

The logo for 'Fun Kids' is located in the upper left quadrant. It features the words 'Fun Kids' in a stylized, rounded font. 'Fun' is in red with a white outline, and 'Kids' is in blue with a white outline. There are small star-like symbols on either side of the text.

Fun Kids

The main title 'CLIMATE HEROES' is centered in the image. 'CLIMATE' is on the top line and 'HEROES' is on the bottom line. Both words are rendered in a large, bold, yellow font with a dark blue outline and a halftone dot pattern. The text is superimposed over a central graphic of a globe with green continents and white polar ice caps, which is framed by a white, stylized outline resembling a superhero's head or a shield.

# CLIMATE HEROES

The text 'SCHOOLS PACK' is positioned at the bottom of the image. It is written in a bold, white, sans-serif font and is contained within a bright pink, rounded rectangular shape that has a slight 3D effect.

SCHOOLS  
PACK

## INTRODUCTION

World leaders are gathering in Glasgow from November 1st as part of COP26, a conference where they'll tackle the challenges of climate change.

In celebration of climate action, Fun Kids - the UK's children's radio station - has compiled a fortnight of climate change coverage and has made this work pack for schools across the world.

It's an 'Eco Assembly' all about climate change, intended to be delivered to a mixed age group. It can also be used as a lesson plan for classes.

There's a slideshow that accompanies this pack. [FunKidsLive.com/COP26](https://www.funkidslive.com/COP26) is the place to go to find out more about what Fun Kids is doing and download more climate change resources, including educational videos and more.

## WHAT ARE WE LEARNING?

In this assembly we are going to look at what climate change is and how humans are adding to it. Then, we're going to learn how we can help reduce the impacts of climate change and what scientists are doing to help.

Please remember to think about the environment before printing this work pack. All of the resources are available online for free for both school and personal use and worksheets can be printed individually from the pack.

**Fun Kids is the UK's children's radio station.**

DAB Digital Radio • Free Fun Kids app • [FunKidsLive.com](https://www.funkidslive.com) • Ask your smart speaker to "play Fun Kids"

### WHAT'S HAPPENING?

Sometimes when people say the climate is getting warmer it sounds quite nice... Most of us would love a warm summer! But it isn't that simple.

Weather and climate are different things. Here's a video from Fun Kids' very own explorer - Marina Ventura - who is going to show the difference between weather and climate...



### RESOURCE

**What's the difference between weather and climate?**

[FunKidsLive.com/marina](https://www.funkidslive.com/marina)

Everything on Earth is connected. For example, as the climate warms this is melting glaciers in Antarctica, this has a knock on impact as it causes rising sea levels which can lead to floods in other places on Earth. So a nice hot English summer isn't as nice as it sounds when it impacts so many other things.

Places near the sea could be at risk because they are near high tide causing entire nations to disappear. It also affects our fresh drinking water supply as sea water comes into contact with fresh water.

Other places will face droughts caused by climate change making the weather very hot and dry. A drought is when we don't have enough water needed to drink or grow food.

Climate change is a big factor behind wildfires in California and Australia that you might have seen on the news last year.

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### EXPERIMENT

Put a block of ice in a Tupperware with a cup of water and mark on the Tupperware with a marker where the water level is. Revisit this later in the day and see where the level is as the ice melts.

You can improve this experiment further by placing a pyramid at the bottom of the Tupperware submerged and marking where the water reaches. Explain to children that as the water rises it means part of the pyramid will become underwater just like countries will if the sea level rises where they are.

## ALREADY, WE'RE SEEING THE EFFECTS OF CLIMATE CHANGE



### Coral reef bleaching

The main cause of coral bleaching, which is when the coral loses its colour, is climate change. A warming planet means a warming ocean, and a change in water temperature – as little as 1 degree– can cause coral to drive out algae which colours it.



### Wildfires

Climate change increases the risk of the hot, dry weather that is likely to fuel wildfires. Extreme fire weather events including increased lightning and strong winds, are also becoming more common under climate change.



### Flooding and extreme weather

Flooding is predicted to become more extreme. It may be worst in Bangladesh due to cyclonic storm surges. Much of the nation is exposed, as 80% of Bangladesh is flood plain. The majority of the country is a metre or less above sea level.

### CLIMATE CHANGE IS...

There are lots of factors that contribute to Earth's climate. However, scientists agree that Earth has been getting warmer in the past 100 years due to human activities.

Certain gases in Earth's atmosphere block heat from escaping. This is called the greenhouse effect because they keep Earth warm like the glass in a greenhouse keeps plants warm.

The main gases responsible for the greenhouse effect include carbon dioxide, methane, nitrous oxide, and water vapor.

These gases occur naturally but human activities are adding more to the atmosphere through activities such as burning fuel to power factories and cars, farming animals. These changes cause the atmosphere to trap more heat than it used to, leading to a warmer Earth.

We are also getting rid of the things that help absorb greenhouse gases from the atmosphere like the rainforest by burning it to create land for cattle, animal feed and palm oil.

Sometimes we might not see the impact we make for example when we turn on the car we don't immediately see the impact the fossil fuels have or when we buy a new coat we don't think about the factory burning fossil fuels that's made it. When we eat our lunch we don't think about the process of growing plants, feeding the animals and transporting the food to the supermarket but almost everything we do impacts the climate at different levels.

### EXPERIMENT

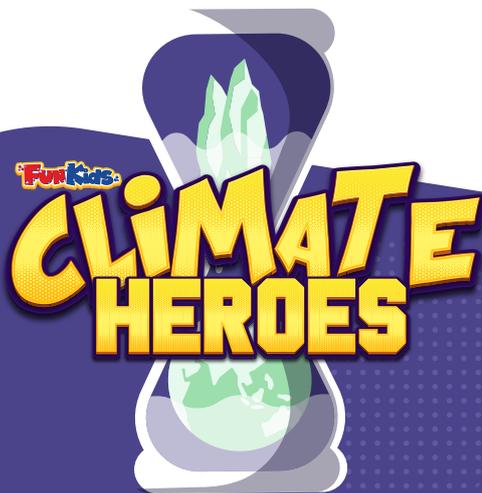
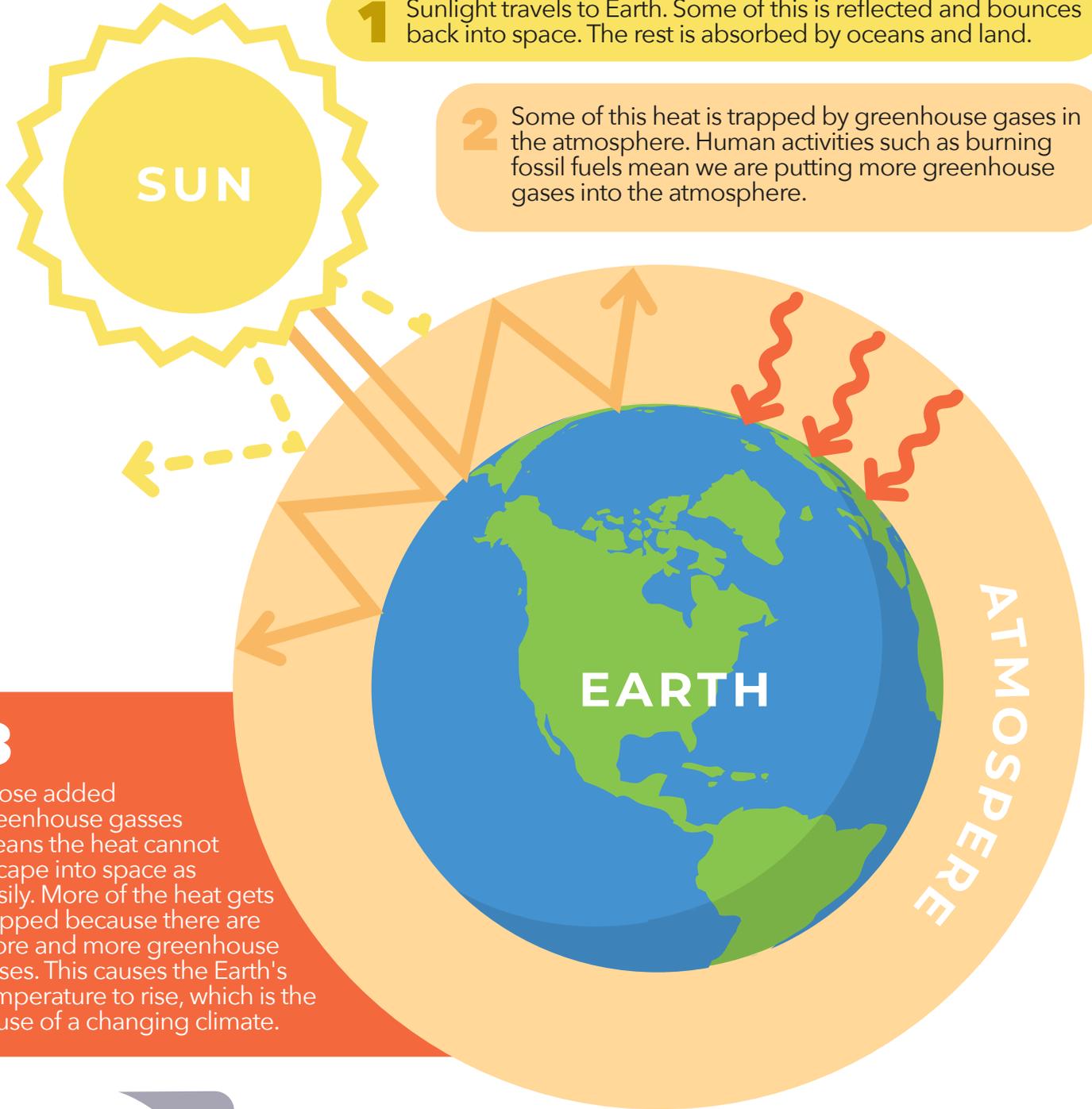
Place one thermometer in an upturned vase and another thermometer outside the vase and see which one has a higher temperature after one hour. It should be the one in the upturned vase.

# THE GREENHOUSE EFFECT EXPLAINED

**1** Sunlight travels to Earth. Some of this is reflected and bounces back into space. The rest is absorbed by oceans and land.

**2** Some of this heat is trapped by greenhouse gases in the atmosphere. Human activities such as burning fossil fuels mean we are putting more greenhouse gases into the atmosphere.

**3** Those added greenhouse gasses means the heat cannot escape into space as easily. More of the heat gets trapped because there are more and more greenhouse gases. This causes the Earth's temperature to rise, which is the cause of a changing climate.



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### WHAT ARE GREENHOUSE GASSES?

**Carbon dioxide (CO<sub>2</sub>)** is all around us. In nature humans and animals produce it when they breathe and volcanoes emit it too. Burning fossil fuels and deforestation, when forests are cut down, has meant we are adding extra CO<sub>2</sub> to the air and in massive amounts. There's more carbon dioxide in the atmosphere today than at any time in the past three million years.

**Methane** is a natural gas emitted by animals (including humans) when we trump! Methane is also produced by wetlands and volcanoes. Humans are increasing the methane in the air through cattle farming, landfill waste and mining coal. Together with CO<sub>2</sub>, it's one of the main greenhouse gases causing global warming.

**Water vapour** is water in its gas form. When you boil a kettle you will see steam which is water vapour. Normally water vapour in the air comes from the sea and rivers. Power stations also release a lot of water vapour. Also as the planet gets warmer more water turns into water vapour.

**Sulphur dioxide** is pollution that's created from fuels used in power plants and vehicles.

**Nitrous oxide** does occur naturally and is actually very important to the nitrogen cycle. However humans are making too much of it through vehicles, power stations and to put on crops that humans and farm animals eat.

### CAN WE STOP CLIMATE CHANGE?

Some impacts of climate change are already happening, such as the coral bleaching and bushfires we saw at the start of assembly, but we can stop them getting worse and work to protect the planet, people and animals from further damage.

### WHAT CAN WE DO?

You might be too young to vote but that doesn't mean you can't tell your local MP or councilors your concerns and make sure they know climate change is a big worry for you.

**Write a letter to your local politician telling them why climate action is important to you.**

Lots of politicians will be meeting at the 2021 United Nations Climate Change Conference, also known as COP26, in Glasgow until 12 November 2021. You might want to write to your MP to ask the UK representatives to commit to change which can help slow climate change.

Other people may be trying to convince the government, people or companies to make changes by protesting.



## WHO IS GRETA THUNBERG?

Greta is a Swedish environmental activist who challenges world leaders to take action on climate change.

< Greta holds a sign that translates to "School strike for climate"

Thunberg's activism, which means campaigning, began by persuading her parents to adopt lifestyle choices that reduced their own carbon footprint.

In August 2018, at age 15, she started spending her school days outside the Swedish Parliament to call for stronger action on climate change by holding up a sign reading School Strike for Climate. Soon other students started similar protests in their own communities. Together they organised a school climate strike movement under the name Fridays for Future.

**Campaigning can be a really good way to try and create climate change action**

### **SUPPORT PEOPLE WHO NEED IT NOW**

Some places are already experiencing the impacts of climate change on their lives. You can support charities which help people suffering due to climate change and also support campaigns to save the rainforest and protect the ocean which are really important to the Earth.

**Find a charity that's working to combat climate change.**

### **REFUSE, REDUCE, REUSE, REPAIR, RECYCLE, ROT**

Everything we use has an environmental impact. An environmental impact is when something we use changes nature and our world. Everything we use has a different environmental impact. Driving a car burns fossil fuels which causes carbon dioxide to enter our atmosphere, this adds to the greenhouse effect and then this causes to climate change. You can learn more about this in our Greenhouse Effect Worksheet.

Things we use can have other environmental impacts too. For example, products made from plastic can end up in our ocean and damage sea life. We need to think about the things we use and use less things which have a negative or bad impact.

One way to think about the things we use is to look at the 6 Rs:  
REFUSE, REDUCE, REUSE, REPAIR, RECYCLE, ROT

Let's look at them in more detail...

### **REFUSE: SAY NO TO WHAT YOU DON'T NEED**

The best way to reduce the environmental impact of what we use is to consider if we need to use it at all.

Ask yourself "Why am I buying this item?" or "Why do I need this?" For example, make a personal commitment to say NO to plastic bottles. Whenever getting a drink use your refillable bottle and refuse a drink if you know it is in plastic.

### **REDUCE: ONLY GET THINGS YOU NEED**

Do you really need those new trainers or do the ones you have still fit?  
Do you already have toys at home you can use rather than buying new ones?  
Can you walk instead of getting in the car?

### **REUSE: USE SOMETHING AGAIN**

Reusing things can save time and money as well as energy and materials. For example, you could fill old food jars with leftovers. Use library books which are reused all the time instead of buying a book that will only be read once. If you get a present, you can take off the wrapping paper carefully and use it again.

### **REPAIR: MAKE DO AND MEND**

If your cardigan is missing a button then buy a button and sew it on instead of buying a new item. If something is broken at home ask if it can go to a repair shop and be fixed rather than replacing the whole item.

If we repair more things we own they last longer and we are not having to create as many things which damage the environment.

### RECYCLE: MAKE MATERIAL INTO NEW THINGS

You've probably recycled before. Maybe by putting your cereal box in the paper bin. Recycling is when our rubbish gets turned into new products. You might notice some plastic bottles and paper being made from recycled materials.

Unfortunately, most of our waste doesn't get recycled. The government says 45% of our waste gets recycled which still means that most goes to landfill or is burned. Thousands of tonnes of our household plastic packaging which we put in our recycling bins ends up in waste incinerators in the UK where it is burned releasing lots of nasty chemicals into the air.

Some people say the amount of things getting recycled is even lower than 45% because more than half of our plastic recycling is sent abroad where some plastic waste we think is being recycled is actually dumped or burned illegally. Plastic that has been dumped can end up in our oceans where it harms animals and pollutes the sea.

Recycling is really important when it is done correctly but remember it is also important to refuse, reduce, reuse and repair before we consider recycling.

### ROT: COMPOST

You can put old food scraps like banana skins and tea bags in a compost bin where they will break down into compost. If you have a garden, then a worm farm is a fun way to rot your food waste. The worms will break down your food in no time and produce worm juice when they wee and poo which is really good to put on plants and help them grow.

Remember though we should try and reduce our food waste by only buying what we need, eating up things before they go of and finding ways to eat things we might normally throw away. For example cauliflower leaves can be roasted or eaten in a curry and spring onion end can be places in soil where they will grow into new spring onions within a fortnight!

### WORK OUT YOUR CARBON FOOTPRINT

You might have heard that it is a good idea to reduce your Carbon Footprint. But what is a Carbon Footprint?

A Carbon Footprint is the total greenhouse gas emissions greenhouse gas emissions caused by something. Greenhouse gasses are what is making our planet warmer and causing climate change. Your carbon footprint is a number which shows the amount of carbon dioxide your greenhouse gas emissions equal.

Places, companies, and events can have carbon footprints too. So the school can have a carbon footprint made up from how much electricity it uses, the school dinners we eat and the items we use like paper and pens.

Anything that creates greenhouse gases can be included in your total carbon footprint. For example a pen that was created in a factory that burns fossil fuels has a carbon footprint even if we can't see the fossil fuels that were used when we look at a pen. It's the same with food - a ham sandwich might not seem like it would have a carbon footprint but even things like transporting the ham from the farm to the shop will use fossil fuels.

**Calculate your carbon footprint using an online calculator, or by finding out the carbon cost of your favourite things**

**Do you think tackling climate change and reducing Carbon Footprints should be the responsibility of individual people, companies, governments or all of those answers?**

### WHAT'S ALREADY BEING DONE TO PREVENT CLIMATE CHANGE?

Scientists are always trying to find new ways to help our planet and some are really interesting!

Scientists are looking at **pumping CO2 from the air into porous rock formations** where it can remain safely for thousands of years. Reportedly, up to 90% of emissions could be captured but the technology is very new and still being tested!

One of the more 'fun'-sounding solutions, **giant water cannons at the poles have been proposed** by a physicist in the US. This would involve installing millions of water cannons to shoot seawater onto the surface of the ice sheets where it would refreeze and thereby thicken the ice.

**Drones that plant trees!** A recent study suggested that the most effective method to combat climate change is simply to plant trees – at least a trillion of them, in fact, all around the world. Apparently, we have the space to do this but to achieve the necessary scale, we may need a robotic hand.

**Lab grown meat!** The idea behind it is that producing 'traditional' meat for the entire world requires a huge amount of water, land and feed, plus cows trump greenhouse gases! The UN is encouraging more plant based diets as a means to combat climate change but not everyone wants to swap their cottage pie mince for lentils so lab grown meat could be the answer.

**What are some weird and wonderful ways you can think of? They don't have to be serious - sometimes even the silliest idea (like using water cannons on the ice caps!) can work...**

### REDUCING OUR CARBON FOOTPRINTS

What can we do to reduce our personal carbon footprint? As you now know the different actions we take have different impacts on the environment.

**Walk to School:** Switch up using a vehicle that uses fossil fuels and walk or cycle instead. Not only will the environment thank you but you'll also be keeping healthy.

**Holiday in the UK instead of abroad:** When an airplane flies it releases CO<sub>2</sub> into the air. Flying from London to New York and back generates about 986kg of CO<sub>2</sub> per passenger. In Paraguay in South America this is more than the average person's carbon footprint in an entire year.

Travelling from London to Rome carries a carbon footprint of 234kg of CO<sub>2</sub> per passenger - more than the average produced by people in 17 countries over a year.

**Buy less stuff:** We mentioned it in the 6Rs (Reduce, Reuse, Repair, Recycle, and Rot) but it's worth saying again. If pretty much everything we do creates emissions then choosing to use a bag we already have instead of buying a new one, playing with a toy we have and repairing things that are broken instead of replacing them can have a really reduce our carbon footprint.

**Plant a tree:** Trees breathe in CO<sub>2</sub> and turn it into oxygen - plant a tree and you can help suck that carbon dioxide out of the atmosphere!

**Reduce how much meat you eat or go veggie:** Food's carbon footprint is the greenhouse gas emissions produced by growing, rearing, farming, processing, transporting, storing, cooking and disposing of the food you eat.

Meat, especially lamb and beef, has a high carbon footprint. It is estimated a vegetarian diet has half the carbon footprint of a meat eater's diet and that vegans have the lowest carbon footprint of all diets.

Think about eating less meat - maybe have a veggie school dinner option instead of meat or find ways to reduce the meat you put into something by adding an extra vegetable to your meal like a sweet potato.

If vegetables are locally grown that's even better because it will have less transportation emissions. Look for the British flag on vegetables in the supermarket!

**Wear secondhand clothes:** Clothes create a lot of carbon emissions when they are made, plus some fabrics like polyester are made from plastic which means they release little pieces of plastic into the oceans when they are washed and pollute the sea.

By buying a secondhand coat instead of a new one you are stopping a brand-new item being made and not adding to your carbon footprint.

**Switch off things when you're not using them:** Make sure you turn off the lights in the classroom before you go to lunch, don't leave the oven on for an hour before you put your pizza in and try and find ways to use less electricity.

The good thing about electricity is one day it might all be made from wind power and tidal power which means that no carbon emissions are pumped out. At the moment 46% of electricity comes from eco-friendly energy - these are known as renewable resources.

It's important to know that in richer countries like the UK our carbon footprint per person is usually bigger because more people go on holidays in planes, we generally have more clothes than poorer countries and more people can afford things like central heating - although this isn't the case for everyone in our country.

That's why it's really important richer countries help with climate change related disasters in poorer countries and use their money to fund research.

### RESEARCH THE EFFECTS OF CLIMATE CHANGE

Climate Change has already started to happen all over the world. **Research somewhere that is already being impacted by climate change.**

**Here are some suggestions:**

Coral Bleaching in The Great Barrier Reef, Australia

Rising Sea Levels in Venice, Italy

Loss of Wildlife in The Amazon Rainforest

Rising Sea Levels in Bangladesh

Melting ice caps in Antarctica

**You could take this further and attempt to answer the following questions:**

What was this place like before climate change?

What has happened?

What has caused this to happen?

Will what is happening have impacts on any people or animals?

Is there anything we can do to reverse these problems now?

Do you think this is an important problem and why?

What do you think we should do?

### PERSUASIVE LETTER WRITING

Writing persuasively can be a great way to raise awareness about climate change and letters or emails are the key way we communicate with officials.

Write a persuasive letter to an MP, company or someone you know asking them to make a change which will help combat climate change or saying how concerned you are about climate change.

Some examples could be writing to your local politician to ask them to encourage the government to commit to actions at the COP26 summit, writing to a company guilty of deforestation in the Amazon or asking an energy company to invest in renewable energy instead of fossil fuels.

### PERSUASIVE SPEECH WRITING

You could take this further and write a speech.

Here's a speech from Greta Thunberg. **You can also show the class the video of her speech at [FunKidsLive.com/COP26](https://www.funkidslive.com/COP26)**

*This is all wrong. I shouldn't be up here. I should be back in school on the other side of the ocean. Yet you all come to us young people for hope. How dare you!*

*You have stolen my dreams and my childhood with your empty words. And yet I'm one of the lucky ones. People are suffering. People are dying. Entire ecosystems are collapsing. We are in the beginning of a mass extinction, and all you can talk about is money and fairy tales of eternal economic growth. How dare you!*

*You say you hear us and that you understand the urgency. But no matter how sad and angry I am, I do not want to believe that. Because if you really understood the situation and still kept on failing to act, then you would be evil. And that I refuse to believe.*

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*The popular idea of cutting our emissions in half in 10 years only gives us a 50% chance of staying below 1.5 degrees [Celsius], and the risk of setting off irreversible chain reactions beyond human control.*

*Fifty percent may be acceptable to you. But those numbers do not include tipping points, most feedback loops, additional warming hidden by toxic air pollution or the aspects of equity and climate justice. They also rely on my generation sucking hundreds of billions of tons of your CO2 out of the air with technologies that barely exist.*

*So a 50% risk is simply not acceptable to us – we who have to live with the consequences.*

*You are failing us. But the young people are starting to understand your betrayal. The eyes of all future generations are upon you. And if you choose to fail us, I say: We will never forgive you.*

*We will not let you get away with this. Right here, right now is where we draw the line. The world is waking up. And change is coming, whether you like it or not.*

*Thank you.*

## WRITE YOUR OWN

Imagine you are to give a speech at COP26.

What would you say?

What makes Greta's speech so powerful?

What techniques does she use to communicate her ideas?

How can we use those same techniques in our own speech writing?

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### CREATE A CORAL REEF

A reef is a big group of rocks on the ocean floor, but did you know that a coral reef is actually alive and covered with very small animals called corals that stick themselves to the rocks? This is what makes coral reefs so colourful!

Coral reefs are very sensitive to light and temperature. If the water they live in gets too hot, they might not survive. They also don't like it when the ocean has too much pollution. Sometimes, storms can even upset coral depending on how often they happen and how severe they are. When this happens the reefs eject the algae living on them and turn completely white. This is known as coral bleaching.

**Can you colour in a coral reef?**

**You could create a coral reef from recycled, colourful objects.**

### MAKE A POSTCARD

On one side of the postcard draw a picture which you think will encourage someone who sees it to take climate change seriously. On the other side write what you want to tell world leaders at COP 26.



See the full coverage and get more resources at

**FUNKIDSLIVE.COM/COP26**

# THANKS FOR BECOMING FUN KIDS CLIMATE HEROES.

**Fun Kids is the UK's children's radio station.** You can hear us on DAB Digital Radio, on the free Fun Kids mobile app and online at FunKidsLive.com. You can also ask your smart speaker to "play Fun Kids"

**Fun Kids Junior is our station for pre-schoolers and we also have others** from Fun Kids Naps to Fun Kids Classical, Fun Kids Silly to Fun Kids Party in the Amazon Kids app.

**Part of our mission is to help educate children.** Fun Kids Learn is a section of Fun Kids filled with videos and audio to help children understand the world around them.

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