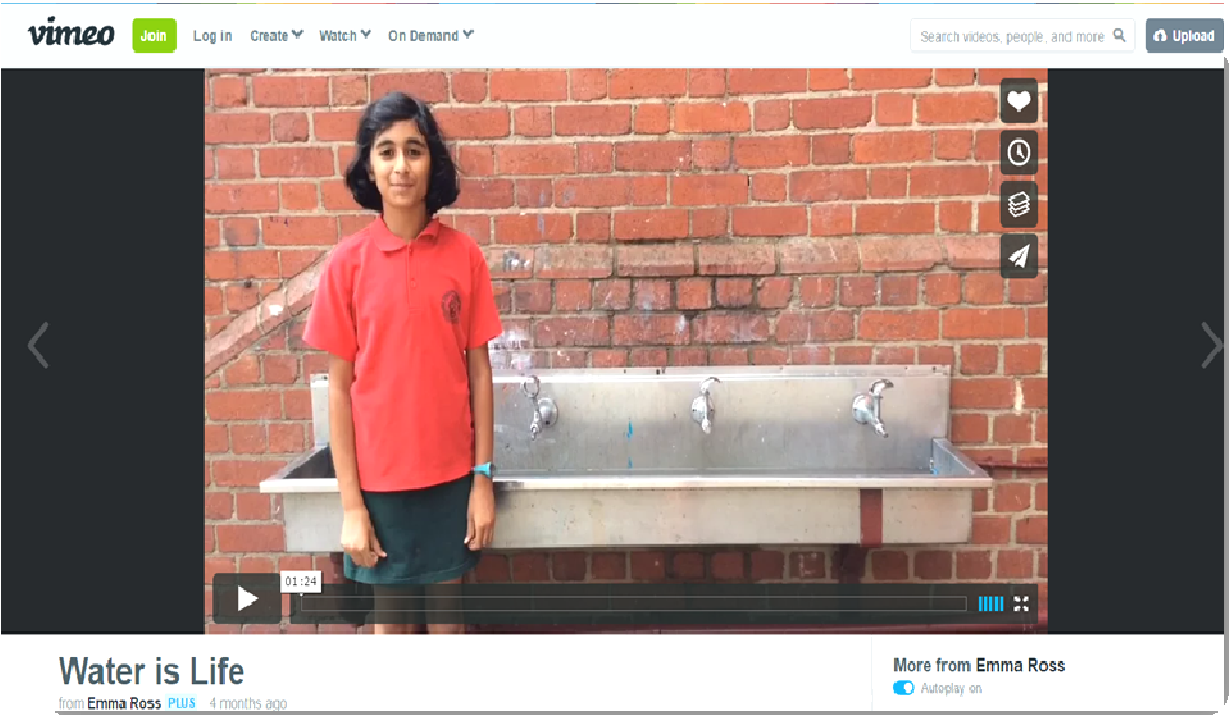




**“ We should collaborate with other youth to fence around wells and boreholes to prevent human and animal defecation near wells and boreholes. We should urge people to remove dead animals that might rot in water hence polluting it .
Ajambo, Uganda ”**

Canterbury Primary School, Australia

Emma Ross has made a video to raise awareness about keeping the drinking taps clean at school.





Cardross Primary School, Australia

After school on the 2nd of May, Cardross Primary School held our Community Action Day. All families in our school community were invited to come along to an exhibition of the grade 4/5/6 *Water Is Life* projects. All visitors donated a gold coin upon their entry in order to raise money for 'The Water Project'. This is a non-profit organization helping communities to gain access to safe, clean drinking water through education, training and the construction of wells. We raised \$71.90 for The Water Project.





Cardross Primary School, Australia

Reflections on our Community Action Day

Reflection by Isabella, Rianna and Natalie

We were happy about the exhibition and how much we raised for the wells. We learned there are people out there that have to walk miles to get their water. We also learned that the KH virus takes about 7 to 14 days to kill carp.

Reflection by Bryan, Cooper and Jack.

When we saw how many people were on we felt excited. We learnt that 3,400,000 people die a year and that the Murray River is our food bowl. We also learnt some people that don't have access to clean water have to walk miles for dirty water and 500 people die a day from the effect of waterborne diseases.

Reflection from Jhett, Lucy and Millie

We had a lot of fun at the exhibition and we learnt that there has only been 1 hardy head in New South Wales in the past 30 years. Something we learnt is that around 50,000 people die each week from dirty water.

Reflection from Nate, Montana and Maggie

We felt that the exhibition was exciting because there were a lot of people who showed up and we raised \$71.90. We learnt that most waterborne diseases are caused by insects and animal faeces. We learnt that 633 million people die from the lack of clean water.

Reflection from Jessica

I think our group did really well in our *Water is Life* project. As some of you know we have been focusing on the Citarum River in Indonesia. We found out that this river is the most polluted river in the world.

Reflection from Renee, Alicia and Aj

Our group thinks that we did well with the exhibition. We learnt that most rubbish in the ocean is plastic and we also learnt that in 30 years 1 Murray hardy head has been found in New South Wales. We also learnt that KHV virus hasn't been let out yet and more poor people have phones than toilets.

Reflection from Brenton, Dillon and Cody

We felt good about this project but we think we needed to work harder on the actual topic not on how many fish are in the Murray River ecosystem. If we had done this we would have been better and learned more things about the Murray River ecosystem and people that came would be able to learn the stuff that we learned not just the names of fish.

Reflection from Chelsea

We think that our exhibition went really well and that it was nice to see everyone's project finished. We learnt that the KHV virus takes 7-14 days to spread and kill carp, how KHV is a natural virus and that the virus hasn't been introduced to Australia yet. One thing that we learnt about another topic was that only 1 Murray hardy head has been found in New South Wales over the last 30 years.

Sunshine Beach State High School, Australia

The Sunshine Beach State High School “Water Watch Day” was a great success with students from across the school having the chance to be educated on the diversity of natural flora and fauna of Burgess Creek. The *Water is Life* class invited parents and representatives from community groups, including Landcare, to come along and help educate the students. The students participated in a range of activities. They collected and examined water samples from the creek to look for the natural life in the water, finding many species of wildlife which they then learnt to scientifically identify. They also took part in a clean-up of the creek, clearing rubbish and non-native vegetation from the creek and its surrounding environment. The students then each had a chance to plant new trees and bushes which are native species to the local environment.



St. Mark's Senior Secondary Public School, Meera Bagh, India

Water saving parade

The students went to the nearby locality, the market area. These are pictures of the students taking a pledge to save water.



Students of our school designed pamphlets, bookmarks and cards to spread the message *Water is Life* across the students. Here are some pictures of grade 4 students participating in the activity.



Helen Keller Middle School, U.S.A.

Reduced water and food waste

On April 29th, 2016, the 7th grade Helen Keller Middle School students challenged themselves to be aware of their food waste. We decided to weigh the garbage again, and see how much of a difference was made if the students were aware. Our findings confirmed it; all together the garbage weighed 5.5 pounds, which is nearly 2 pounds less than our experiment earlier in the month. The Yellow advisory team won our competition, with only 1.4 pounds of food. In addition, all plastic bottles and cans were recycled, as opposed to the 17 bottles and cans that were thrown out the last time. This has been a great improvement and we hope to see more progress as we go forward.



On April 29th, 2016 Helen Keller Middle School Students took on the garbage. Our goal was to reduce the amount of food wasted and increase the amount of water bottles recycled instead of them being thrown away. Before this we sorted through the garbage to see what we were wasting on a daily basis, and how much we can reduce it by just being aware of the problem. The total amount wasted, not being aware of the problem was 7.5 the improved weight was 5.6 pounds, as well as 17 bottles and cans thrown away instead of recycled. When we did this the second time all bottle were recycled. We think that this has been a great difference and hope to see more improvement.



On April 12th, 9 students from Mrs. Rose's Period 2 class took the leftovers of Helen Keller Middle School's 7th grade lunch and sorted through it. The result was shocking; 100 7th graders managed to waste 7 and half pounds of food. In addition, there were 17 water bottles and cans that were thrown out instead of being placed in the recycling bin. Carelessness or ignorance? It doesn't matter the cause; we hope this project has made you more aware that your actions DO have an impact on the world, it just depends how you choose to handle it.

Water recycle



We are collecting wasted water from the drinking fountains at school. To purify the water we drink, we throw away more water. Therefore, we start collecting the less purified but clean water to grow the plants.



Hsin Chya Elementary School, Taiwan

Beach clean up



Our lives are closely related to the sea. We watched a couple of films about the impact of garbage in the ocean on fish. We were shocked to see that a lot of fish have died because they ate the garbage. We discussed what we can do to help to reduced the pollution in the ocean and we have decided to do a beach clean up.

The result of plastic bag reduction contest

The aim of our activity was to reduce the use of plastic bags in our daily lives. In Taiwan, a lot of shops give plastic bags when customers purchase food or goods. In this activity, we encouraged the students to bring their own shopping bags or containers. Every time they did, we regarded it as they 'saved' one plastic bag. The students kept a record of how many plastic bags they saved every day, and we calculated the total amount over two weeks. The person who 'saved' the most plastic bags was the winner. The attachment is the table we use to calculate the amount of plastic bags the students saved in two weeks.

| 序號 | English Name | 1st week | 2nd week | total | winner |
|----|--------------|----------|----------|-------|--------|
| 1 | Laughing | 12 | 25 | 37 | |
| 2 | Jack | 9 | 18 | 27 | |
| 3 | William | 73 | 40 | 11 | 2 |
| 4 | Max | 6 | 5 | 11 | |
| 5 | Bob | 11 | 18 | 29 | |
| 6 | Eason | 21 | 25 | 46 | |
| 7 | Allen | 13 | 15 | 28 | |
| 8 | Wayne | 68 | 41 | 109 | |
| 9 | Benny | 5 | 2 | 7 | |
| 10 | Kyder | 15 | 20 | 35 | |
| 11 | Gary | 66 | 75 | 141 | 1 |
| 12 | Henry | 31 | 27 | 58 | |
| 13 | Eason | 4 | 0 | 4 | |
| 14 | Berry | 50 | 60 | 110 | |
| 15 | Kevin | 32 | 25 | 57 | |
| 16 | Penny | 30 | 32 | 62 | |
| 17 | Julia | 24 | 4 | 28 | |
| 18 | Kelly | 53 | 44 | 97 | |
| 19 | Tiny | 28 | 32 | 60 | |
| 20 | Kim | 26 | 26 | 52 | |
| 21 | Angela | 15 | 32 | 47 | |
| 22 | Sandy | 37 | 38 | 75 | |
| 23 | Peggy | 10 | 11 | 21 | |
| 24 | Jessica | 29 | 30 | 59 | |
| 25 | Anna | 19 | 45 | 64 | |
| 26 | Erica | 16 | 23 | 39 | |
| 27 | Erena | 2 | 14 | 16 | |
| 28 | Elin | 53 | 41 | 94 | |
| 29 | Emily | 28 | 37 | 65 | |
| | Total | 786 | 805 | 1489 | |

The winners of the contest

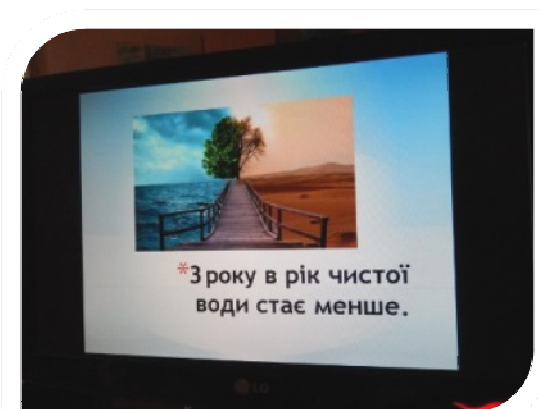
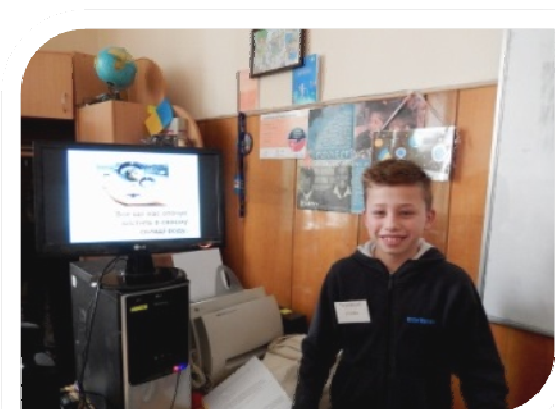


“ I am really interested in helping the environment. I think we can make a big difference.
Inez, Australia ”

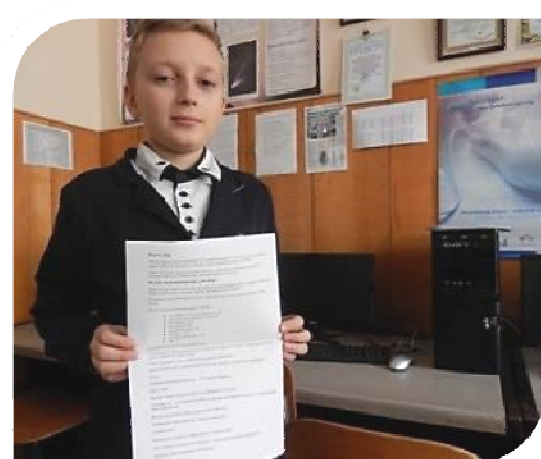
Gymnasium #2, Ukraine

Grade 6 research presentation

Vanya Zavydyuk made a presentation on water resources in Ukraine.



Anton Vlaicu Interesni gathered facts about water.



Anatoly Verbitsky gathered information about water pollution.



Computer drawing, "Drop of water", from Juliana.



**April 22 - International Earth Day -
a holiday of clean water, clean land,
clean air**

**I - Earth - appeal to all who hear me!
Young friend, help me! Save yourselves!**



In the lesson on Earth Day, we created environmental posters and made animations with Scratch.

What each of us can do to breath and live easier?

- 1) plant a tree;
- 2) burn fallen leaves and dried plants; do not burn stubble and dry grass;
- 3) don't throw garbage in non-designated places;
- 4) use water economically;
- 5) do not wash vehicles near rivers and other water bodies.

Let's save this planet for future generations. We found special resources through Google Earth. On the day of Mother Earth we took this international action and encouraged all to work on the urgent environmental problems.



Angelina and Juliana learned about what other participants had done from the project blog. They made a report on the celebration of Earth Day in school.

Warringa Park School, Australia

Community Action Day

by Delen

We finally got our water tank it will helps us at BRC to save water. We can use the recycled water in our garden. We had an Action Day where we shared our presentation. We raised more money by selling brackets and water bottles. We also had a sausage sizzle, juice box, Op Shop and disco.

Official opening of water tank



Poster on display



Student presentation



Rob King talking to students

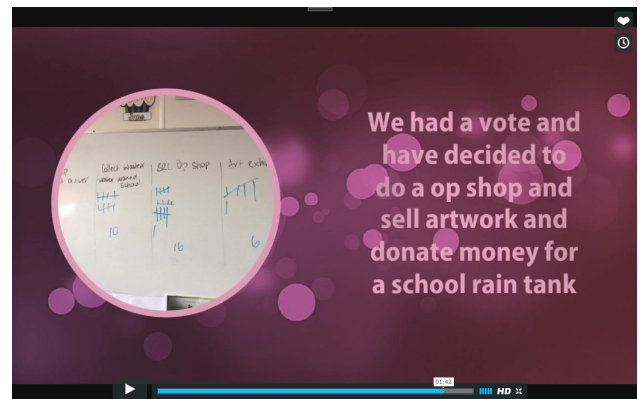
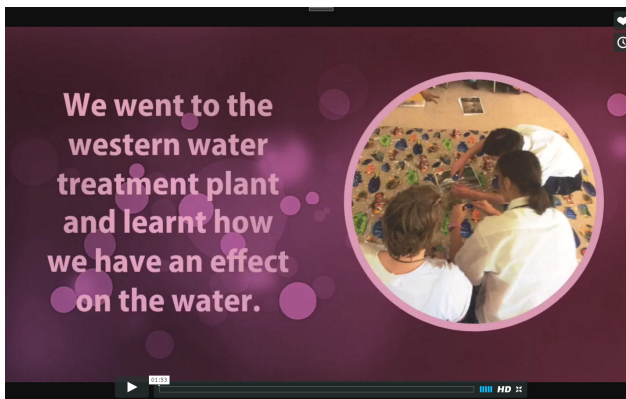


Poster on display



The students made three videos about their work.

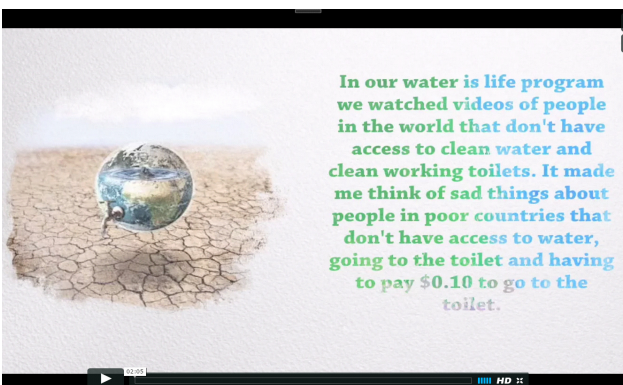
1. The students learned about water problems and then worked together to take action for a school rain tank.



2. The students put posters up all around the school to let everyone know to turn off the taps. They thought about how to conserve water and use waste water. Finally the students had a sausage sizzle at school to raise money for the water tank.



3. The students shared their learning with other schools via the wiki. To raise money for the water tank, they planned to sell recycled art and decorated water bottles.



Officer Secondary College, Australia

Fundraising for India

At Officer Secondary College our year 7 students have been working very hard over the past few months learning about water scarcity and the iEARN *Water is Life* project. After all the students have done – from identifying developing countries afflicted by water scarcity to researching solutions to the problem by creating water filters - they decided to finish up with a Community Action Day to create awareness of water scarcity within the school community. To do this the students organized a sausage sizzle to raise funds that would in turn go towards a charity that digs wells in India. The students created a poster to publicize the event, and then on the day they worked in small groups to prepare the food and sell it at lunchtime. The students managed to raise \$335 in just under an hour! Borady Kata and myself then met with the organizer of the charity Mi-Link and had one of the board members visit our class to present to the students how their money would be spent. The students were incredibly proud of their efforts, and left the class knowing that their efforts will make a difference to helping the fight to solve water scarcity in the world.



“ I will try to sensitize people to reduce the amount of water that they use like I do, by using a bucket while washing the car or reducing shower time. ”
Anonymous, Tunisia

Riadh Nassr Preparatory School, Tunisia

A play about pollution

The school produced a play about pollution of the environment to be performed for various audiences.



A video about posters

This is a video about posters they have made.



Riadh Nassr Preparatory School, Tunisia

Don't waste water

By Lyna Zouari, Youssef Marzouk and Miss.Laryem Hadjar

This is a story about saving water. The girl tells her brother don't waste water because water resources are really precious. We need to protect our water.



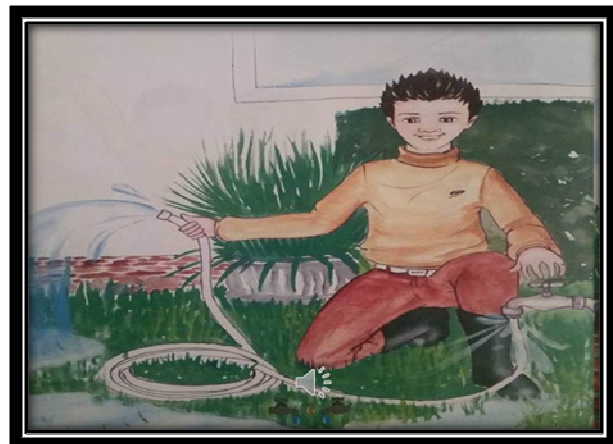
Aveej looks forward to Sundays always. She is a hard working girl and she likes her lessons very much, but she loves Sundays because she gets to spend time taking care of the garden with her brother, Maher.



If you pass by their house you can see them watering plants, watering flower beds or collecting trash and dead leaves.



Every Sunday both children wake up extra early. After a quick breakfast, they ask their mother's permission and race into the garden.



Maher put the garden hose to the water tap and turned it on. He gripped the hose with two hands and started watering the trees and flowers.



Areej was watching him. She called out to her brother: "Hey you are wasting water for no good reason."



She walked over to him. "Water," she said moderately, "is like a gift from God. Thanks to water, the soil is renewed after being dead and different fruits and vegetables can grow again. Our living produce uses the water and gets good produce rising out of it."



You mustn't forget to have pure water or juice every day. Nowadays one of the biggest problems continuing to exist is how to provide enough drinking water. A lot of households have a hard time having even a little bit of water.



Maher looked at Areej slightly puzzled. He asked: "What should we do then. We have to water these plants, don't we?" Areej smiled and said: "So now on we use watering can in order to save water. We won't waste any more water."

“ I've found that 3,400,000 people die a year from waterborne diseases. ”
 Bryan, Australia

Swan Reach Primary School, Australia

We have decided to hold a Water Efficient Car Wash. We will demonstrate efficient ways to wash cars while raising money to go towards *The Water Project*. We will make brochures to leave in the cars outlining water saving actions that we have learned about in the *Water is Life* project.

Mirboo North Secondary College, Australia

Class 8B of Mirboo North Secondary College has decided to raise money for a new water tank to be installed on the school grounds. We plan to do this by collecting aluminum cans and other fundraising activities such as a whole school free dress day with raffles and activities.

Class 8A has decided to hold a clean up day in the local community. We are going to involve most of the school in this project. The school will take a number of students and delegate them an area of the town or the community to clean up for the day. The goal of this is to clean up the most polluted areas in Mirboo North as there is quite a bit of rubbish in the area. This rubbish would mainly end up in the drains and waterways and follow them into the oceans.



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