

# JUNE 2021

## Holiday Programme

For ages 5 to 8 years

### World Warrior

Understand real-world  
environmental issues  
through experiments  
7-9 June



**Student Activity Book**

**Older Learners**



# Day 1: Seasons & Weather

What's your favourite season?



summer

autumn

winter

spring

Write a paragraph about a person who has a problem to solve during one of these seasons. Use the following points to plan out your paragraph. Be sure to include:

- an introductory sentence detailing the name of your character and where they are located: \_\_\_\_\_
- the reason why they are in that location: \_\_\_\_\_
- who they are with: \_\_\_\_\_
- the problem they must solve (shark, avalanche, etc.): \_\_\_\_\_
- how they solve the problem: \_\_\_\_\_
- a closing sentence to end the paragraph: \_\_\_\_\_

# Climate Change

What is climate change? What could happen? Get all the facts you need to know.

BY ALLYSON SHAW

A polar bear walks along a rocky shore, looking for food. The bear would usually be on the sea ice hunting for seals, pouncing when the seal comes up to breathe. But the ice has started to melt earlier and re-form later than it has in the past. Without the sea ice, the polar bear must scavenge for other, less nutritious food.

These changes in polar sea ice are a result of climate change. But this isn't just affecting polar bears—climate change affects everyone.



## What is climate change?

Weather changes day to day—sometimes it rains, other days it's hot. **Climate** is the pattern of the weather conditions over a long period of time for a large area. And climate can be affected by Earth's atmosphere.

Our Earth is surrounded by an atmosphere made up of gases. When sunlight enters our atmosphere, some of the sun's heat is trapped by the gas, and some bounces back out into space. By trapping that heat, our atmosphere keeps Earth warm enough to live on. Without it, our planet would be very cold, like Mars.

The Earth's atmosphere seen from space

PHOTOGRAPH BY NASA

Earth's climate has always naturally cycled through change, caused by how much of the sun's energy was absorbed by the atmosphere. In fact over the past 650,000 years, the Earth has gone through seven ice ages and warming periods.

## What's different now?

But during the past few hundred years, oil, gas, and coal have powered homes, cars, and factories. These energy sources release a gas called **carbon dioxide** (CO<sub>2</sub>) into the atmosphere. This gas traps heat that would otherwise escape

Earth's atmosphere. That increases Earth's temperature, which contributes to the planet's warming.

That's why many scientists agree that the Earth is now warming because of human activity. How do they know? Through careful study, they know that the climate is warming about 10 times faster than the average previous warming times. They've also ruled out the natural factors that caused warming in the past.



Steam coming off of factories  
PHOTOGRAPH BY HUYANGSHU, SHUTTERSTOCK

The Earth's average temperature has increased about  $0.8^{\circ}\text{C}$  in the past hundred years. It doesn't sound like much, but scientists think that the temperature increase has caused melting glaciers, drought, and coral reef die-off. (Coral can't survive in water that's too warm.) They expect the climate will warm another  $.25^{\circ}\text{C}$  to  $4.8^{\circ}\text{C}$  by the year 2100.



The American pika  
PHOTOGRAPH BY TOM REICHNER, SHUTTERSTOCK

### What could happen?

Climate change affects more than temperature. Warmer water changes the patterns of ocean currents, affecting global weather patterns.

Some places will receive more rainfall, which could lead to flooding, while other places will get less, which might

mean drought. Tropical storms could be stronger, and a continuing rise in sea level due to melting polar ice might push people out of their homes.

Hundreds of plant and animal species have already experienced changes because of climate change. The American pika, for example, is a small mammal that lives in cool mountainous areas in western North America—in fact, it can die when exposed to temperatures warmer than  $25.5^{\circ}\text{C}$ . So as the mountain climate heats up, the pika climbs the slopes in search of cooler habitat. But

what happens when temperatures at the top become too warm for the pika?

Other species will benefit from a warmer world—but in some cases that would be bad news for humans. Because disease-carrying mosquitoes thrive in warm, wet weather, more people could contract illnesses such as malaria as the Earth warms.

## What can we do about it?

You can do a lot! It's simple to make a difference to keep the Earth healthy. Try some of these tips to reduce the amount of carbon dioxide you add to the atmosphere.

- Instead of traveling in a car, use public transportation, walk, or ride your bike when you can. Biking or walking 10 miles each day instead of riding in a car can save up to 1.9 tons of carbon dioxide from entering the atmosphere every year.
- Reduce and reuse things as much as possible. Factories emit lots of carbon dioxide when making new products. (Buying products that are made with recycled glass and plastic also emits carbon dioxide, though less so.) Fix your appliances and clothes instead of buying new products. Good thing holey jeans are back in style!
- Wash your clothes in cold water, and hang them to dry.
- Electronics use energy even when they're turned off, so unplug them when you're not using them. It could save your family about \$200 a year on its energy bill.
- Eat less meat and dairy. Farm animals, 'emit' another heat-trapping gas called 'methane.' And some studies have found that livestock account for about half of the world's heat-trapping gas emissions.
- Buy locally grown and in-season foods and products to reduce emissions from transporting products.
- Wear a warm sweater at home in the winter instead of turning up the



Biking can reduce your carbon impact.

PHOTOGRAPH BY MONKEY BUSINESS IMAGES, SHUTTERSTOCK

heat, and open your windows instead of blasting the air conditioning in the summer.

- Talk to your parents and the other adults that you know about climate change. Send a letter or drawing to your town council, member of parliament, or even to the prime minister! These leaders can vote to regulate and reduce carbon dioxide emissions.

Your everyday actions affect people, plants, and animals all over the world—including polar bears! So be cool by doing your best to keep Earth well ... cool!

## GLOSSARY

- **Climate:** The average pattern of weather conditions over a long period of time. Climate isn't weather—weather changes daily.
- **Global warming:** The increase in Earth's average temperature over a long period of time
- **Carbon dioxide:** A gas released by the burning of coal, natural gas, oil, and wood that traps heat in the atmosphere
- **Carbon footprint:** The amount of carbon dioxide one human releases into the environment in a year
- **Fossil fuels:** Coal, oil, and natural gas, which come from the breakdown of ancient plants and animals over millions of years

# Today's Self-Reflection



Today, we made a cloud in a jar! One thing I learnt about clouds was: \_\_\_\_\_

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We also read an article about climate change. One thing I can do about climate change is: \_\_\_\_\_

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Finally, I wrote a paragraph involving the seasons and a problem that my main character must solve.

			
I'm awesome at this!		I feel comfortable with this.	I could use a bit more help with this.
I understand the purpose of an introductory sentence.			
I understand how to add detail to my writing to tell a story.			
I can express myself clearly using correct grammar and punctuation.			

My favourite activity today was: \_\_\_\_\_

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My least favourite activity today was: \_\_\_\_\_

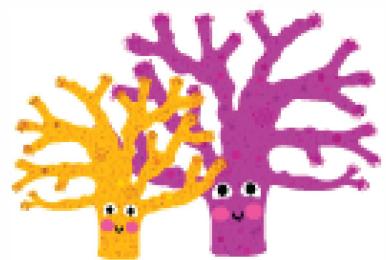
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Overall, I'd give today:



# Day 2: Endangered Animals

If you could choose one endangered species to save, which one would you choose?



Write a paragraph about a creature that you would save from extinction. Use the following points to plan out your paragraph. Be sure to include:

-an introductory sentence detailing the name of the animal you would save:

-3 reasons why you would save the animal: \_\_\_\_\_

-a closing sentence to end the paragraph:

# Declining Biodiversity

Plants and animals depend on each other for survival. Find out why biodiversity is so important—and why it's in trouble.

BY ALLYSON SHAW

A green sea turtle glides through the Great Barrier Reef off the northeastern coast of Australia. Millions of species live in and around coral reef **ecosystems**, where these plants and animals rely on each other for survival.

Scientists call this mix of different species **biodiversity**.

An environment works well with a wide variety of species. Here's an example: Green sea turtles love to chomp on sea grass—but they can't hang

out in one spot for too long because tiger sharks patrol the area, hunting for sea turtles. Without tiger sharks, sea turtles would eat all the best sea grass, destroying that habitat for all the other animals that depend on it. If one species—turtle, shark, or sea grass—disappears, other plants and animals that are connected to that species could go extinct too. Losing just one species can harm many others.

## MIXING IT UP



Animals depend on each other to survive in a coral reef ecosystem

PHOTOGRAPH BY LEVENT KONUK,  
SHUTTERSTOCK



An ocean habitat depends on all its plants and animals in order to stay healthy.

PHOTOGRAPH BY RICHARD CAREY,  
DREAMSTIME

There are possibly billions of different species of plants, animals, bacteria, and other living things throughout the world—but we've only documented about two million of them.

Many of these known and unknown species have uncertain futures though. Climate change, pollution, **poaching**, and habitat destruction change the number of plant and animal species that live in a habitat, known as **declining biodiversity**.

Due in part to declining biodiversity, almost one-third of Earth's animals are at risk of extinction, according to the International Union for Conservation of Nature.

Earth's climate has always naturally cycled through change, caused by how much of the sun's energy was absorbed by the atmosphere. In fact, over the past 650,000 years, the Earth has gone through seven ice ages and warming periods.

## STAND UP FOR WILDLIFE

By preventing the decline of biodiversity, you can help keep Earth safe. Some animals such as sharks are especially important to protect. Scientists call these animals keystone species because they're the key to keeping whole ecosystems healthy. So if you save animals like sharks, you protect other critters.

## GLOSSARY

- **Biodiversity:** The variety of species of plants and animals that live in one environment.
- **Invasive species:** Plants, animals, and other living things that show up in a habitat where they don't normally live, potentially changing their new ecosystem
- **Ecosystem:** All the living and nonliving things in an area working together as a system
- **Poaching:** The illegal killing of animals

# Today's Self-Reflection



Today, we made an imaginary animal! One thing I learnt about protecting endangered species is: \_\_\_\_\_

We also read an article about declining biodiversity. One reason why biodiversity is important is: \_\_\_\_\_

Finally, I wrote a paragraph about which endangered species I would save.

			
I'm awesome at this!			I could use a bit more help with this.
I understand the purpose of an introductory sentence in a non-fiction text.			
I understand how to give reasons to support my position.			
I can express myself clearly using correct grammar and punctuation.			

My favourite activity today was: \_\_\_\_\_

My least favourite activity today was: \_\_\_\_\_

Overall, I'd give today:



## Day 3: Sustainability

## What can you do to protect the environment?



Write a paragraph outlining 3 things you can do in your everyday life to combat pollution and protect the environment. Use the following points to plan out your paragraph. Be sure to include:

-an introductory sentence detailing why you want to protect the environment:

-3 action statements detailing what you will do in the future: \_\_\_\_\_

-a closing sentence to end the paragraph: \_\_\_\_\_

# Plastic Pollution

You can make a difference by reducing your plastic waste.

BY CATHERINE CLARKE FOX

Around the world, people throw away roughly four million tonnes of trash every day—that's enough to fill 350,000 garbage trucks or 10 Empire State Buildings! About 12.8 percent of that waste is plastic, which causes big problems for wildlife: some animals mistake plastic for food, while others can become entangled in the trash.



Volunteering to pick up trash is a good way to help the Earth.

PHOTOGRAPH BY STEPHANE BIDOUZE,  
SHUTTERSTOCK

## TIPS TO REDUCE WASTE!

- Don't use face wash or toothpaste with microbeads. These tiny plastic beads go down the drain, eventually making their way to rivers, lakes, and the ocean at a rate of eight trillion a day in the United States. Because these toxic beads look a lot like fish food, it's not uncommon for bigger fish and sea turtles to munch on them—a dish that could be deadly.
- Say no to straws! In 2015 a viral video showed an olive ridley sea turtle in obvious discomfort as a team of experts work to dislodge something deep within its nostril. At first, they thought it was a worm. But experts were stunned to see what it really was: a plastic drinking straw.
- Instead of packing your sandwich and snacks in plastic bags, use reusable containers or cloth sacks instead. Same goes for your drink: Skip the juice boxes and opt for a refillable water bottle.
- Reduce the amount of plastic bags clogging up our trash and oceans by shopping with reusable bags instead.
- To eliminate some of the excess packaging piling up in landfills, encourage your family to shop for snacks, cereal, and pasta in the bulk section of your grocery store (if yours doesn't have any bulk items, check out a nearby natural food shop). Then, store it all in reusable glass jars.
- Pack an apple, a banana, or an orange. Fruit fills you up in a healthy way, plus there's no need for extra packaging. (Save the core, peels, and rinds for your compost bin.)

Using these tips, keep track of the rubbish you toss. Every week, try to throw out less and less and see how much you can minimize your waste in a month. Some people have managed to put an entire year's worth of garbage in one jar. Can you beat that?

If your family is like many in the United States, unloading the week's groceries includes hauling a case or two of bottled water into your home. On your way to a football game or activity, it's easy to grab a cold one right out of the fridge, right?

But all those plastic bottles use a lot of fossil fuels and pollute the environment. In fact, Americans buy more bottled water than any other nation in the world, adding 29 billion water bottles a year to the problem. In order to make all these bottles, manufacturers use 17 million barrels of crude oil. That's enough oil to keep a million cars going for twelve months.

Imagine a water bottle filled a quarter of the way up with oil. That's about how much oil was needed to produce that bottle.

So why don't more people drink water straight from the kitchen tap? Some people drink bottled water because they think it is better for them than water out of the tap,

but that's not always true. In most places in the United States, local governments make sure water from the faucet is safe. There is also growing concern that chemicals in the bottles themselves may leach into the water.

People love the convenience of bottled water. But maybe if they realized the problems it causes, they would try drinking from a glass at home or carrying water in a refillable steel container instead of plastic.

Plastic bottle recycling can help—instead of going out with the trash, plastic bottles can be turned into items like carpeting or cozy fleece clothing.

Unfortunately, for every six water bottles we use, only one makes it to the



Talk to your friends and family members about what you're doing to help the environment, and ask them to help too. The more people do, the better off our planet will be!

PHOTOGRAPH BY FUSE, GETTY IMAGES

recycling bin. The rest are sent to landfills. Or, even worse, they end up as trash on the land and in rivers, lakes, and the ocean. Plastic bottles take many hundreds of years to disintegrate.

Water is good for you, so keep drinking it. But think about how often you use water bottles, and see if you can make a change.

And yes, you can make a difference! Remember this: Recycling one plastic bottle can save enough energy to power a 60-watt light bulb for six hours.



A plastic bottle can take over 450 years to break down in a landfill. Before throwing something away, think about whether it can be recycled or repurposed.

PHOTOGRAPH BY FUSE, GETTY IMAGES

# Today's Self-Reflection



Today, we made a food chain craft! One thing I learnt about the food chain was:

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We also read an article about how to combat pollution. One thing I can do is:

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Finally, I wrote a paragraph about an endangered species I would save.

			
I understand the purpose of an introductory sentence in a non-fiction text.	I'm awesome at this!	I feel comfortable with this.	I could use a bit more help with this.
I understand how to give reasons to support my position.			
I can express myself clearly using correct grammar and punctuation.			

My favourite activity today was: \_\_\_\_\_

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My least favourite activity today was: \_\_\_\_\_

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Overall, I'd give today:







