For Rafael, and all you world changers out there; let's all be the change we want to see.

Georgina Stevens

To Mum, Dad and Dean for your endless support and inspiration.

Katie Rewse

The world is an ever-changing place and the people within it are capable of incredible things; discoveries are made, records are broken, new facts are found and history recovered. We will be happy to revise and update information in future editions.

The Forest Stewardship Council® (FSC®) is an international, non-governmental organisation dedicated to promoting responsible management of the world's forests. FSC operates a system of forest certification and product labelling that allows consumers to identify wood and wood-based products from well-managed forests and other controlled sources.

For more information about the FSC, please visit their website at www.fsc.org

Waterless Printing is a type of lithographic printing that eliminates the water or dampening system used in conventional printing. It uses a special silicone rubber coated printing plate, special ink, and a controlled temperature on the press. As a result, it eliminates dampening related VOCs from the printing process, and therefore doesn't contribute to ozone depletion and global warming.

LITTLE TIGER
LONDON

360 DEGREES
An imprint of the Little Tiger Group
1 Coda Studios, 189 Munster Road, London SW6 6AW
www.littletiger.co.uk • First published in Great Britain 2021

A CIP catalogue record for this book is available from the British Library

ISBN: 978-1-83891-161-4 • CPB/1800/1657/1120
2 4 6 8 10 9 7 5 3 1

CONTENTS

FOREWORD

Ever since I planted my first tree at the age of seven, I have envisioned a world where we will live in harmony with nature – a world where we will put people and our planet before profits. This kind of world will only be possible if we start viewing the climate crisis as an emergency. Mother nature has repeatedly warned us that we need to start treating her better, but we have continued to ignore her. Everyone should be held accountable for the consequences of failing to act. It's not fair to leave young people and future generations to clean up a mess that they did not create.

Growing up in the most forested region in Kenya – Nyeri County, made me love nature and connect to it at a young age. It broke my heart when I saw or read about how the world's forests were being destroyed, how the lakes, rivers and oceans were becoming a soup of poison flowing with plastic waste, and how the climate crisis was negatively impacting people around the world. Everything was happening so fast and I was greatly worried about the future of our planet. Therefore, I decided to become a voice of change.

We who see the urgency must continue to rise up, act, speak up, and demand urgent climate action. We are the only hope and we must keep fighting to secure a livable world now and a safe future.

Elizabeth Wathuti

Elizabeth Wathuti is a celebrated environmentalist and climate activist. She raises environmental awareness through her social media platforms and has showcased her climate action solutions in over 10 high-level international conferences. Elizabeth is Head of Campaigns and Daima Coalition Coordinator at the Wangari Maathai Foundation. Elizabeth is the fourth recipient of the Wangari Maathai Scholarship Award and founder of Green Generation Initiative (GGI). She is a member of The Greenbelt Movement, board member of the Elephant Neighbors Center and a youth council member of the International Reserva: The Youth Land Trust. Elizabeth is also a UN young champion of the earth and a commonwealth youth awards finalist.

INTRODUCTION

This book is about changing the world for the better.
It's about how we all have the power to make a real difference.
And it's also about the many incredible young people, just like you, who are already taking action at a time when change is most needed.

Earth is home to many millions of different species of animals, plants and organisms, as well as some amazing habitats. We are very lucky to live on such an incredible planet. But our world is changing fast, and we are in the midst of a climate and biodiversity crisis.

This book will help you to understand what climate change means for us and for the future of planet Earth. We will look at the causes and how the natural world is being affected, and explore the ways in which our lifestyles can impact the planet.

Most importantly, this book will show you some of the positive and effective actions that are being taken to combat climate change and loss of biodiversity, from tree-planting to campaigning. And you will meet some amazing young changemakers from all over the world who have taken matters into their own hands. There's even a handy glossary at the back in case you come across any words you don't know.

The ideas in this book might inspire you to take action, to learn more or to come up with ideas of your own. Even small changes can have a big impact, because it is likely that they will encourage others around you to make changes too. As a small gesture, we will be planting a tree for every copy of this book sold in the UK. Thank you for taking the time to read this book.

Georgina Stevens

CAUSES

THE MAIN REASONS FOR THE CLIMATE CRISIS AND A GLIMPSE INTO THE FUTURE

CLIMATE CHANGE

Climate change describes a shift in Earth's weather patterns over a long period of time. These include more frequent and powerful extreme weather events, rising temperatures and changes to rainfall sequences. Our climate is transforming faster now than it has for the last 1,000 years.

GLOBAL WARMING

Global warming is the long-term rise in temperatures across the world. The average surface temperature on Earth is now 1.1°C (1.9°F) higher than it was between 1850 and 1900, before large-scale fossil fuel burning began.

WHY IS THE CLIMATE CHANGING?

Most greenhouse gases, such as CO_2 and methane, occur naturally in the atmosphere. They are able to trap heat – without them, Earth would be a chilly -18°C (0.4°F), rather than our average temperature of 15°C (59°F). Unfortunately, many of our activities over the last 100 years have increased the levels of all of these gases. This means that they are trapping more heat than ever before, changing the climate and making the planet a lot hotter.

THE GREENHOUSE EFFECT

Earth receives energy from the Sun, and the greenhouse gases in our atmosphere naturally stop some of this solar energy from being reflected back into space. The greenhouse gases act a bit like a blanket and as we produce more of them, the blanket gets thicker. This prevents the heat from escaping and increases temperatures on Earth.

ATMOSPHERE

'Carbon dioxide' and 'CO_2' mean the same thing. We will use both terms interchangeably throughout this book.

CAUSES

Natural causes of global warming do exist – the Sun's strength varies over time and Earth's orbit shifts, which changes the amount of sunlight it receives. However, the main cause is the increase in greenhouse gases being leaked into the atmosphere, mainly through the burning of fossil fuels.

FOSSIL FUELS

Oil, coal and gas are fossil fuels. They were formed over millions of years from decomposing organisms. When we burn fossil fuels to make energy, greenhouse gases are released into the air.

GREENHOUSE GASES

In 2019, we pumped over 43 billion tonnes (47 billion short tons) of carbon dioxide alone into our atmosphere. The major sources of greenhouse gases are shown below. Are you surprised by any of them? Thinking about your own life, is there something you could change which would help to reduce your own contribution to our rising emissions?

The biggest cause of rising greenhouse gases is our burning of coal, natural gas and oil to produce electricity and heat for buildings.

We burn a lot of fossil fuels to make and build things. We also produce plenty of greenhouse gases directly when we make materials such as cement, ammonia and metals.

When trees are cut down and burnt to make way for agriculture, they release the CO_2 that they have absorbed during their lifetime. Livestock farming produces a lot of methane when animals burp and fart!

Vehicles are responsible for a lot of fossil fuel burning. There are now more than one billion combustion engine cars on the roads.

Gas leaks from oil and gas pipes and coal mines produce a significant amount of global greenhouse gases.

Many people still burn fossil fuels directly to cook with or to heat their homes.

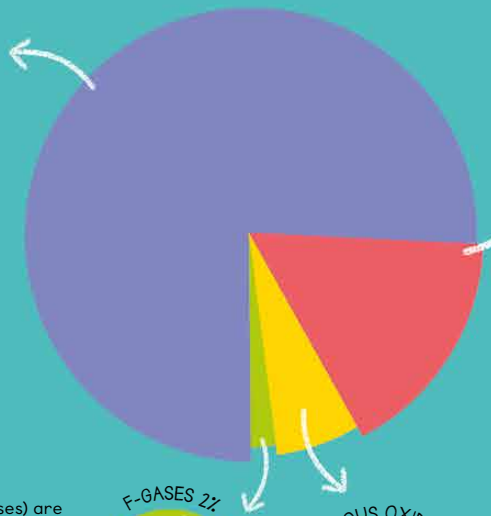
Methane is released from landfill sites from rotting rubbish, and waste water treatment causes other greenhouse gases to be produced.

WHAT CAN WE DO?

Talk about climate change, global warming and greenhouse gases with your friends and family, and ask your school to cover it in more detail.

THE GREENHOUSE GASES IN OUR ATMOSPHERE

Carbon dioxide is the least potent of the greenhouse gases, but we have produced far too much of it from burning fossil fuels, and it remains in the atmosphere for thousands of years.



Methane can hold much more of the Sun's energy than CO_2, making it more able to warm our planet. Luckily, it only sticks around for about ten years, but there are large stores of it in the ice and in the seabed, which could heat things up really quickly if released. Two thirds of methane comes from decaying waste in landfill, burping and farting livestock, and leaks from fossil fuel mining.

Fluorinated gases (F-gases) are the most potent greenhouse gases. They can stay in the atmosphere for up to a thousand years. They are found in fridges, air conditioning units and aerosols.

Nitrous oxide is a powerful greenhouse gas because it stays in the atmosphere for about 100 years and damages the ozone layer. About 40% of nitrous oxide in the atmosphere is the result of human activity, mainly agriculture.

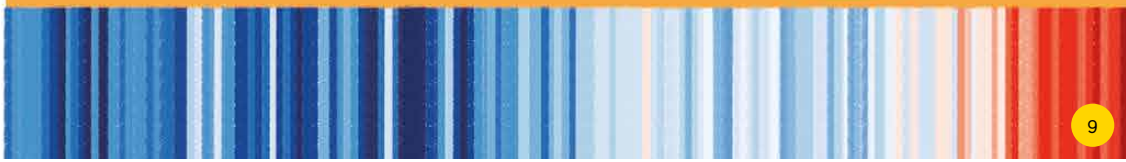
HISTORY REPEATS ITSELF

The amount of carbon dioxide in the atmosphere is measured in parts per million (ppm). In 2019, concentrations of CO_2 were around 415ppm and are predicted to rise to 427ppm by 2025. The last time Earth experienced a similar level of CO_2 was 15 million years ago; humans didn't exist, temperatures were 2-3°C (3.6-5.4°F) hotter and the sea level was up to 20 metres (65ft) higher than it is now.

WARMING STRIPES

The warming stripes, devised by British climate scientist Ed Hawkins, show annual temperatures from 1850 to 2019, with darker reds representing the warmest years. They make it clear that it has got a lot warmer over the last 15 years!

1850 2019



DID YOU KNOW?

One third of all methane is naturally produced by peatland, wetlands and farting termites! Termites produce tiny amounts of methane but it adds up to some 20 million tonnes (22 million short tons) each year because there are so many of them!

MINING

Mining is the removal of minerals and metals from the Earth. It causes pollution, loss of biodiversity and soil and it can displace people. Illegal mines are common and particularly damaging to the environment.

DEEP-SEA MINING

Companies now want to mine the ocean floor, which could release a lot of stored carbon and lead to significant loss of biodiversity. But it could also help us find solutions for storing renewable energy. What would you do if it was your decision? Perhaps we need to mine the information further...

WHAT DO WE MINE AND WHY?

METALS

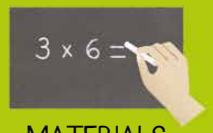
Copper and iron are used for building. Gold and silver are precious metals.

FOSSIL FUELS

Coal, oil shale, petroleum and gas are burnt to create energy.

GEMSTONES

Diamonds, rubies, sapphires, emeralds and other precious stones are used for jewellery.



MATERIALS

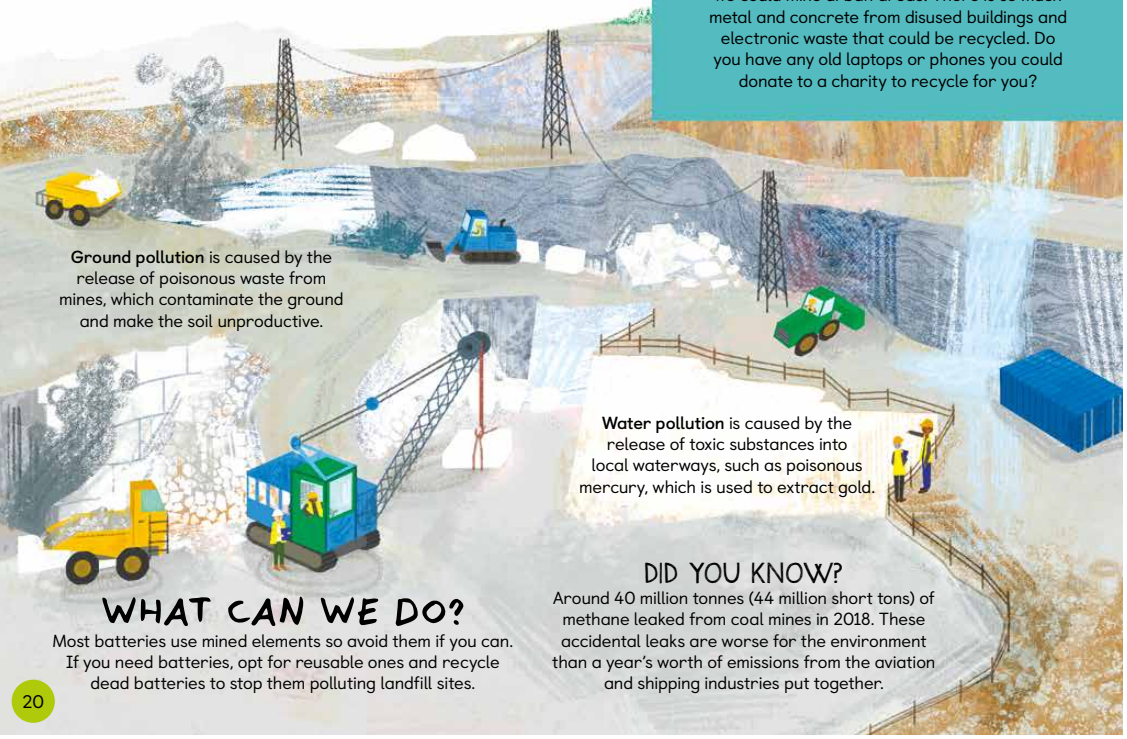
Minerals are used to make fertilisers, as well as beauty and health products. Chalk and limestone are used for building.

NEGATIVE IMPACTS

Air pollution can occur when minerals are exposed and toxic materials are released. It can be very dangerous for animals and humans.

URBAN MINING

Instead of digging up precious ecosystems, we could mine urban areas! There is so much metal and concrete from disused buildings and electronic waste that could be recycled. Do you have any old laptops or phones you could donate to a charity to recycle for you?



Ground pollution is caused by the release of poisonous waste from mines, which contaminate the ground and make the soil unproductive.

Water pollution is caused by the release of toxic substances into local waterways, such as poisonous mercury, which is used to extract gold.

WHAT CAN WE DO?

Most batteries use mined elements so avoid them if you can. If you need batteries, opt for reusable ones and recycle dead batteries to stop them polluting landfill sites.

DID YOU KNOW?

Around 40 million tonnes (44 million short tons) of methane leaked from coal mines in 2018. These accidental leaks are worse for the environment than a year's worth of emissions from the aviation and shipping industries put together.

EFFECT

THE WAYS IN WHICH OUR WORLD IS CHANGING

WILDFIRES HEAVY RAINFALL DROUGHTS FLOODING EXTREME STORMS HEATWAVES

WHAT CAN WE DO?

Read about how climate change is affecting other countries to get a better view of the issue.

CLIMATE IN CRISIS

Evidence of the climate crisis is all around us today; every continent is affected. These are just a few examples of events which have occurred in the last few years. Unfortunately, the economically poorest countries are the hardest hit and the most vulnerable to climate change.

GLOBAL

24 million people were displaced from their homes due to natural hazards in 2016, most of them linked to disasters made worse by climate change.

ARCTIC

The Arctic is warming at least two and a half times faster than the global average rate. This is making soils drier, ice melt faster and causing increasing wildfires. Rapid ice melt is affecting the ability of indigenous people to hunt and to access resources they need. It also means polar bears are able to hunt for far fewer days each year, impacting their numbers and ability to have babies.

NORTH AMERICA

Alaska's hottest year on record was 2019, while glaciers in western North America (excluding Alaska) are melting four times faster than they were ten years ago. Since 1970, temperatures in the western USA have increased by double the global average.

EUROPE

The hottest decade since records began was 2010–19. France, Germany and Switzerland had the warmest year on record in 2018, while Russia experienced its highest ever temperatures in 2019.

MIDDLE EAST

In 2019, Lebanon suffered terrible wildfires, made worse by a heatwave and strong winds.

Continuing droughts in Syria have been the worst in 900 years, forcing millions of people to move elsewhere.

EAST ASIA

Each year, there are about 40 severe storms in the Western Pacific. In 2018 this led to hundreds of thousands of people being left homeless in China and the Philippines.

OCEANS

In 2019, the seas were the hottest on record, with most of them experiencing one or more marine heatwaves.

SOUTH AMERICA

Wildfires burnt 8,900km² (3,436mi²) of the Amazon Rainforest in 2019. Scientists fear the forest will stop producing enough rain to sustain itself and start to release billions of tonnes of CO_2.

AFRICA

Hundreds of millions of people living in extreme poverty here will be put in grave danger by climate change, despite having contributed the least to the crisis. In South Africa, 2015 was the driest year on record; the drought lasted two years. Africa has had its ten hottest years since 2005, but extreme heat is not the only issue – Marrakesh had 13 times its monthly rainfall in just one hour in 2015.

Droughts and extreme heat have left millions of people in Africa without enough food.

SOUTH ASIA

In 2018, Kerala in India experienced the worst flooding since 1924 due to unusually high rainfall during the monsoon season. Around a million people were evacuated; many lost their homes. In the last ten years, South Asia has had its hottest years since records began. On average there have been 35 cyclones each year in the Indian Ocean.

ANTARCTICA

Antarctica has lost as much sea ice in the last four years as the Arctic has lost in 34 years. It is not known if this has been caused by climate change. Without the ice helping to reflect the Sun's rays back into space, the heat of the Sun will be absorbed by the sea, causing it to heat up even further.

AUSTRALIA

Australia has experienced its ten warmest years on record since 2005, with 2019 the hottest and driest. Wildfires swept across the country and one billion animals were killed. New coral growth on the Great Barrier Reef fell by 89% after mass coral bleaching in 2016 and 2017.

WILDFIRES

Wildfires are uncontrolled blazes over land. They have been occurring naturally for millions of years, ignited by heat from the Sun or lightning strikes. Nowadays, around 90% of wildfires are caused by human carelessness, and climate change has been increasing their strength, number and length. This is because warmer temperatures make the land drier and more susceptible to fire. When plants and trees burn, they release large amounts of carbon dioxide, which contributes further to climate change.

DEADLY BLAZES

Australia's 2019/20 wildfires killed over one billion animals, 33 people, and destroyed at least 180,000km² (111,850mi²) of land. During the fires, smoke blanketed 80% of the population.

IN A GOOD LIGHT

Surprisingly, wildfires can sometimes be good for native vegetation because ashes are full of nutrients and feed the soil. In fact, some trees need the fires. Giant sequoia trees depend on the heat of the flames to split open their seeds, which allows them to grow. Wildfires can also clear weeds and non-native or diseased plants and insects.

Indigenous people have been managing off-season fires for a long time – burning leaves and old wood, and creating breaks in the forest, which prevent mega fires. Insects and animals can take shelter in the tree canopies. However, in ecosystems where wildfires are uncommon, they harm plant and animal life and damage infrastructure.

MIND THE GAP

Grazing animals or growing crops in the forest can slow down big fires by creating gaps in the trees and removing dead wood and leaves which can act as fuel for the fires.

DID YOU KNOW?

Wildfires are now happening as far north as the Arctic. 100 forest fires broke out in this region in June and July 2019 alone. The June fires in 2020 produced the same amount of CO_2 as Norway does in a year.

LiDAR TECHNOLOGY

Smart technology such as LiDAR (light detection and ranging), which measures distances and maps 3D objects is being used to predict wildfires, alongside a growing network of cameras watching high risk areas.

changemaker

Anna Grace Hottinger
Minnesota, USA

Anna Grace was 15 when her sister was evacuated from a wildfire in California. This event encouraged her to protest against her government. She strikes every week and is involved with a climate group called Minnesota Can't Wait.

WHAT CAN WE DO?

Take great care around dry areas of land and forest and do not use anything with a flame. If you see a wildfire, report it immediately.

If you live in a wildfire zone, research the things that could reduce the spread of a fire, such as keeping your plants watered and removing dead plants and leaves.

Research indigenous knowledge about the natural world from your country and beyond. What can you find out that could be useful today?

A HOTTER WORLD

In 2019, global temperatures reached an average of 1.1°C (1.9°F) above pre-industrial levels. If we continue to create the same amounts of fossil fuel emissions, by around 2040 temperatures will rise by another 0.5°C (0.9°F). And by 2100 the increase could reach 4°C (7.2°F). Drastic emission cuts could help us stay within 1.5–2°C (2.7–3.6°F) of warming.

WHAT'S ALL THE FUSS ABOUT?

Half a degree may not sound like very much but the difference between a world that is 1.5°C (2.7°F) or 2°C (3.6°F) warmer will be life changing for humans, animals and ecosystems...

CORAL BLEACHING

How much will we lose?

1.5°C (2.7°F) 70% vs 2°C (3.6°F) 99%

DROUGHT

How many people in cities will be affected by 2100?

1.5°C 350 million people vs 2°C 410 million people

ECOSYSTEM LOSS

How much will we lose?

1.5°C 7% vs 2°C 13%

SPECIES LOSS

How many plants and animals will we lose?

1.5°C 6% insects 8% plants 4% vertebrates vs 2°C 18% insects 16% plants 8% vertebrates

RISE IN SEA LEVEL

How much of the global population will be impacted by 2100?

1.5°C 46 million people 48cm (18.9in) sea level rise vs 2°C 49 million people 56cm (22in) sea level rise

EXTREME HEAT

How much of the global population will be exposed every five years?

1.5°C 14% vs 2°C 37%

What do we need to do to stay within 1.5°C (2.7°F) of pre-industrial temperatures?

BY 2030
Cut emissions by at least 50%

Stop burning fossil fuels

Roll out renewable energy

Plant lots of trees and remove CO_2

BY 2050
Emissions at net zero or below.

We do not know for certain that achieving net zero will stop our world from warming beyond 1.5°C (2.7°F).

Everyone will need to make changes – hopefully you will already be seeing changes when you read this. And as the young people featured in this book show, individuals can make a HUGE impact. What will you change?

Net zero means that the carbon emissions we produce are matched by activities that remove them from the atmosphere.

OUR PART

HOW WE'VE CONTRIBUTED TO THE CLIMATE CRISIS, AND IDEAS FOR MEANINGFUL CHANGE

OUR CARBON FOOTPRINT

A carbon footprint is the calculation of the total amount of all of the greenhouse gases produced through a given activity, person, country, business or product. Most activities produce carbon dioxide, even just breathing, so the idea of reducing your footprint might sound challenging at first!

THE SUM OF ALL PARTS

To understand the entire footprint of a product, we need to look at the emissions caused in every stage of its production and use. Let's look at the footprints of some everyday items.

KEY

- MATERIAL
- MANUFACTURE
- DISTRIBUTION
- USE
- DISPOSAL

'CO_2e' is shorthand for carbon dioxide or equivalent greenhouse gases.

TOILET PAPER - 730g (25.5oz) CO_2e

The biggest piece of this footprint is manufacturing (the processing and bleaching of the paper).

JEANS - 6kg (13.2lb) CO_2e

The manufacturing process and the use of the jeans (washed around 70 times in their lifetime) are the biggest factors. The material plays a part too, due to the fertiliser and energy used to grow and harvest the cotton.

SHAMPOO - 16.6kg (36.5lb) CO_2e

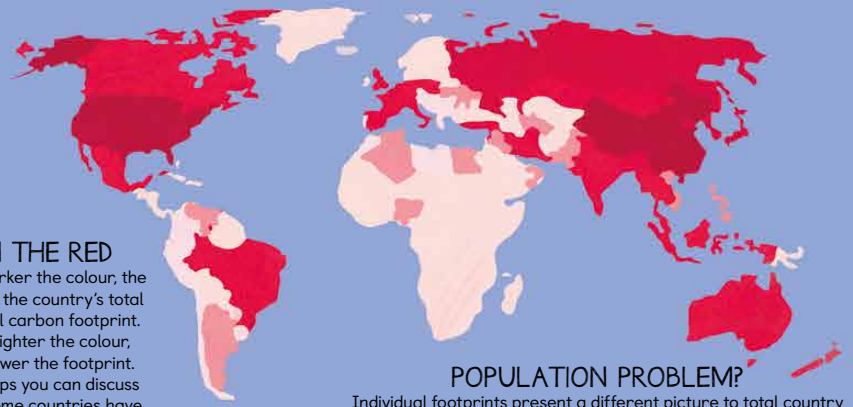
The greatest impact comes from our use of it, which is likely to be in a hot shower where a lot of energy is needed to heat the water.

SPORTS BAG - 35.3kg (77.8lb) CO_2e

Manufacturing is by far the biggest part of the footprint, as it will have involved spinning, weaving, dyeing and finishing.

FOOTPRINTS OF COUNTRIES AROUND THE WORLD

Today, China has the largest total carbon footprint of any country – accounting for more than one-quarter of global CO_2. However, a large amount of China's footprint comes from making products for people around the world. China is followed by the USA (15%); the European Union (10%); India (7%); and Russia (5%).



IN THE RED

The darker the colour, the bigger the country's total annual carbon footprint. The lighter the colour, the lower the footprint. Perhaps you can discuss why some countries have higher footprints than others with your friends?

POPULATION PROBLEM?

Individual footprints present a different picture to total country footprints because many countries export goods or services that their people do not use. Countries with bigger populations often have low footprints per person; so the problem is not simply our growing numbers, it is more to do with what we consume.

The global average carbon footprint per person per year is **4.7 tonnes** (5.1 short tons) CO_2.

CLIMATE INJUSTICE

A UK resident will emit the same amount of CO_2 in five days as someone in Rwanda does in a whole year! Yet overall, climate change is affecting countries with smaller carbon footprints more severely than those countries with higher footprints.

North Americans and Canadians have the biggest average footprints – over **15 tonnes** (16.5 short tons) per person each year!

Sub-Saharan Africans have the smallest average footprints – around **0.1 tonnes** (0.1 short tons) per year for each person.

changemaker

Azza Abdel Hamid Faiad Alexandria, Egypt

When Azza was 16, she learnt that oil was not only damaging the environment but it was also very expensive for many people. She decided she needed to find a cheaper and sustainable alternative. So, after lots of research she discovered an inexpensive way to turn plastic waste, which Egypt has plenty of, into useful biofuel, and she won an award for her work.

WHAT'S YOUR FOOTPRINT?

There are lots of calculators out there but the good ones will ask you about the most important things that you do that produce greenhouse gases, such as what you eat, how you travel, what type of home you live in, how you heat it and the things you buy. Take a look at the World Wildlife Fund's calculator: **www.footprint.wwf.org.uk**. None of these calculators can take everything into consideration, but they are still useful.

WHAT CAN WE DO?

Cut down on flying. One long haul flight produces more carbon emissions than the average person in Burundi or Paraguay produces in a year.

Eat less meat and if you have pets, reduce or cut out their meat too. A vegan diet could reduce your carbon footprint by up to 20% but just cutting out beef will make a big difference too!

Heat and cool your home efficiently. You could save 320kg (705lb) of CO_2 a year by turning the thermostat for the heating down a degree.

Where possible, walk or cycle instead of getting in the car. Cutting out 8,050km (5,000mi) a year in the car will save more than a tonne of CO_2 – about 15% of the global average annual footprint.

Try to switch off electrical appliances when not being used. You can save 30kg (66lb) of CO_2e every day by switching all of the power off at night in your house.

For a low-carbon snack, look no further than the banana! Grown in natural sunlight, transported by boat and without packaging, one banana produces about 80g (3oz) CO_2e.

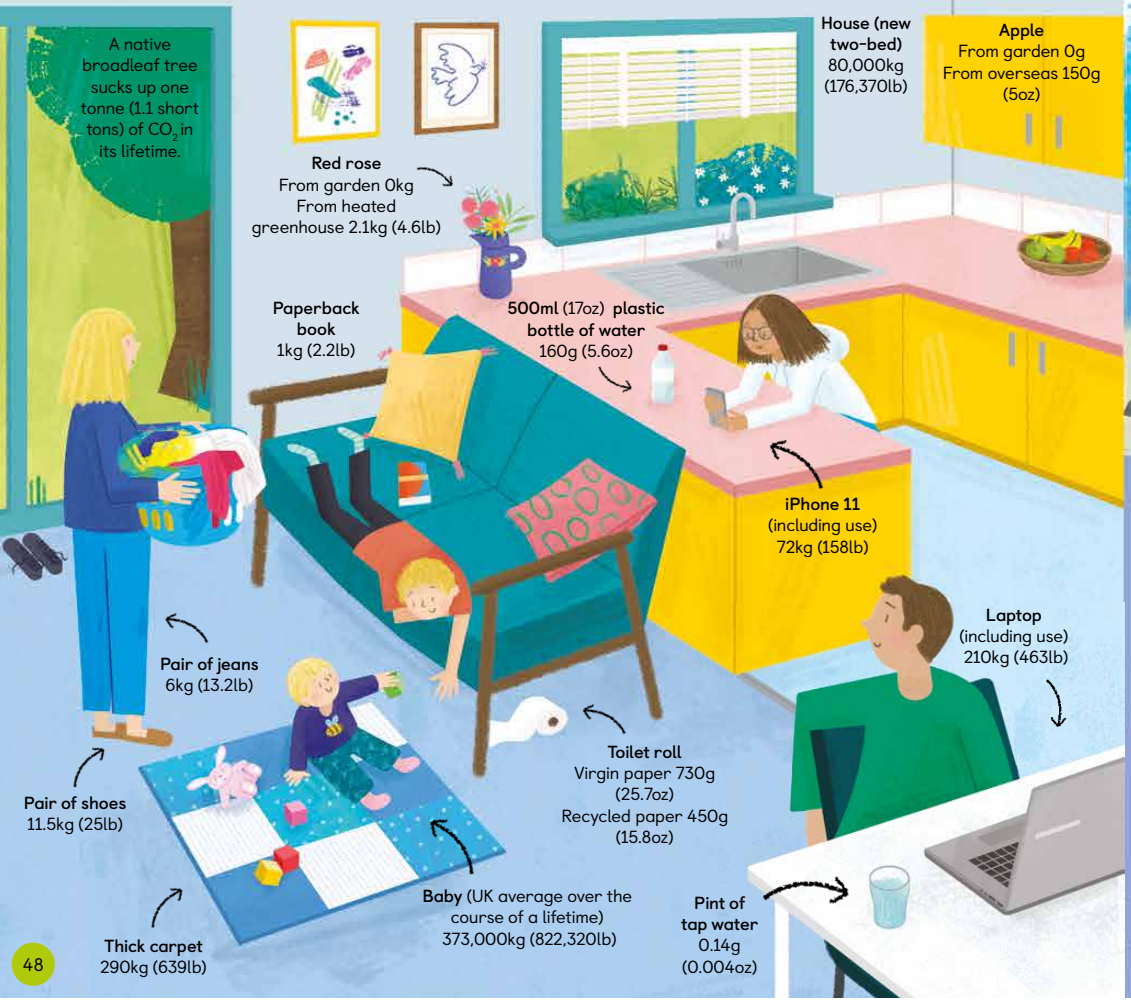
Calculate your family's carbon footprint – and be honest!

OUR STUFF

Almost every single thing around us has a carbon footprint and makes an impact on our world. From the chair you are sitting on, to a pen, to this book. If you added up the carbon footprint of everything in the room you are in now, you might be surprised at how big the number is...

THE HIDDEN CARBON COST

These figures are estimates of the footprints of some of the products (and people!) around us. They show the amount of greenhouse gases produced, handily transformed into kilograms of CO_2e, so we can compare them. They take into account what the products are made of, how they were produced and transported, and how we use and dispose of them.



WHAT A LOAD OF RUBBISH

What do you put in your rubbish bin that could be useful to someone or used for something else? Maybe that packaging could be used in a craft project? And that old toothbrush can be sent to a recycling programme (or used to clean your shoes!).

CIRCULAR ECONOMY

More companies are making their products using waste materials now, which is great news for the planet. Look out for skateboards made from old bottle tops, surfboards made out of old plastic bottles and wetsuits made from... old wetsuits!

SHOPPING CHALLENGE

Do you think you could live for a whole month without buying anything new, other than food? Why not give it a go with your family – you might be surprised at how much fun it is to salvage things, buy second-hand or borrow from friends.

PLASTIC PROBLEM

When plastic ends up in the ocean, most of it sinks to the deepest parts and is buried in sediment on the sea floor. Over time it breaks down into tiny microplastics and even smaller nanoplastics, which can get into the bloodstreams and cells of creatures, including us...

SAVE THE TURTLES

It is thought that more than half of all sea turtles have eaten plastic. A good reason to avoid single-use plastics wherever you can.

DID YOU KNOW?

The OceanHero search engine will clean one plastic bottle from the ocean for every five searches you carry out!

WHAT CAN WE DO?

Charity shops are great places to find new (to you!) books, clothes and toys. You can also donate anything you no longer want.

Have a look in your recycling bin to see if it contains single-use items that you could swap in future for reusable or waste-free alternatives.

Find out if there is a Library of Things close to you. You can rent almost anything from there at very low cost.

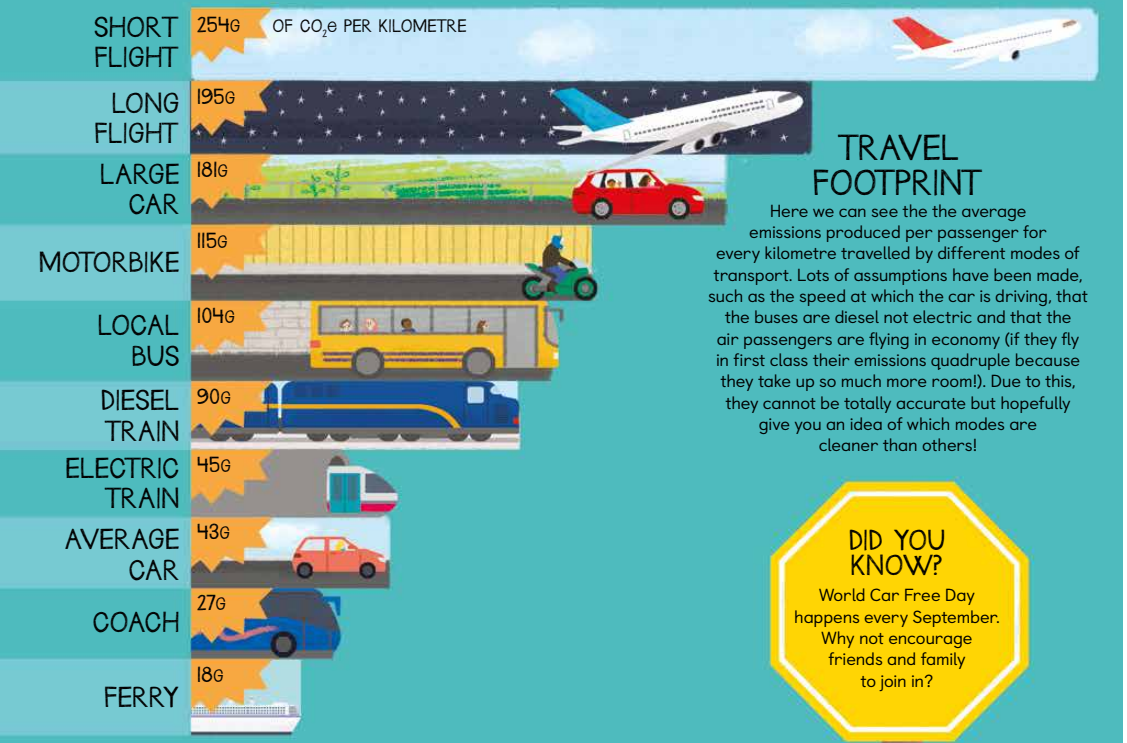
changemakers

Qier Qiu, Shanghai, China

Qier Qiu and her school friends realised how wasteful disposable chopsticks were, and began chatting to people about the environmental benefits of reusable ones. They encouraged over 5,000 people to use reusable chopsticks and even developed a cleaning product for them! And in return they won a prize to help their school go green.

OUR TRAVEL

Travel can take us to see the most amazing places on Earth, but it can also have a big environmental footprint. The good news is that there are so many different options for how we can get around now, some with much lighter footprints than others. And remember, the journey is all part of the fun, so pack light (because this will also reduce your impact), get your seat by the window and enjoy.

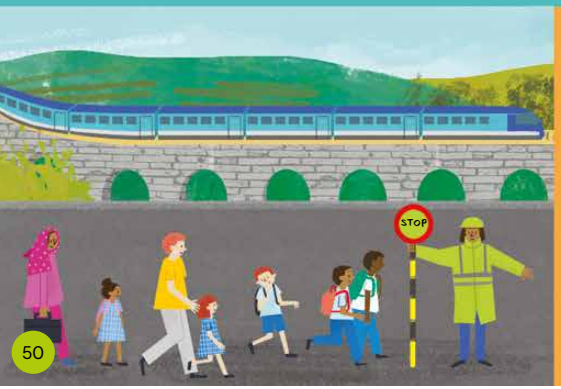


TRAVEL FOOTPRINT

Here we can see the the average emissions produced per passenger for every kilometre travelled by different modes of transport. Lots of assumptions have been made, such as the speed at which the car is driving, that the buses are diesel not electric and that the air passengers are flying in economy (if they fly in first class their emissions quadruple because they take up so much more room!). Due to this, they cannot be totally accurate but hopefully give you an idea of which modes are cleaner than others!

DID YOU KNOW?

World Car Free Day happens every September. Why not encourage friends and family to join in?



WHAT CAN WE DO?

Try slow travel on your next holiday. Take the train instead of flying, and the bus instead of a taxi, if you can. If you really want to get to know somewhere, stay with locals.

Use public transport, walk or cycle wherever you can. Some cities offer free public transport now to help keep air pollution down. Cycling is the most efficient form of transport. With the same amount of energy, you travel three times faster by bike than by foot! You could hire an electric bike for a longer journey.

If you are planning a trip and want to find out the most carbon efficient way to get there, take a look at **www.ecopassenger.org**

INSPIRATION

LET'S MEET SOME MORE AMAZING YOUNG PEOPLE AND TALK ABOUT YOUR FUTURE...

GROUNDBREAKERS

Greta Thunberg, Sweden

In August 2018, 16-year-old Greta started protesting outside parliament in Stockholm with a sign saying, "School strike for climate". People started to join her, and by March 2019, 1.6 million children had gone on strike around the world, demanding action. In September 2019, Greta inspired more than four million people to take part in a global climate strike.

"There is hope – I've seen it – but it does not come from the governments or corporations, it comes from the people."

Ayakha Melithafa, South Africa

Ayakha is a spokesperson for the African Climate Alliance and has called for an immediate suspension on the extraction of coal, oil and gas in South Africa.

"People who are older aren't paying as much attention because they will not be as affected. They don't take us seriously, but we want to show them we are serious."

Jaden Anthony, USA

When he was just nine, Jaden wrote *Kid Brooklyn*, a graphic novel series that strives to introduce children to environmental and social issues.

"I want to teach kids about their responsibility for protecting our environment against global warming, over-fishing and pollution."

Xiuhtezcatl Martinez, USA

Xiuhtezcatl has been a climate activist since he was six. He is the youth director of worldwide conservation organisation Earth Guardians and he makes hip-hop music about climate change.

"The future of our generation is at stake."

Mone Fousseny, Mali

Mone has been part of the Citizens Boycott – raising awareness about how boycotting certain multinational products can be helpful to the environment.

"I want to tell the people of planet Earth [...] that we are all [...] responsible for global warming. There is still time to act locally, in our homes, our villages, our cities."

Oscar Alateras, Australia

Oscar had decided that he would study climate change further and then do something about it after university. But at the beginning of 2018, he realised that he didn't need to wait. He has now written a book – *The Truth About Our World*.

"We are never too young to change our world for the better."

Zach Haynes, UK

When Zach was ten, he started a hugely popular environmental blog. He has written articles, given interviews and talks, and contributed to workshops about how nature organisations can better engage young people. Zach is also a young ambassador for the #iwill4nature campaign.

"I have found support on social media and learnt that by joining up with others we can make a big difference."

Nadia Nazar & Jamie Margolin, USA

These friends were 16 when they co-founded Zero Hour – a youth-led climate organisation – with two other friends. They organise strikes, marches, lobbies and festivals, and also raise money.

"We must speak out because it is our lives that are on the line. I am especially proud of building a movement that is run by women of colour."

Brianna Fruean, Samoa

Aged 11, Brianna became a founding member of the environmental group 350 Samoa – the organisation's youngest country co-ordinator.

"The young people of the Pacific are now experiencing what young people around the world will experience tomorrow. [...] Our slogan is: 'We're not drowning. We're fighting.'"

Marinel Sumook Ubaldo, Philippines

Marinel lost her house and all her belongings after super typhoon Haiyan hit the Philippines. She then testified in court against some of the world's biggest energy companies, attempting to prove their part in climate change.

"I want world leaders to commit to minimising greenhouse gases. I want them to help vulnerable countries adapt to the unavoidable effects of climate change."

ABOUT THE CREATORS

GEORGINA STEVENS - THE AUTHOR

Georgina is a sustainability advisor, writer and campaigner. She advises organisations and individuals on how they can have a positive impact on our planet. She also organises Be The Change events to help people step into their power and understand how we can all effect major change, even through small actions. And when she's not writing, you can find her forest bathing or planting things. **www.georginastevens.org**

I wanted to show my son Rafael how powerful we all are in making positive change, so I wrote him a funny story about a shark and plastic pollution, and that is how I started writing children's books. I also really wanted to showcase how many amazing people there are around the world already doing incredible work to safeguard our wonderful planet. And that is where the idea for *Climate Action* came from. The hardest part, while doing research for the book, was choosing which young people to include because there are so many of them – all so unique and impressive! I cannot thank them enough for their efforts and energy.

KATIE REWSE - THE ILLUSTRATOR

Katie is an illustrator based in Bournemouth, on the South coast of England, where she studied for both her BA and MA in illustration. Katie is particularly interested in how illustration can be used to inspire positive change and she finds inspiration in the outdoors, travel and adventure. **www.katierewse.com**

Looking after our home, planet Earth, is really important to me. As an outdoor adventurer and nature enthusiast, protecting the things that I love seems only natural. The more I have learnt about climate change though, the more I am challenged by the bigger picture and the concerns for how future humanity will be affected. We are incredibly lucky to live on Earth, and it is only fair that future generations should be able to enjoy this home too.

TREE PLANTING PROJECT

A tree will be planted for each copy of this book sold in the UK, through the TreeSisters charity. Their mission is to restore the Earth through tropical reforestation and they are working towards a goal of planting a billion trees a year. So far, TreeSisters have planted many millions of trees across Kenya, Madagascar, Brazil, Cameroon, Nepal, West Papua, Mozambique and India. Part of their work is with women; they offer educational tools, resources, courses and community with the aim to empower and inspire women to take leadership roles in environmental protection and restoration. **www.treesisters.org**