



# WHAT'S UP WITH THE EARTH?



## The Mystery of Early Spring

Story by Choo Li-Hsian & Natasha Wong  
Illustrations by Chin Pik Wun



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STORY JOINTLY CREATED & WRITTEN BY  
Choo Li-Hsian & Natasha Wong

ILLUSTRATIONS BY  
Chin Pik Wun



Bayer

A climate protection initiative by Bayer (China) Limited  
to educate the future guardians of our planet.

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100% from well-managed forests.

It has become increasingly urgent to promote public awareness of environmental protection and the need for, and benefits of, a low-carbon lifestyle. In recent years, the Shanghai Environmental Protection Bureau has put in tremendous efforts in Shanghai to build an environmentally friendly city, establish the “Low Carbon Expo 2010”, increase public awareness for environmental protection, as well as construct “Green Communities” and “Green Schools”.

As a socially responsible multinational corporation, Bayer is committed to promoting environmental education for China’s youth. This children’s book about global warming illustrates, in an easy-to-understand storyline and accompanying pictures, the science behind global warming; thereby helping to foster in young readers, both an intellectual understanding of ecology and an emotional bond with nature. Such exposure will hopefully encourage young readers to act in a more sustainable way, make more sustainable choices and develop the basic concept of a low carbon lifestyle from a young age.

I encourage children and their parents to read this book together and share it with friends and family.

A handwritten signature in black ink, consisting of stylized Chinese characters, likely '张权' (Zhang Quan).

Zhang Quan  
Director  
Shanghai Environmental Protection Bureau



Climate change is one of the most dominant challenges of our time. It is a global phenomenon that has considerable impact on our lives. As human activity is one of the main causes for climate change, Bayer believes that everyone can and should take action against global warming.

While we as a company realize that we share the responsibility for greenhouse gas emissions, we are also part of the solution. After all, our products are already helping to save energy and conserve resources in a whole range of different ways, and we have achieved a great deal in our drive to make our facilities more climate-friendly. Only recently we strengthened our commitment to sustainability when we launched the global Bayer Sustainability Program. One of the key areas of this agenda is climate protection. Bayer invests one billion Euro in the Bayer Climate Program, a unique climate protection scheme that runs projects and develops innovative and technologically advanced solutions that will reduce not only Bayer's carbon footprint, but also that of our business partners and customers.

Education and awareness are key to Bayer's Climate Program. We believe that children deserve to be informed about the many facets of the world in which they live, and the world which they will inherit. This book aims to teach children about global warming and, more importantly, what they can do to protect the climate. The underlying message of this book is that everyone, whether big or small, can make a difference. Small actions taken in every day life can have meaningful long-term impact.

Bayer is delighted to sponsor this children's book on global warming, written in both the Chinese and English Language. I strongly believe, both children and their parents, will be inspired by this book to take more socially responsible actions to tackle this most important global challenge: Climate Change.

A handwritten signature in black ink, reading 'Plischke' in a cursive style.

Dr. Wolfgang Plischke  
Member of the Board of Management of Bayer AG

We do not inherit the Earth from our ancestors;  
we borrow it from our children.

-Native American Proverb



Poppy



Big Bao



Li'l Bean



What do YOU look like?  
What is your name?

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It was an everyday kind of Saturday.



Everyday in the most boring way.



An adventure  
is a sneaky little thing.

It may tug playfully  
like a kite on a string.

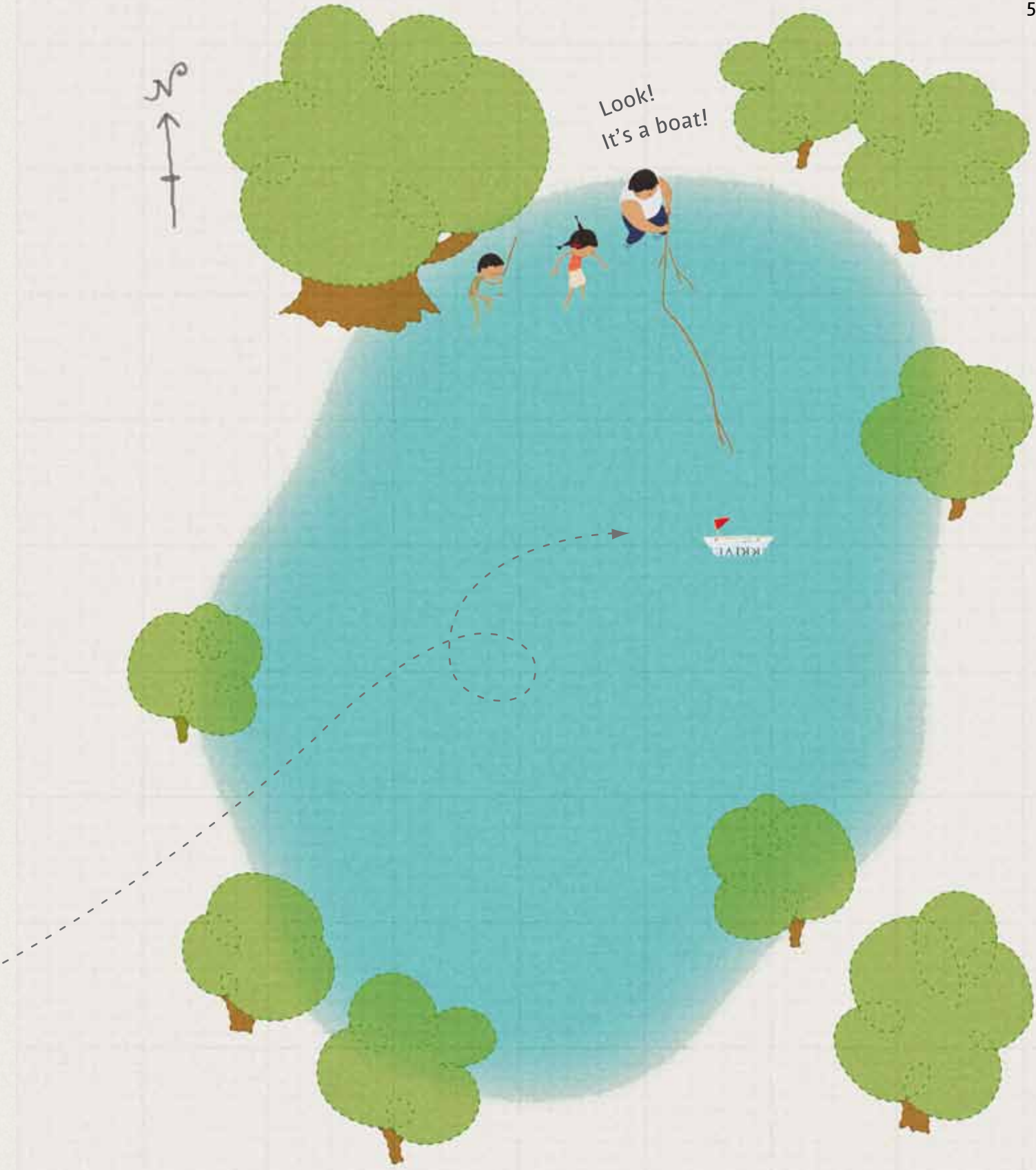
It might stay undercover  
or hide in a shoe.

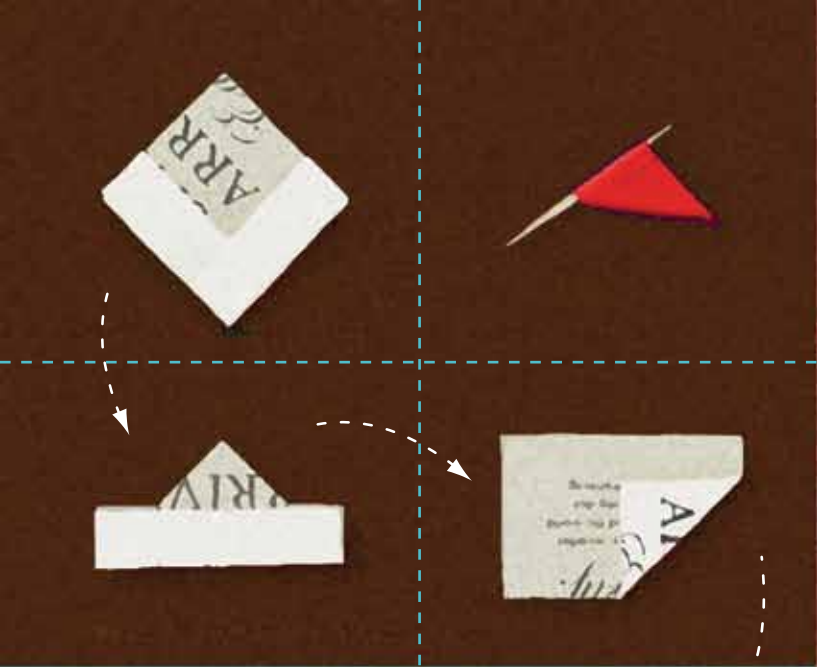
Hey! I can see one now,  
can you?





Look!  
It's a boat!





The unexpected  
can unfold.



Big Bao!  
Li'l Bean!

Look up, it's true!  
The flowers are  
blooming earlier  
this year.



Oh, the wonders simple Saturdays can hold!



"Nature seems terribly confused."

"The climate is always in the news."



"Did someone say roasted goose?"

THINK GREEN

Do the words 'Climate' and 'Weather' mean the same thing?

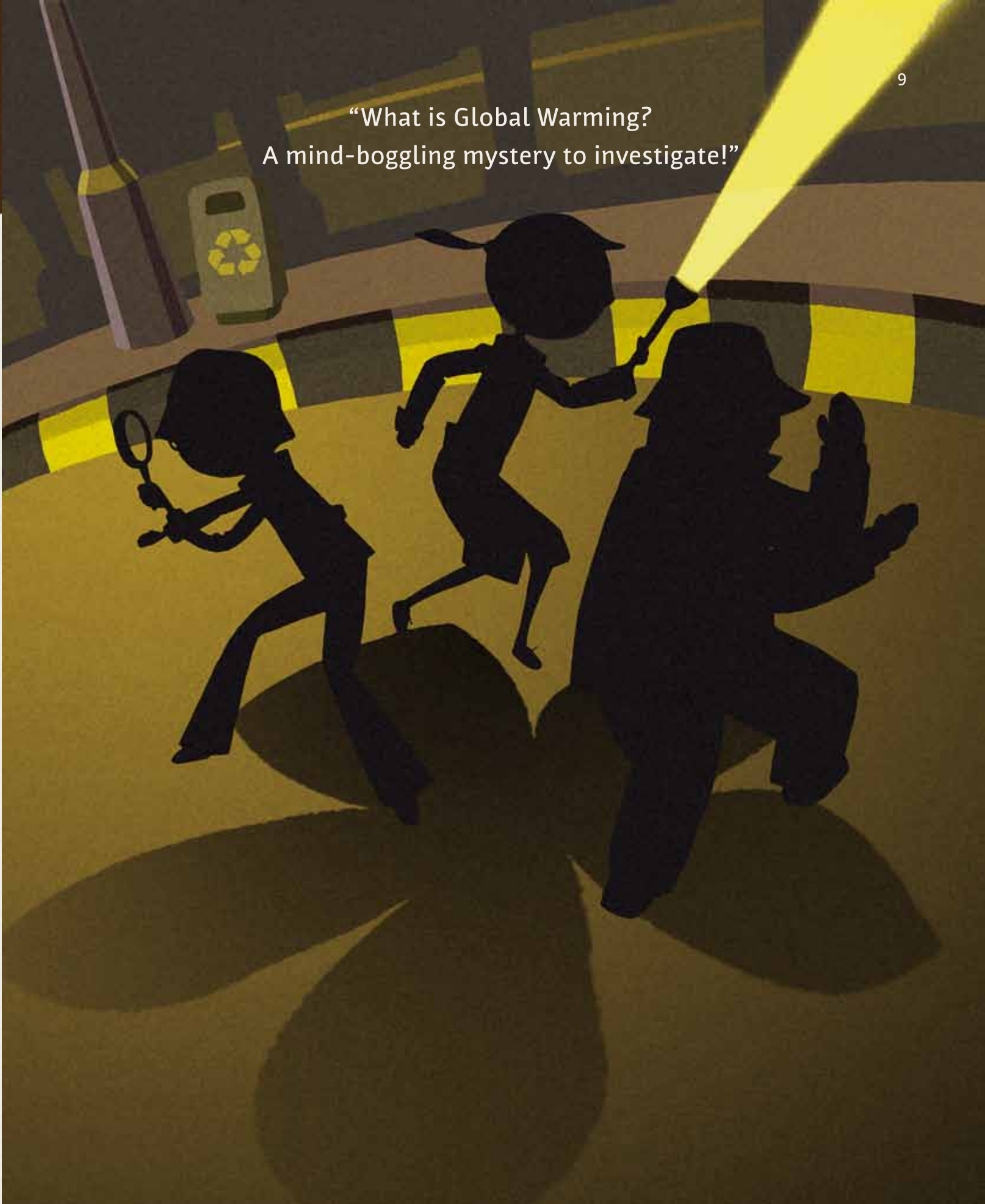
**Answer:** No. The weather is what it is like today. It can be sunny or rainy today. The climate is the average weather of a place measured over many years. It tells us what the weather is usually like in a place during a certain time of the year.



For example, Harbin in Northern China usually has a cold and sometimes snowy climate and Hainan Island in Southern China has a warm and humid climate.



“What is Global Warming?  
A mind-boggling mystery to investigate!”









The Atmosphere hugs the Earth closely like a layer of skin. It is the air around us. It is a big blend of gases like

Nitrogen, Oxygen and Hydrogen as well as greenhouse gases like Carbon Dioxide ( $\text{CO}_2$ ) and Methane. Greenhouse gases help trap the sun's heat, keeping the Earth warm.

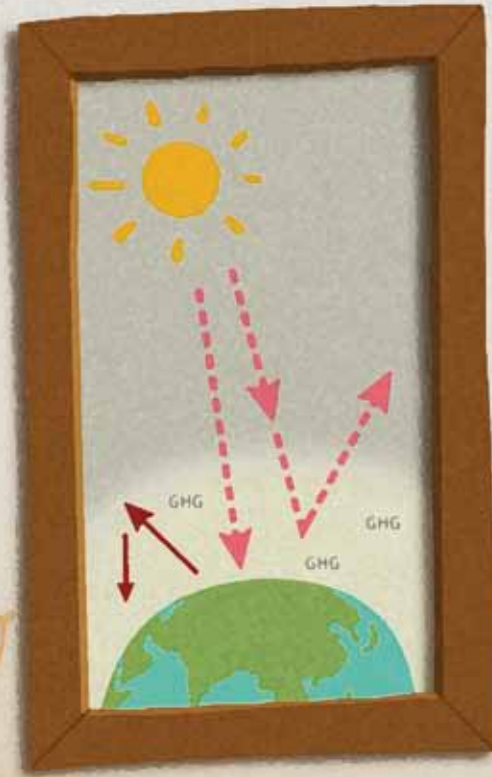
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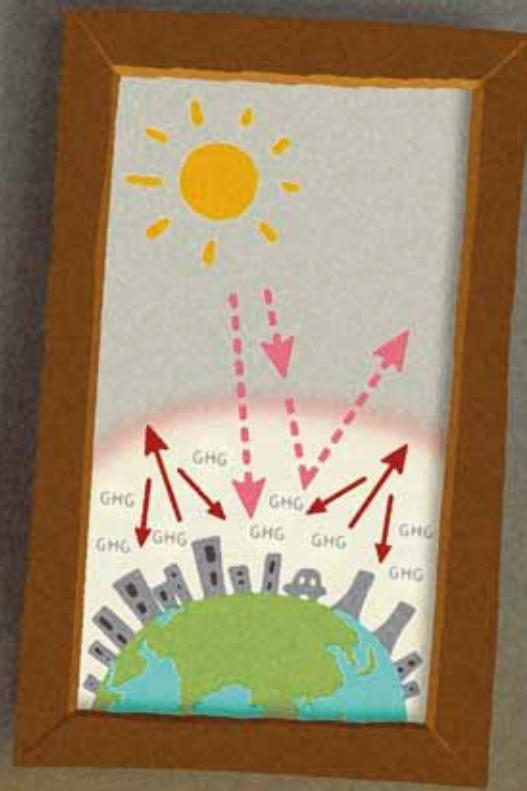
Over the last 100 years, the Earth has become warmer due to more greenhouse gases being released into the Atmosphere.

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Actually, greenhouse gases (GHGs) are not bad. Having the right amount of greenhouse gases will keep the Earth snug and warm, like a nice, cosy blanket.



Over the years, more and more greenhouse gases



When we have too much greenhouse gases, it becomes too hot. It feels like you're sleeping under a very thick blanket on a hot summer's night.



have been released into the Atmosphere.



SEARCH: greenhouse gases



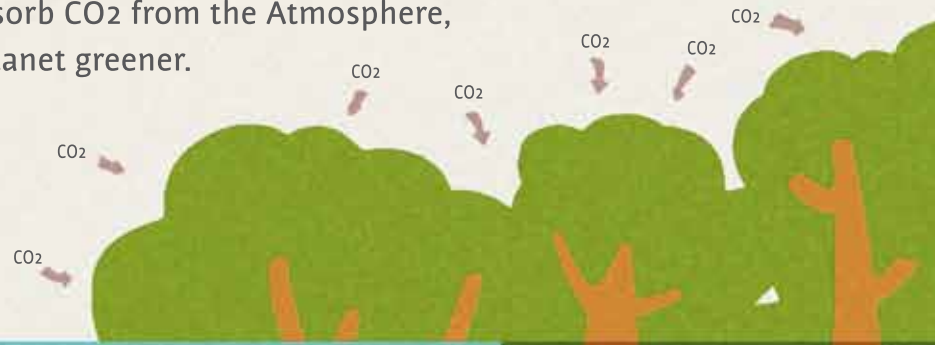
International scientists have discovered that Global Warming is caused by greenhouse gases that are released into the atmosphere by people.



Burning fossil fuels like gas, oil and coal releases greenhouse gases like CO<sub>2</sub> (Carbon Dioxide) into the Atmosphere.



Trees help absorb CO<sub>2</sub> from the Atmosphere, making our planet greener.



Sadly, large forests of trees have been cut down to make space to build things.



It only takes a few minutes to cut down a tree, but it takes many years for a tree to grow to its full size.

“Sob... sob...!”









“Why are people so worried about Global Warming?”


“So what if the world’s climate is getting warmer?”

“Let’s find out what the fuss is all about.”



Many animals have lost their homes.





To the ends of the Earth in our flying machine,  
over oceans and mountains, valleys and streams.  
From gentle egg yolk-yellow dawns,  
to sunsets of fiery tangerine.

THINK GREEN

Do you know that white snow  
helps reflect some of the Sun's  
heat back into Space?  
As the Earth gets warmer,  
more snow will melt into water.  
Water traps more of  
the Sun's heat on Earth.

A shrinking ice cap, a fallen tree.  
What will my new address be?  
Don't send postcards or letters my way.  
Yes, it's sad that I won't be able to stay.

Hurricanes and heat waves, seem very severe;  
nature's more confused from year to year.  
Random sunshine, fickle snow;  
the weather's gone mad. Don't you know?

The rivers here are drying up;  
the lake looks like an empty cup.



There will be droughts in some places...



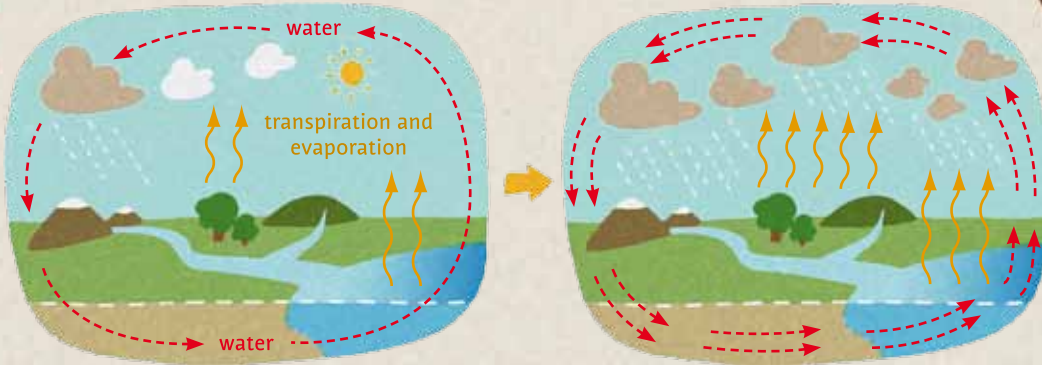
... and big downpours in others.



Windshield wipers working hard;  
flooding at the supermart.  
Thunderstorms and heavy rains;  
floating cars on two-way lanes?

THINK GREEN

What happens to the weather when the Earth gets warmer?



As the Earth gets warmer due to global warming, more water evaporates and more clouds are formed. This can lead to heavier rain in some areas and snowstorms in other places.


Heat also causes the air and clouds to move around a lot more. That is why rain and snow may no longer fall over the same areas.



“We’re just little kids. The problem seems too big to fix! Why do we even bother trying?”







Well, no bun is too big  
for me to eat. All it takes  
is many small bites!

You're right, Big Bao.  
We know what is causing  
the Earth's problems.  
There are hundreds of small  
things we can do to help.

You don't need special powers to be a superhero.



A superhero can be someone who takes everyday actions to achieve great things.



Electricity is made when people burn gas, oil and coal.

This releases more greenhouse gases into the Atmosphere. The less electricity we use, the better it is for our planet.

Make small adjustments to save electricity where you can.

1. Turn off the switches whenever you can.



2. "Energy-saving" items use less electricity. Look for labels with the national standard.



You will save more electricity with the Green grade and less with the Red grade. Saving electricity will also help you save money.

3. Think about other ways to save electricity.
4. When you need to use electricity, using less and sharing is best.



# Which is better for the planet?

1.



vs.



2.



vs.



3.



vs.



4.



vs.



## Where do things come from?

Buy and use only what you need.

Lots of energy and things are used to make the food we eat, the clothes we wear and the stuff we use.

Think about using things again instead of throwing them away.

1.

Don't waste things.



2.

Reusing and recycling things is good for the planet. Be creative. Think of new uses for old things. Take good care of your things and make them last longer.



3.

Buy food and things with less packaging. Try to use less packaging at home and at school.



After shopping, have a look at the packaging on the food and things your family has bought. Are any of the layers of packaging unnecessary?



THINK GREEN

Everything that we have and use comes from this planet. There are billions of people living here and we all have to share the Earth.

We should use things carefully so that we don't run out of them too quickly.



4.

Try to use less plastic bags when you shop. Bring your own bag to carry the things you buy.



5.

Sort and separate your trash. Some places have separate trash bins for cans, paper and plastic items. The people who bring the trash away can make sure the rubbish is taken care of in a way that is not harmful to the Earth.



6.

Carry your own water bottle where you can instead of buying bottled water.



## Going places!

Walk or ride a bicycle over shorter distances. Take shared public transport when you can. Car pool with friends whenever you can.





Trees absorb CO<sub>2</sub>, making the air cleaner and our planet greener. Plant a tree.



Paper is made from trees. Help save existing trees by using less paper.

THINK GREEN

Paper from more than a billion trees is thrown away every year. Save paper.

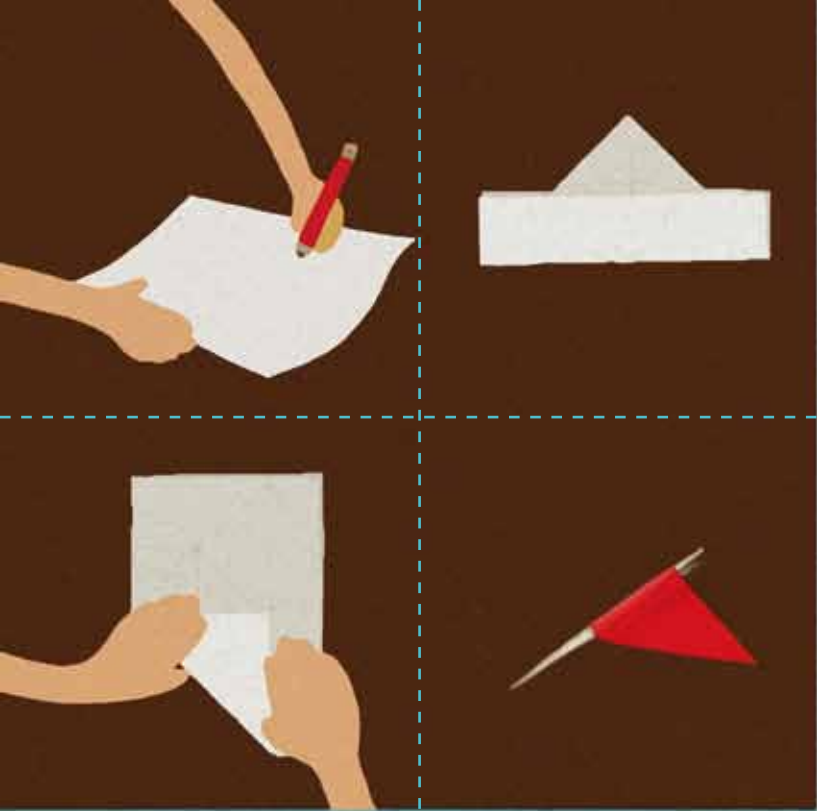


If you and I can do so many things, imagine what a hundred, a thousand, a million or even a billion people can do.









Change starts with you...



... and me.



“Look! It’s a boat!”



# Glossary

**Global Warming**

(say: glo-bal warm-ing)

Global warming is an increase in the average temperature of the Earth's Atmosphere.

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**Fuel**

(say: few-L)

A fuel is something that produces energy.

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**Fossil Fuel**

(say: foh-serl / few-L)

Fossil fuel comes from the remains of plants and animals that were alive, millions of years ago. These remains (such as skeletons and shells) were buried deep beneath the Earth's surface. Over time, they became carbon-rich fuels such as coal, oil and natural gas, which can be used to produce energy.

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**Carbon**

(say: car-bern)

Carbon is an important element that is found in all living things. Carbon forms can look quite different, for example a diamond is transparent and graphite is opaque and black.

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**Carbon Dioxide**

(say: car-bern / die-ock-side)

Carbon Dioxide is created when a Carbon atom is combined with two Oxygen atoms. Plants use Carbon Dioxide in the air to make their own food. Carbon Dioxide can be a gas in the air. It can also be solid and hard when it is frozen into 'dry ice'.

---

**Coal**

Coal is a fossil fuel. It is a black or brownish-black rock that can be readily burnt to give energy. Coal is the biggest source of energy used to create electricity.

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**Hurricane**

(say: hurry-cane)

A hurricane is a big tropical storm that is formed over warm ocean waters. A hurricane can bring strong winds, heavy rains and big waves from the sea.

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**Heat Wave**

A heat wave happens when you have many days, weeks or months of very hot weather, that does not normally happen in that place.

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**Drought**

(say: drout)

When there is a drought, there is not enough water in the area. This is usually because there has been little or no rain over months or even years.

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**Electricity**

(say: e-lek-tree-city)

Electricity is a type of energy. It can stay in one place or move from one place to another. The electricity in our homes comes from other sources of energy such as coal, nuclear or solar energy.

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# Guide for Parents and Teachers

WHAT'S UP WITH THE EARTH?—THE MYSTERY OF EARLY SPRING was created out of a desire to educate the younger generation about the problem of Global Warming and to empower them to do their part to make a difference.

We would encourage you to embark on an educational journey with your child / students to further explore some of the fundamental concepts in this book. Here are some suggestions for follow-up activities and ideas on how you can guide your child / students to continue learning beyond this book. Enjoy the journey of discovery!

## Part 1 Learn about the planet and how it affects people

- Write a short (futuristic) story on how Climate Change can affect the lifestyles and livelihoods of the people in your local district.
- Conduct a case study of another country with a very different climate. Discuss what kind of adjustments you would need to make if you lived in this country.

## Part 2 Explore how people can affect the planet

- How do people contribute to the problem of Global Warming in your city/town?
- What was the climate like in your neighbourhood many years ago? Ask children to speak to their parents and grandparents to find out if they have noticed any changes to their neighbourhood's weather patterns in the past few decades.
- Do a simple 'Energy Audit' at home or in school. Make a list of all the electrical appliances used and classify them according to whether they have low or high energy consumption. Take note of the respective length of time each electrical item is normally used on a daily basis. Consider how they can help to minimise or optimise the usage of these electrical items and thus reduce the energy consumed.
- Think about where things come from. What kind of raw materials are needed to make these things? For example, paper comes from trees that have been chopped down and manufactured in a factory that used a lot of energy to make the paper.
- Follow the rubbish trail and explore the issue of wastage. Where does all the rubbish we produce go? How does all this rubbish affect the earth?

### Part 3 Why is Global Warming a problem?

- To better understand the effects of storms and droughts, explore the basics of the water cycle. Show children how water can be solid (ice cubes), liquid or gas (steam when heated). Explain the concepts of evaporation and condensation.
- Think about the effects of Global Warming in places far away. If all of the ice caps melted in the Arctic, think about how that would affect you in your country?

### Part 4 What can we do to help the planet?

- Go on a trip to the supermarket or department store. Think about which items are more environmentally friendly and why. How many items come packaged in wasteful plastic or boxes that are thrown away as soon as they are opened?
- Conduct creative brainstorming sessions to explore how you can all do your part to reduce Global Warming at home, in school and in your neighbourhood. Allow children to use their imagination to offer suggestions and alternative approaches. They may surprise and amaze you with their thoughts and solutions.



Doing our bit to help the planet can be overwhelming. It involves change, effort and sometimes, sacrifice. Children should be encouraged to take baby steps and to start off with one or two things that they can do. Let's empower our children to be part of the solution and not part of the problem.

Spring arrives early in the neighbourhood  
of Poppy, Big Bao and Li'l Bean.  
The weather seems to have gone mad.

Join this curious trio as they go on  
an exciting adventure around the world  
to discover **What's Up With The Earth.**

Learn about the problem of  
Global Warming and what we can  
all do to save the planet.



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