

STOP MELTING my HOME



My Guide to
**CLIMATE
CHANGE**

Getting to know
climate change with

PIQA



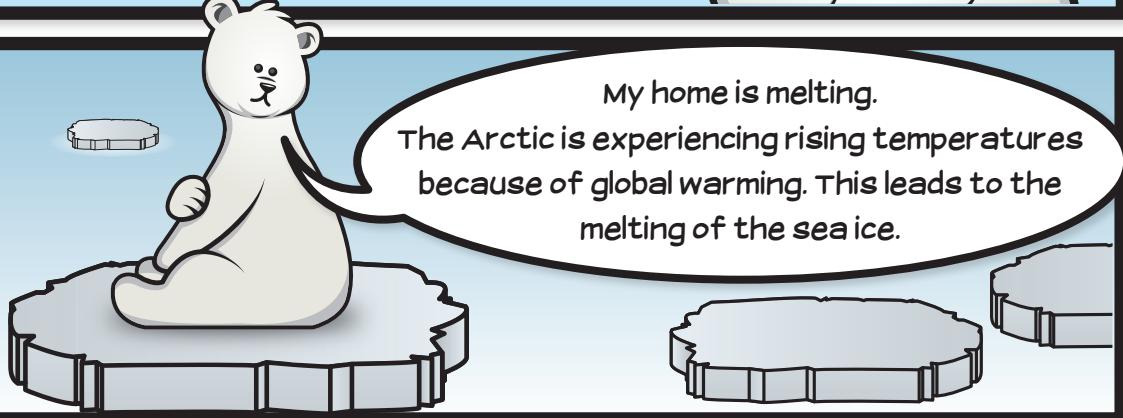
BENNY & JUNIE

It's getting hot here!

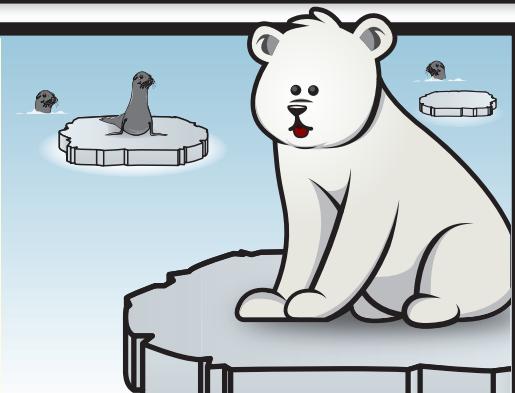
Hi there! I'm Piqa, and I come from the Arctic, located at the northernmost part of the Earth, far away from Singapore.



My home is melting. The Arctic is experiencing rising temperatures because of global warming. This leads to the melting of the sea ice.



Polar bears need sea ice to hunt seals, which are our food. As sea ice shrinks, it becomes more difficult for us to reach our food. We need to swim long distances to ice that is far away. If sea ice continues to shrink, we may not survive.



The Arctic is not the only place that is warming. Temperatures everywhere are rising. Global warming is changing Earth in ways that spell trouble for polar bears, human beings and other things.

Scientists predict that two-thirds of the world's polar bears will disappear by 2050, unless we reduce greenhouse gas emissions.

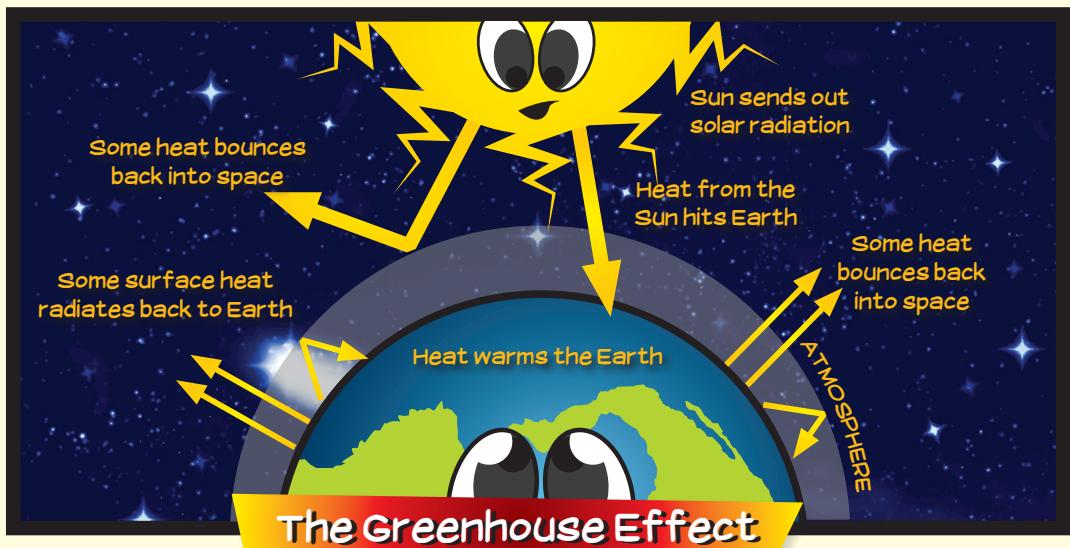




Scientists say human activities are producing too much greenhouse gases that warm up Earth.

More than 100 years ago, human beings started burning large amounts of coal, oil and natural gas to power their homes, factories and vehicles.

We rely heavily on fossil fuels to generate electricity. People use electricity all the time; when we switch on the light, turn on the TV or the computer. Most of our daily activities release greenhouse gases. In fact, the more electricity we use, the more we cause the Earth to heat up.



Greenhouse gases, such as carbon dioxide, exist naturally in the atmosphere. Greenhouse gases are released into the atmosphere when fossil fuels are burned. They allow sunlight into our atmosphere but trap the heat, making the Earth a warm and liveable planet for plants and animals.

Human activities are, however, adding more greenhouse gases into the atmosphere. Too much of it in the atmosphere changes our climate. These additional gases are causing the Earth to get warmer, and changing the world's climate.

Impact of changing weather

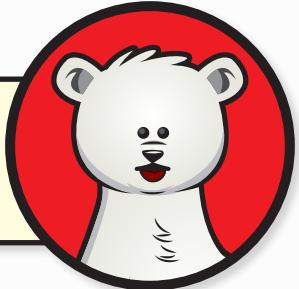


About 18,000 years ago, the Earth's average temperature was only slightly cooler than it was 100 years ago. But over the last 100 years, the Earth's temperature has risen very quickly.

Weather systems are sensitive to even the slightest changes. Many scientists believe our climate will change worldwide in response to the recent warming. Extreme weather events such as heat waves and tropical storms are already becoming more frequent.



The amount of carbon dioxide in the Earth's atmosphere is rising every year, trapping more heat. This will lead to more extreme weather events.



Activity!

Which of the following are caused by climate change? Circle the correct answers.

Tsunami

Hotter sun

Heat waves

Food shortages

Rising sea levels

Health problems

Earthquake

Haze

Floods

Loss of plants
and animals

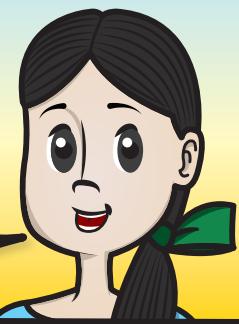
Droughts



What is the world doing about climate change?

Countries around the world are coming together to cut greenhouse gas emissions to slow climate change.

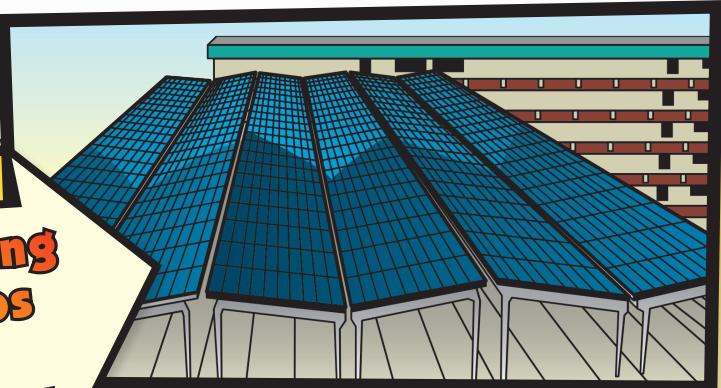
Singapore is playing its part to reduce emissions.



The government is working to reduce emissions, by improving energy use in buildings, transportation industry and homes.

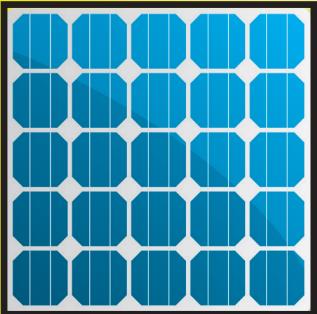


**Solar panel testing
on HDB rooftops
in Singapore**



Activity!

Match the names of the alternative energy options to the correct picture.



Hydro Power



Nuclear Power



Solar Energy



Wind Power



Singapore is also studying other energy options like solar power that do not produce greenhouse gases when generating electricity. In fact, some rooftops of HDB flats are installed with solar panels to test if solar energy can be a reliable source of alternative energy for our country.

The process of developing new sources of energy takes time. In the meanwhile, everyone has a role to play in tackling climate change.



Does your school have solar panels? How many classrooms can the solar panels power up everyday?

Ask your teachers how solar energy work or do some research in the library or internet to find out.





1

SWITCH OFF ELECTRONIC DEVICES WHEN YOU ARE NOT USING THEM

Your fan, TV, computer and other electronic devices consume energy on standby mode. Standby power can account for up to 10% of your parent's home electricity bill.

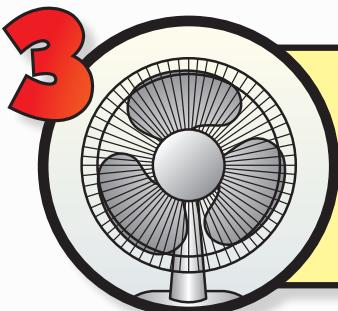
Did you know that you can help your parents save \$50 a year by switching off home appliances at the power socket?

2

SET YOUR AIRCON AT 25°C

Is the air-conditioning too cold? Raise the temperature setting! The higher the temperature setting, the less energy is used by your air-conditioner.

Every degree raised will save your parents about \$25 a year.



KEEP COOL WITH A FAN

A fan uses less than 1/10th of the electricity used by an air-conditioner. Just think about all the electricity you can save if you use a fan instead of an air-conditioner!



CONSERVE WATER

Saving water is another important part of shrinking your carbon footprint. When you use water, you are also using the electricity necessary to treat and deliver the water to you. That electricity contributes to your carbon footprint.

Saving or conserving what we don't need to use is one of the many solutions to climate change.



TAKE PUBLIC TRANSPORT

A car uses nine times the energy used by a bus and 12 times that used by an MRT train.



WALK OR CYCLE IF YOU CAN

Headed to a nearby location? Try walking or cycling. If your school is near your home, encourage your parents to walk you to school instead of driving.



REDUCE

Greenhouse gases are released when new goods are made. Reducing the number of new things you buy and reusing items will reduce your carbon emissions. Using fewer things will also reduce the waste you generate.

8

REUSE ITEMS WHERE POSSIBLE

Invest in items that can be reused and avoid using disposable utensils, cups and plastic bags.

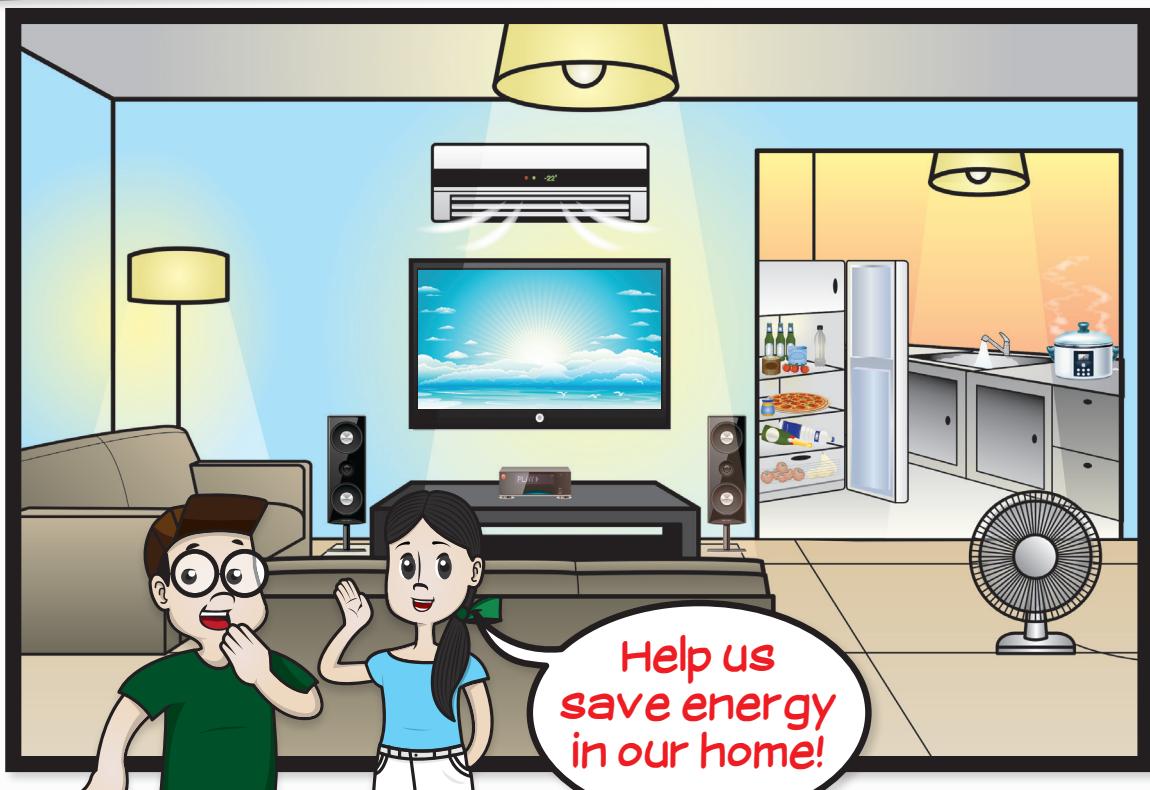
9

RECYCLE

We can channel waste materials such as paper, metal, plastic, glass and electronics for recycling. With more than 1,500 recycling bins around Singapore, there is always one near you. Your used electronic items and toner and ink cartridges can also be recycled.

Activity!

What is wrong with this picture?
~~Circle~~ the energy wasting practices you see.



Activity!

Do you know your recyclables?
Circle Yes or No.

1. CLOTHING

- Dry and clean clothing

YES NO

4. METAL

- Beverage cans

YES NO

- Steel cans / containers

YES NO

2. ELECTRONICS

- Computers / laptops

YES NO

- Electronic parts containing mercury and other toxic materials

YES NO

- Mobile phones

YES NO

- Printers

YES NO

- Computer accessories (e.g. keyboards, hard disk, modems, cables, CDs, toner cartridges)

YES NO

- Electrical appliances

YES NO

- (e.g. LCD TVs, refrigerators, ovens, washing machines, air-conditioners)

3. GLASS

- Glassware

YES NO

- (e.g. jars, bottles, cups, bowls, containers)

- Light bulbs

YES NO

- Window glass

YES NO

- Ceramic / clay

YES NO

- Porcelain

YES NO

5. PAPER

- Newspapers

YES NO

- Soiled papers

YES NO

- Computer printouts

YES NO

- Paper contaminated by food

YES NO

- Writing papers

YES NO

- Used tissue paper

YES NO

- Brochures / pamphlets

YES NO

- Magazines and books

YES NO

- Carton boxes

YES NO

- Paper cups

YES NO

6. PLASTIC

- Styrofoam containers

YES NO

- Mineral water bottles

YES NO

- Soft drink bottles

YES NO

- Juice bottles

YES NO

- Disposable plastic cups / containers

YES NO

- Detergent / milk containers

YES NO

- Cling wrap

YES NO

Climate change and global warming may seem like a huge problem that only adults can solve. But you and I can make a difference too!



What is your carbon footprint?



When you use electricity, you produce carbon dioxide and other greenhouse gases. Your carbon footprint is the amount of carbon dioxide that is released from the energy you use and it shows the impact you have on the environment.

Every year, each of us releases tonnes of carbon dioxide into the air. Your carbon footprint comes from everyday activities like using your computer, turning on the light in your bedroom, taking a shower, and riding a bus or car to school.

Transportation choices affect our footprint too!

I am ...

- using my own two feet to walk
- pedalling a bicycle
- taking the MRT
- taking the bus
- taking ride in my parents' car

Average carbon footprint in a year
(20,000km)

0
0
260kg*
380kg*
3,740kg

*assuming an average loading of 80 passengers per bus and 1,100 per train.
Source : Land Transport Authority

3,740kg

of carbon dioxide emissions can fill up to 2 million 1-litre PET bottles



How large is your carbon footprint?



Take this quiz to find out what kind of footprints you are likely to leave behind!

	Yes	Sometimes	No
Do you usually walk or cycle to school?			
Do you turn off the lights when you leave the room?			
Do you turn off the TV when you are not using it?			
Do you turn off the computer when you are not using it?			
Do you use a reusable bag when you go shopping?			
Do you usually use the fan more than the air-conditioner on days that are hot?			
Do you usually recycle your drink bottles and cans?			
Do you encourage your friends and family to be more eco-friendly?			

If you ticked mostly 'YES' and 'SOMETIMES', **GOOD JOB** in watching your carbon emissions!

You can try to do better if you ticked mostly 'Sometimes', or some 'YES' and some 'NO'. Think of some habits that you can change so that you can answer 'Yes' to more questions!

If you have a lot of 'NO', start thinking about how to reduce your carbon footprint. There are simple and easy ways to change your behaviour, and these can have a big effect on your energy use!



Here are some terms used in the booklet to help you better understand the topic on climate change!



Atmosphere

Layer of air and gases that surrounds Earth

Carbon Dioxide

An odourless, colourless gas used by plants to make food, and a greenhouse gas that traps heat inside Earth's atmosphere

Carbon Footprint

A measure of the impact each of us has on the environment, according to how much carbon dioxide we produce

Climate

Usual weather patterns, or the typical weather in a specific region

Climate Change

A change in normal climate patterns over a long period of time

Emissions

Released gases that contribute to global warming

Fossil Fuel

A fuel, such as oil, coal and natural gas that formed underground from plants and animals that died millions of years ago

Simple things you can do to help Piqqa the polar bear and the world!

1. Use air-conditioning sensibly, or use a fan instead of an air-conditioner.
2. Switch off electrical appliances at the power socket when not in use.
3. Take public transport, and walk or cycle where possible.
4. Reduce, reuse and recycle where possible.
5. Spread the word! Share the tips above with all your friends and family.

Do-It-Yourself Bookmark

1. Tear along the dotted lines; 2. Punch a hole (where the white dot is); 3. Tie a string or ribbon through it; 4. Use it!

Greenhouse Effect

The greenhouse effect is a natural process that helps keep the Earth warm enough for people, plants and animals to live on

Greenhouse Gas

A name for heat-trapping gas such as carbon dioxide that cause the greenhouse effect

Global Warming

Heating of Earth's atmosphere and oceans, caused by increased carbon dioxide and other heat-trapping gases in the atmosphere

Sea Level Rise

An increase in the average level of oceans worldwide

Solar Energy

Energy from the Sun

STOP MELTING my HOME



Everyone can make a difference.
That's because small, positive
changes do matter.

Small, positive changes
multiplied millions of times produce
immense benefits that can
truly change the world!



This booklet is brought to you by:



NCCS

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