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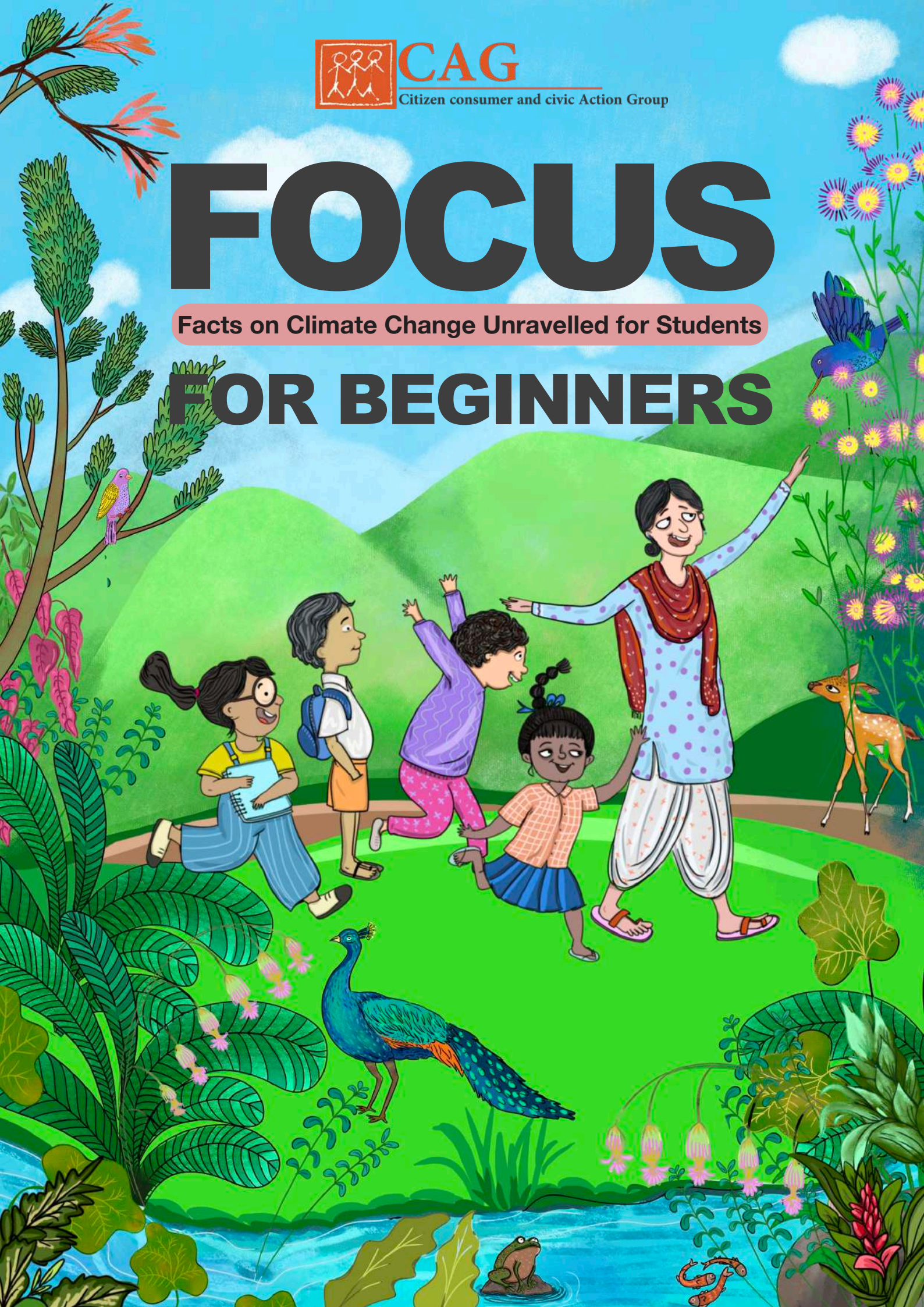
Citizen consumer and civic Action Group

FOCUS

Facts on Climate Change Unravelled for Students

FOR BEGINNERS



This book is the result of several months of exploration into how to effectively break down the complex subject of climate change for upper-primary school children in India. Through its engaging lessons, it delves into topics such as how climate shapes human and animal lives, the impact of our actions on the environment and how we can work together to make a difference.

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LESSON **ONE**

Earth! Our Home

By the end of the lesson, students will be able to:

- Explain that Earth is composed of both land and oceans
- Identify various natural features of Earth such as seas, mountains, deserts, and rivers
- Explain what makes Earth's atmosphere special and essential to life on Earth

GETTING TO KNOW EARTH

Our planet, Earth, is special among all other planets. It's not too hot. It's not too cold. It is just right for the millions of humans, animals and plants that live on it. As far as we know, there is no other planet that can do this. Isn't that amazing! Earth is so special that if we can no longer live here, we will have nowhere else to live!

Do you know that Earth has '**features**' just like you do? Look at yourself in the mirror. What do you see? Maybe dark brown eyes, curly hair, straight teeth? These are your natural features. Just like your natural features, the Earth also has natural features - tall mountains, deep oceans, deserts, and plains.

Let's learn more about the Earth's natural features!

EARTH'S OCEANS

When you look around, it might seem like all of Earth is the land we live and walk on. But actually, most of Earth is covered by oceans. This is why we call it the '**blue planet**'. **Oceans** are home to a lot of amazing **underwater creatures** and plants. Oceans also have other important **functions**. They produce most of the oxygen humans breathe. Oceans also store the heat from the sun and then carry this heat from one place to another. If the oceans did not do this, some places would be too hot to live in.

Activity 1.1

Draw on the dotted lines.
Colur the water blue and the land with a colour of your choice.

Most of Earth is water!

When you look around, it might seem like Earth is mostly land. But actually, most of Earth is covered by oceans. This is why we call it the 'blue planet'.

Activity 1.2

EARTH'S LANDS

The Earth's surface can be flat, such as plains, or raised, like mountains. They can be covered in forests, deserts or snow. How people and animals live in a desert is very different to how they live in a forest! Or in the snow! Earth's surface has many features that make it possible for creatures to live. All of this makes planet Earth a special place for life.

Mount Everest is the highest mountain on Earth

DID YOU KNOW?

Rivers

Rivers are water bodies that carry fresh water from higher to lower ground. Rivers can be very long and go right across large masses of land. The River Ganges is an example of a long river. It flows across northern India, providing water and life to millions of creatures.

Mountains

Mountains are large masses of Earth and rocks that rise very high. When they are higher than 600m (that is almost as tall as 40 coconut trees stacked one on top of the other!), they are called mountains. Smaller ones are called hills. Mountains and hills have peaks and slopes. Some mountains may be covered with ice like the Himalayas in Northern India. Some others may be deep under the sea such as the Mid-Atlantic Ridge along the floor of the Atlantic Ocean. Some others might be covered in forests, like the Western Ghats in India.

Forests

Forests are areas that have a large number of trees. It is estimated that forests cover one-third of the Earth's surface. They are home to lots of different animals and plants. They give us clean air to breathe and are really important for our planet. The Western Ghats in India is an example of a forest.

Deserts

Deserts are dry, sandy areas with very little rainfall and almost no vegetation. These places are either too hot or too cold for plants, animals and humans to live comfortably. The Thar desert in Rajasthan, India, is an example of a desert.

Seas

Seas are smaller portions of salty water that belong to the oceans. Seas are usually surrounded by land on one or more sides. India is bordered by two seas that belong to the Indian Ocean - the Arabian Sea and the Bay of Bengal.

Activity 1.3

Which is the **BIGGEST DESERT**

and where is it?

Which is the **LONGEST RIVER** and where is it?

Which is the **BIGGEST FOREST** and where is it?

FUN FACT!

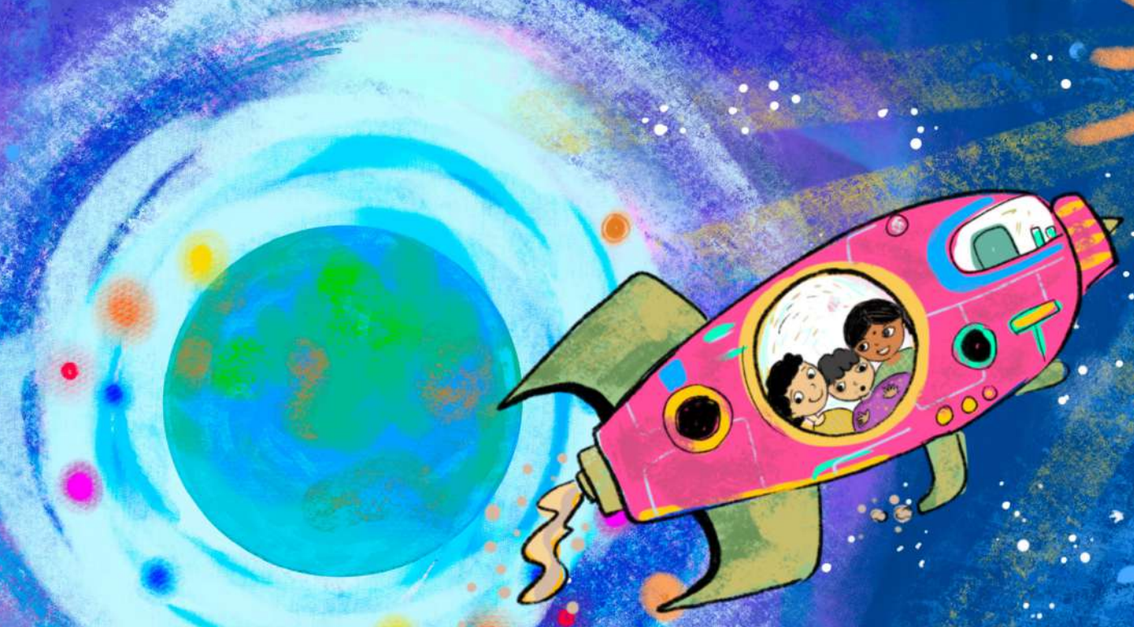
The Earth's atmosphere creates amazing light shows near the North Pole during winter called the ***Northern Lights***

WHAT IS ATMOSPHERE ?

We have learnt about the land and water on the surface of the Earth. Let us now understand the **atmosphere** that surrounds us. The atmosphere is like a blanket that surrounds Earth. It's made of air and water drops. Without this, there can be no life on Earth.

The oxygen we breathe is in the atmosphere. Carbon dioxide & nitrogen are also in the atmosphere. They help plants live on Earth.

The atmosphere also keeps our planet Earth safe from the Sun's harmful rays. Without this **fuzzy** blanket around Earth, it would be too hot during the day and too cold at night for us to live.



Activity 1.4

Which of these are true about the atmosphere?

Put a tick next to the correct ones:

☐ The atmosphere stores the oxygen we breathe

☐ The atmosphere is made of cotton candy

☐ We can carry on living even without the atmosphere

☐ The atmosphere protects us from the sun's harmful rays

☐ You can walk on the atmosphere

☐ The atmosphere distributes heat around the earth

OBSERVING THE ATMOSPHERE

Look around you. Can you see the atmosphere? No! You can see the sky, but not the atmosphere. Now close your eyes and feel the air around you.

How does it feel? Does it feel hot? Or cold? Or windy? Or moist?

Each of these feel different because of this amazing blanket of air - the atmosphere - that surrounds us.

Reflections

- ○ I can explain why Earth makes a good home for all of us
- ○ I can identify seas, mountains, deserts and rivers in places around me
- ○ I can explain why the atmosphere is important for us

Write!

Draw!

Glossary of terms

Feature	A detail that makes something different
Blue planet	The name given to the Earth by the astronauts who went into space. The large amount of water on Earth makes it look like a blue planet
Ocean	Large portions of salt water that covers the Earth's surface
Underwater creatures	Animals that live underwater
Functions	A special job that something or someone does
Atmosphere	A mixture of air and water drops that surrounds the Earth that we can feel but cannot see
Fuzzy	Something that is soft and cosy

LESSON **TWO**

All about CLIMATE

Learning outcome

By the end of the lesson, students will be able to:

- Observe and describe weather
- Understand the difference between weather and climate
- Explain what contributes to the climate of a place and identify three major climatic zones

What's your favourite type of weather and why?

Weather

The weather can change every day. In some parts of the world it can change even through the day. For example, people who live in London might wake up with the sun shining. Soon, it might start raining and then at night, it might get really cold! These changes that happen day to day is what we call **weather**.

Activity 2.1

What is the weather today?

Use this chart to record the weather every day this week.

Days	Sunny	Cloudy	Rainy	Windy
Monday	○	○	○	○
Tuesday	○	○	○	○
Wednesday	○	○	○	○
Thursday	○	○	○	○
Friday	○	○	○	○

Activity 2.2

Why is Laya sad? Have you experienced a day like this?

What is it usually like, where you live?

Climate

Now you know that weather changes from day to day. This will decide if you are going to need an umbrella or a hat, wear a sweater or cotton clothes and most importantly if you will have your PT class or not.

Scientists also use another word to talk about hot days, cold days and rainy days. The word they use is '**climate**'. They use the word 'climate' to describe weather over a long period of time. When they study the weather of a place over years and years, they will discover some **patterns**. Some places will be mostly hot. Some places will be mostly rainy. Some places will be mostly cold. This is the climate of the place.

Let's look at some examples of places

Chennai

Weather
Most days are **hot**
Some days can be **cool**
Some days can be **rainy**

Climate
Hot

London

Weather
Most days are **mild**
Some days can be **cold**
Some days can be **wet**

Climate
Mild

Dubai

Weather
Most days are very **hot**
Some days can be **stormy**
Some days can be **cold**

Climate
Arid
(hot and dry)

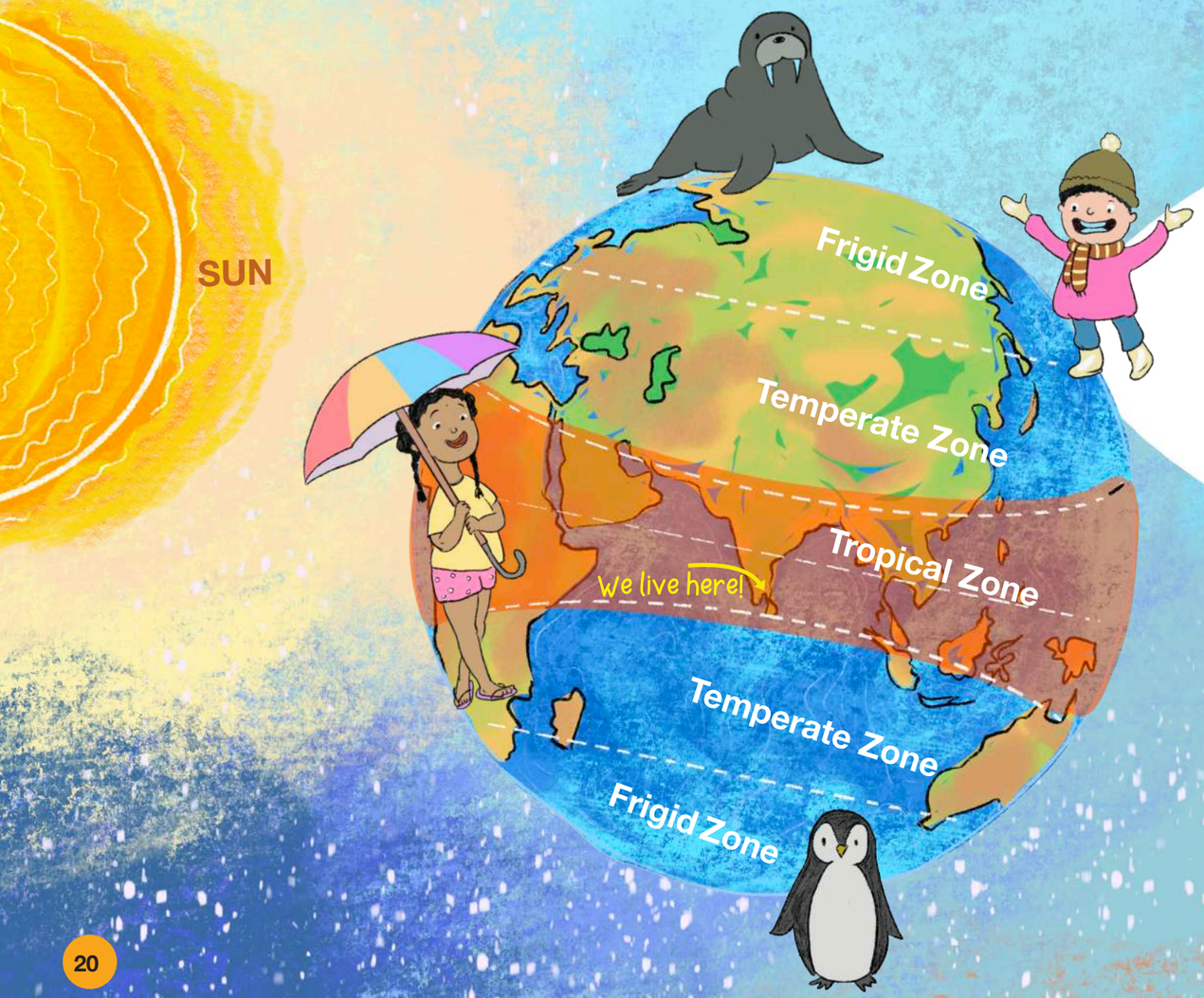
Places can get lots of changes in their weather every day, but their climate is based on how that place usually is.

CLIMATIC ZONES

Depending on the climate of a place, scientists divide Earth into different climate zones. These are parts of the world that have similar climates. Let's learn about three important climatic zones.

Dubai is known for its sunshine and gets over 300 sunny days a year. It's one of the sunniest places on Earth!

DID YOU KNOW?



Cold (frigid) Zone

These places are always cold and are generally covered in snow. This is because they are far away from the sun, and get only the slanting rays of the sun.

Arctic and Antarctica are examples of cold (or frigid) regions

Temperate Zone

In these areas, a little sunlight falls.
So these places are cooler but not as cold as the frigid regions. They get warm summers and cool winters.

The United Kingdom, France and New Zealand fall under this zone

Tropical (torrid) Zone

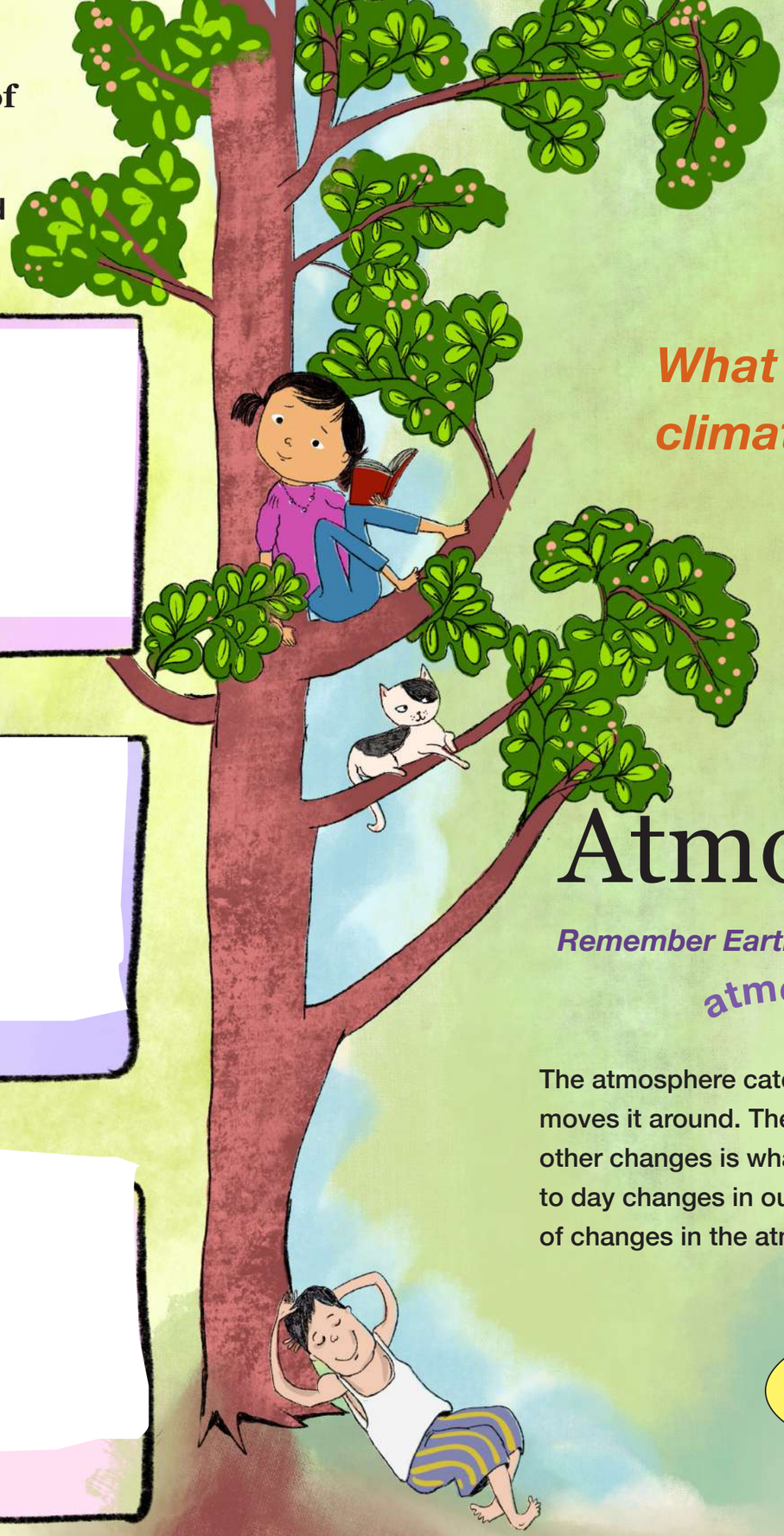
The climate in torrid zones is warm and humid with a lot of rainfall, especially during the monsoon season. They have little temperature variation, staying warm all year.

Southern India has a tropical (torrid) climate

Activity 2.3

What colours do you imagine when you think of cold, temperate and tropical?

Colour these boxes in those colours. Add animals and plants that you think will be found in these places



What makes our climate the way it is?

Atmosphere

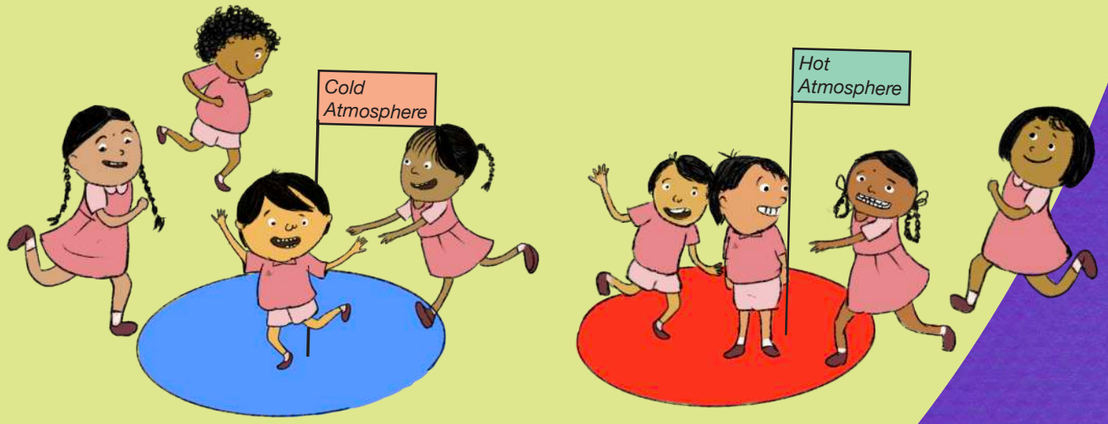
Remember Earth's special blanket, the atmosphere?

The atmosphere catches the heat from the Sun and moves it around. The changes in heat together with other changes is what makes a place hot or cold. Day to day changes in our climate are especially because of changes in the atmosphere.

This is what we call our weather!

Activity 2.4

Hot, hot, cold!



Let us play a game. Your teacher will explain it to you.

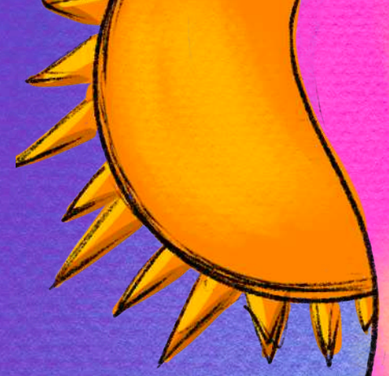
Did you enjoy the game? What did you learn?

The Arctic region has certain days where the sun does not set at all in summer. It is called the "midnight sun"

FUN FACT!

Position on Earth

Depending on where on Earth they are situated, some places get more sunlight than others. This is because of the shape of the Earth and how it moves around the sun. This determines if a place will be mostly hot or cold.



Earth's natural features

Remember that Earth has features, just like you do? The natural features of a place also determine its climate.

Do you live by the sea or the mountains?

What is your climate like?

There is something else affecting Earth's climate

Do you want to guess what it is? Here is a riddle to help you.

I do not own Earth.
But I behave like I do.

There is one of me.
But what I do can be felt around the world.

WHAT AM I

Find out the answer in later lessons!

Reflections

- ◯ I can explain what weather and climate are
- ◯ I can make observations about the weather
- ◯ I can name the different climatic zones - cold, temperate and tropical

Write!

Draw!

Glossary of terms

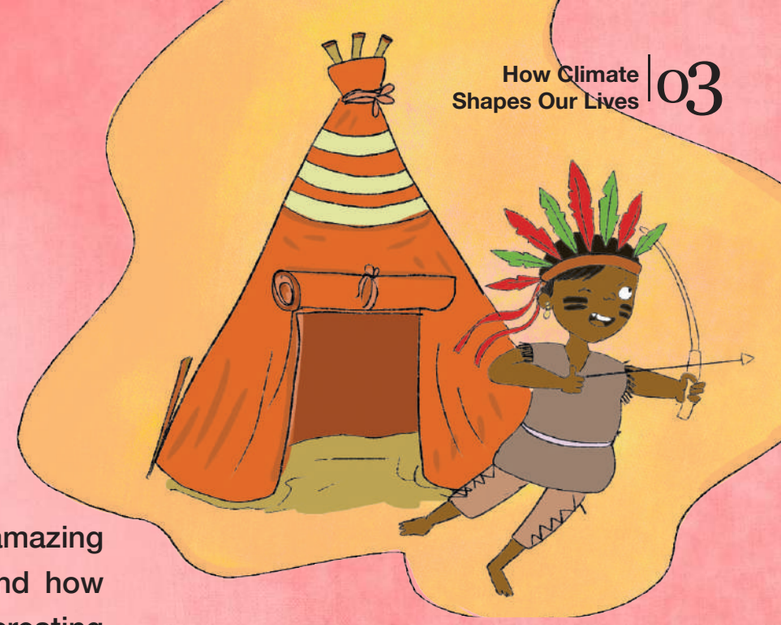
Weather	How the day is at a given point in time. It can change every day and every hour also
Climate	What the weather is like over a long period of time
Patterns	Something that happens or appears in a regular and repeated way
Zone	A specific area on Earth that has its own patterns of natural conditions
Humid	When the air feels sticky and damp because there's a lot of water in it
Monsoon	A strong wind that brings lots of rain during a certain time of the year
Atmosphere	A mixture of air and water drops that surrounds the Earth that we can feel but cannot see

LESSON **THREE**

HOW CLIMATE SHAPES Our Lives!

By the end of the lesson, students will be able to:

- Explain how climate shapes human life
- Explore how climate impacts our daily activities
- Identify how people adapt to living in hot, cold, and mild climates



Introduction

We learnt all about Earth's amazing features in the last lesson, and how these features play a role in creating different climates around the world. In this lesson, we will explore how climate shapes our everyday lives!

As we learnt in our last lesson, our planet, Earth, has many different climates. People living in these places (some hot, some cold, some mild) have to adjust to these climatic differences. They do this by eating, dressing and living in ways that are unique to that climate.

Let us find out how climate plays an important role in our daily lives and activities.

Food

The climate of a place will determine what kind of fruits, vegetables and food grains can grow there. For example, in warm climates, fruits like papaya and pineapple grow well. These are therefore called tropical fruits because they need tropical conditions to grow. Some fruits like mangoes need very hot temperatures - so we normally see them in the market only over the summer months of May and June. In milder climates, apples, strawberries and oranges are more common.

People who live in cold places need foods that will keep their bodies' warm. Therefore people who live in cold and wet climates stay warm with hot drinks like tea, coffee and soup. People who live in hot climates need to keep their bodies cool. They drink a lot of water and stay **hydrated**. They also like to drink cold drinks like juices, tender coconut water, milkshakes etc to cool down.

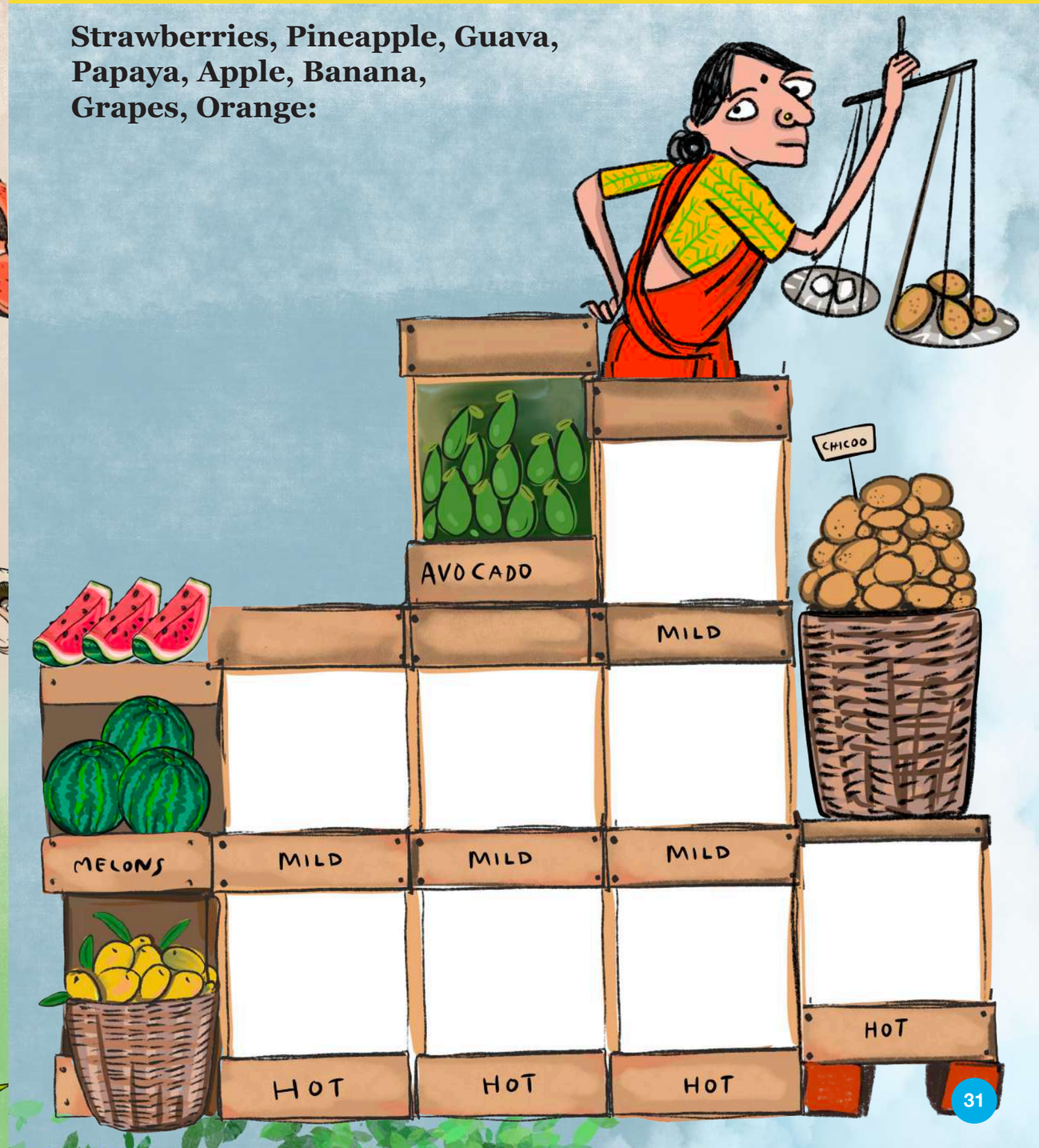
FUN FACT!

The higher the mountain, the yummier the coffee beans! The cool mountain air helps the coffee beans grow slowly, making them super flavourful and delicious!

Activity 3.1

Sort these fruits based on the climates (hot and mild) they grow best in and draw them in the given box.

Strawberries, Pineapple, Guava, Papaya, Apple, Banana, Grapes, Orange:



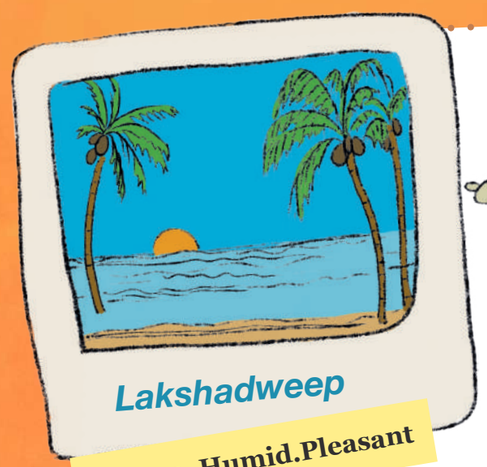
Clothing

How we dress and the clothes we wear depend on the climate of a place.

Activity 3.2

Here are three different places, with very different climates. What would you wear if you visited these places?

Discuss in your group, and cut and attach the correct clothing to the correct place.

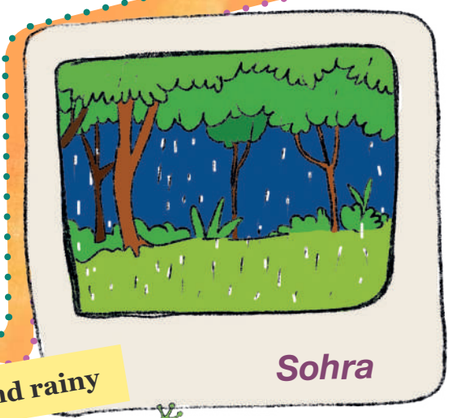


Lakshadweep

Warm. Humid.Pleasant

Shimla

Cold with snow in the winters

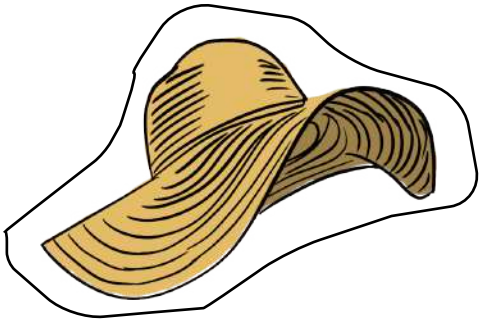


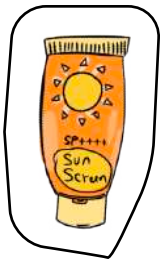
Sohra

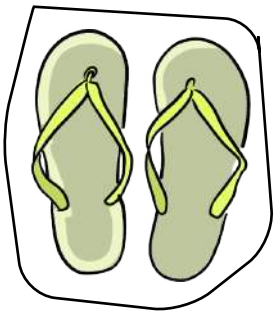
Very wet and rainy

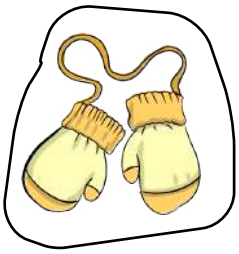
Which place would you like to visit for a holiday? Tell your teacher why.

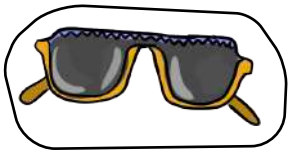
Peel and stick









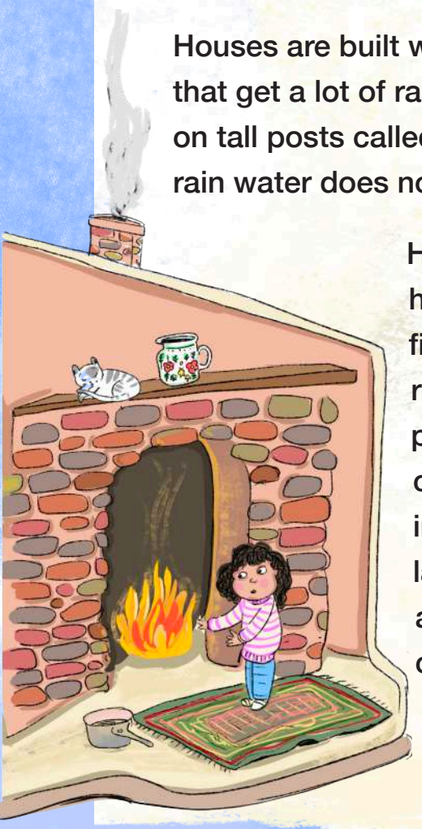


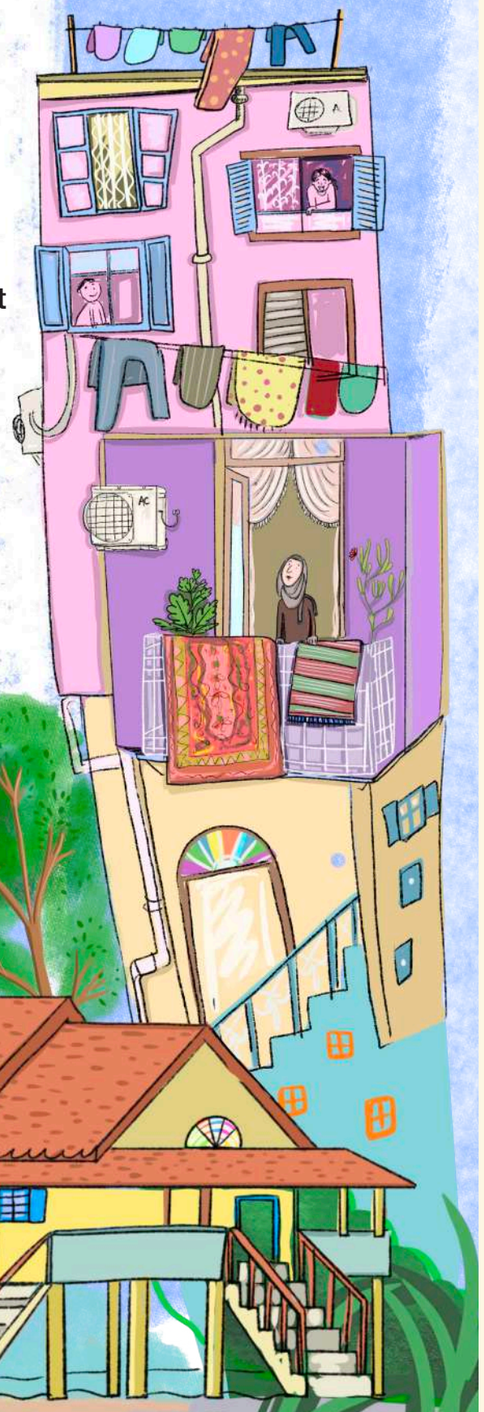
Shelter

People build very different types of houses depending on how much rain, snow or sunshine the place gets.

Houses are built with sloping roofs in places that get a lot of rainfall. Some houses are built on tall posts called stilts to make sure that rain water does not flood the home.

Houses in the mountains have **heaters** or fireplaces to keep the rooms warm and to protect them from the cold outside. Houses in hot climates have large windows, fans, air conditioners or air coolers.





Why do you think the house is on stilts and the roof of the house has slopes?

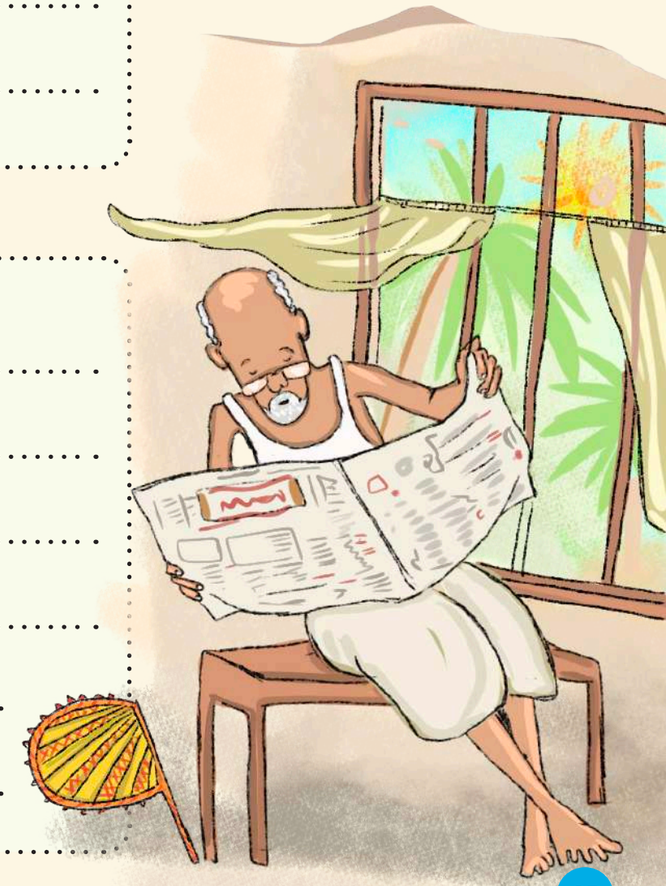
Activity 3.3

Heat Absorption Experiment

Here is an activity to help you understand why different materials are used in different climates to build homes.

Leave a sheet of metal, a brick (or stone), and a coconut leaf (or straw) outside in the sun. After half an hour, touch each material. Which one is the hottest? Based on your findings, which material do you think would be best for building a home in a hot place?

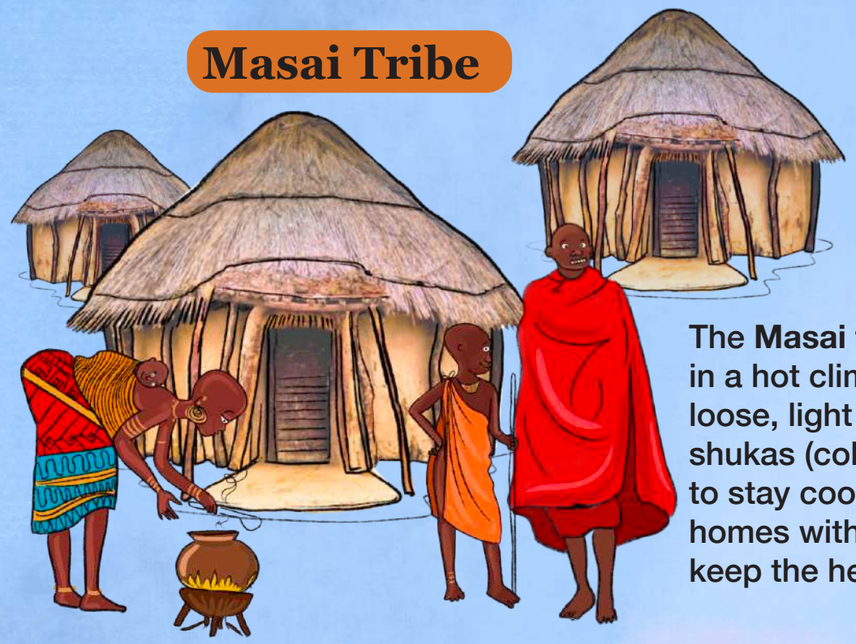
And why?



We have seen how people change the way they eat, dress and live based on the climate they live in. This is called **adaptation.**

Here are two examples of how people adapt to where they live.

Masai Tribe



The **Masai tribe** in Africa live in a hot climate. They wear loose, light clothes called shukas (colourful cloth wraps) to stay cool. They build their homes with mud and sticks to keep the heat out.

The **Inuits** live in the cold Arctic regions. They wear thick, layered clothes made from animal skins and furs to stay warm. They build igloos or use snow houses that keep them warm in extreme cold climates.

Inuits

papayas grow best in warm and sunny places. They are called "the fruit of the angels" because of their sweet taste and bright colour

DID YOU KNOW?

Activity 3.4

Fill in the Blanks

Use the words provided to complete the sentences

rain, clothing, hot, fruits, stilts, cold, raincoat, climate

1. The type of _____ you wear depends on the _____ of the place that you live in.

2. Foods like hot soups help people stay warm in _____ climate.

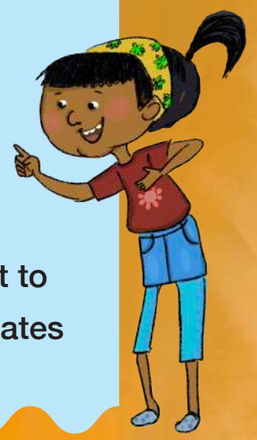
3. During heavy _____ , people might use a _____ to stay dry and protected.

4. Different _____ grow best in different climates. For example, mangoes and pineapples grow well in _____ climates.

5. Houses built on _____ are designed to protect against flooding and heavy rain in areas with lots of rainfall.

Reflections

- ○ I can explain how climate impacts human life
- ○ I can understand how climate impacts our daily activities
- ○ I can identify how people adapt to living in hot, cold, and wet climates



Write!

Draw!

Glossary of terms

Shapes	Changes our lives and things we do
Hydrated	Having enough water in your body to stay healthy
Heater	An electrical heating device that makes air/ water warm
Adaptation	When people, animals, or plants change how they live to fit better in their environment

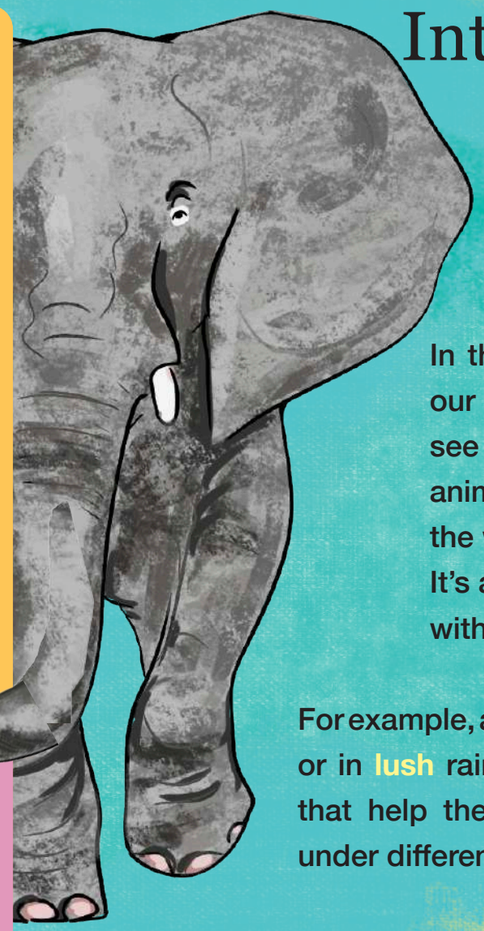
LESSON **FOUR**

EXPLORING ANIMAL ADAPTATIONS to climate

Learning outcome

By the end of the lesson, students will be able to:

- Understand what a habitat is
- Understand the connection between climate and animals
- Identify specific animal adaptations that help them live well in their habitats



Introduction

In the last lesson, we learnt how climate shapes our lives in many ways. In this lesson, we will see how climate plays a part even in the lives of animals! Different animals live in different parts of the world. The place where they live is their home. It's also called their habitat. Each habitat can vary, with different food, climate and surroundings.

For example, animals can live in hot deserts, on icy mountains, or in **lush** rainforests. Animals have many special features that help them live comfortably in different habitats and under different climatic conditions.

This is called '**adaptation**'.

Types of habitats

- *Tundra*
- *Temperate forests*
- *Tropical rainforests*
- *Desert*

Tundra

Very few trees

Mostly covered with snow

Home to animals like polar bears, arctic foxes and reindeer that are adapted to the cold

Temperate forests

Trees include both leafy ones (that lose leaves in autumn) and evergreen ones (with needles)

Get moderate rainfall—not too much, not too little

Home to animals like deer, squirrels and birds, which may hibernate or migrate

Tropical rainforests

Always warm and get lots of rain

Has different layers: tall trees, mostly thick and big leaves, small plants and shrubs

Parts of the forests can be very dark because of the very tall trees

Home to lots of animals like tigers, monkeys, parrots and insects

Desert

Very hot during the day and cold at night and gets very little rain

Has few plants, like cacti and shrubs, which have special ways to save water

Home to animals like snakes, lizards and camels that can live with little water

FUN FACT!

Camels can survive without water for up to 15 days! They store fat in their humps and this helps them to go on without water

Animal adaptations can be broadly divided into two: Physical Adaptations and Behavioural Adaptations

Physical Adaptations

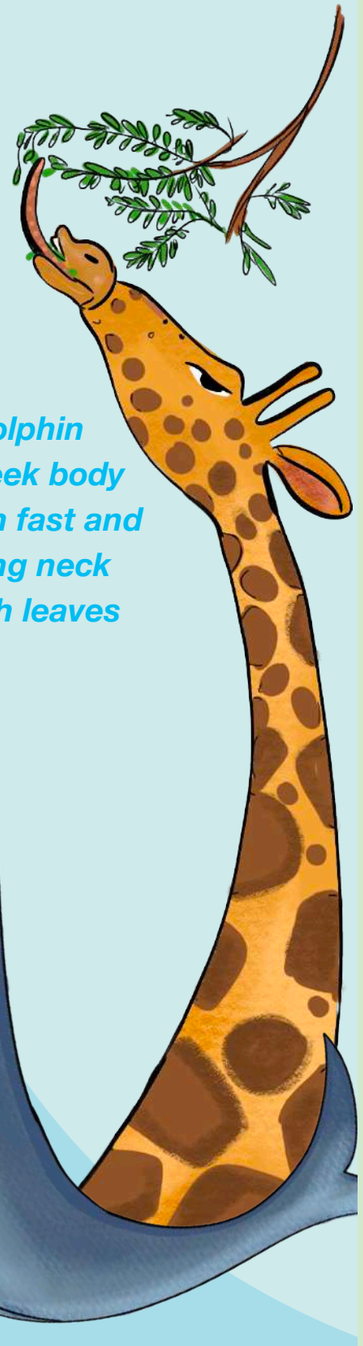
These are body features that animals have to help them survive in their environments.

Body Coverings Animals have different coverings on their bodies, like fur, feathers, or scales, to help protect them from their surroundings.

For example, polar bears have thick fur to stay warm in cold places and fish have slippery scales that help them swim easily in the water

Body Shape Some animals have special shapes that help them live better in their homes.

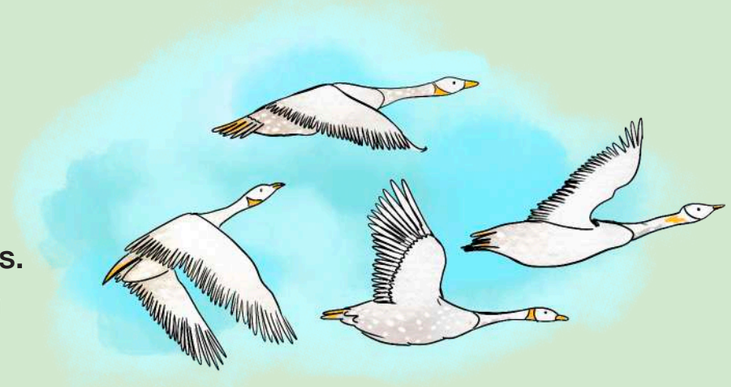
For example, a dolphin has a smooth, sleek body that helps it swim fast and a giraffe has a long neck that helps it reach leaves on tall trees



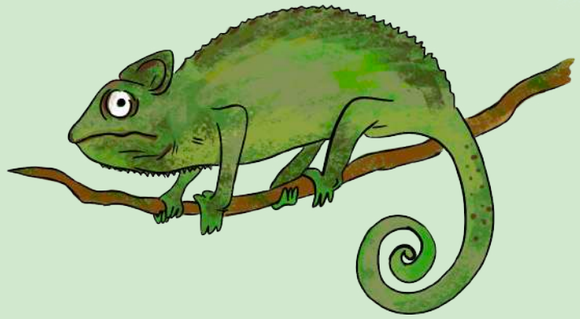
Special Body Parts Animals have special body parts that help them survive in their environments. *For example, camels have a hump that helps them store fat for energy and water, while whales have a thick layer of blubber to keep them warm in cold water*

Behavioural Adaptations

Animals change their behaviour to adapt to the habitats they live in.



Camouflage Some animals change their body colour to blend in with their surroundings. This helps them stay safe from predators.



Example: Chameleons change their colour to match their environment. Lions and leopards blend in with the grass because of their fur colour

Migration

Some animals and birds move to warmer places during cold weather. They do this to find food, a safe place to live or to have their babies.

Example: Geese fly to warmer places in winter. Monarch butterflies travel far to stay safe from the cold

Hibernation In winter, some animals take a long sleep to save energy. They stay asleep until it gets warmer and food is easier to find.

Example: Bears, bats and snakes sleep through the winter to stay warm and save energy

Activity 4.1

What adaptations do you think animals need to live in the places mentioned below.

Sort them from the given list:

Sleeping throughout the winter or moving to warmer places

Ability to go without water for long periods

Strong sense of smell or hearing to find food in the dark

Thick fur to keep warm

A snowy place (Tundra)

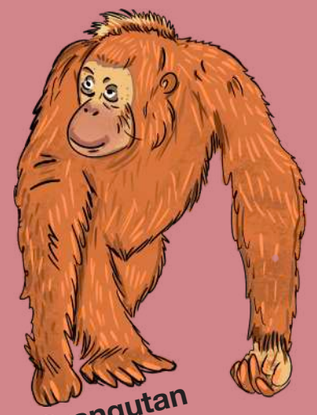
A place where weather changes throughout the year (Temperate)

A place with very little sunlight (Tropical)

A desert (Hot and dry)

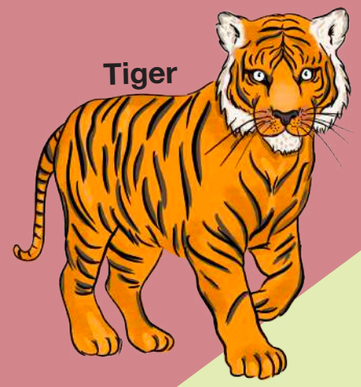
Activity 4.2

Match the animal to its habitat

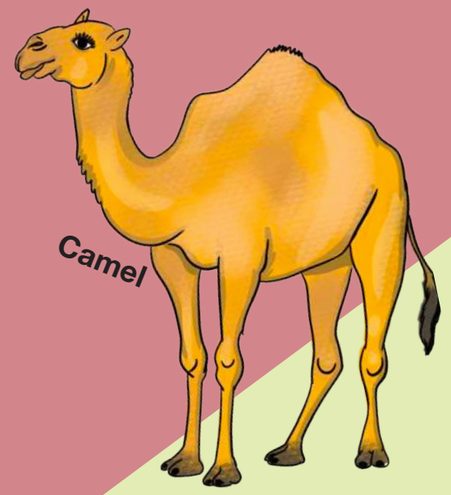


Orangutan

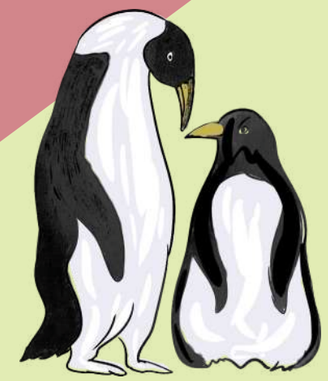
Polar bear



Tiger



Camel



Penguins

Desert

Tundra

Tropical rainforests

Activity 4.3

Here are two animals that live under very different climatic conditions.
Read about the different adaptations the animal has and guess how they help the animal

Polar bear

Thick layer of fat

White fur

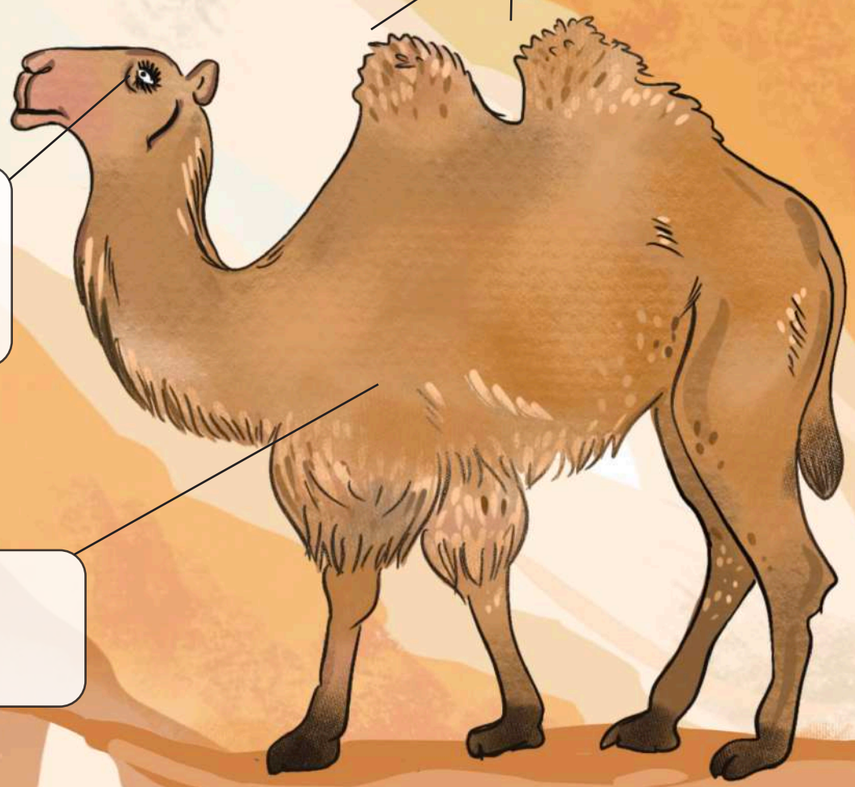
Powerful claws

Camel

Hump

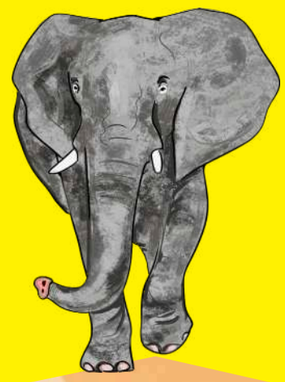
Thick long eyelashes

Thick fur



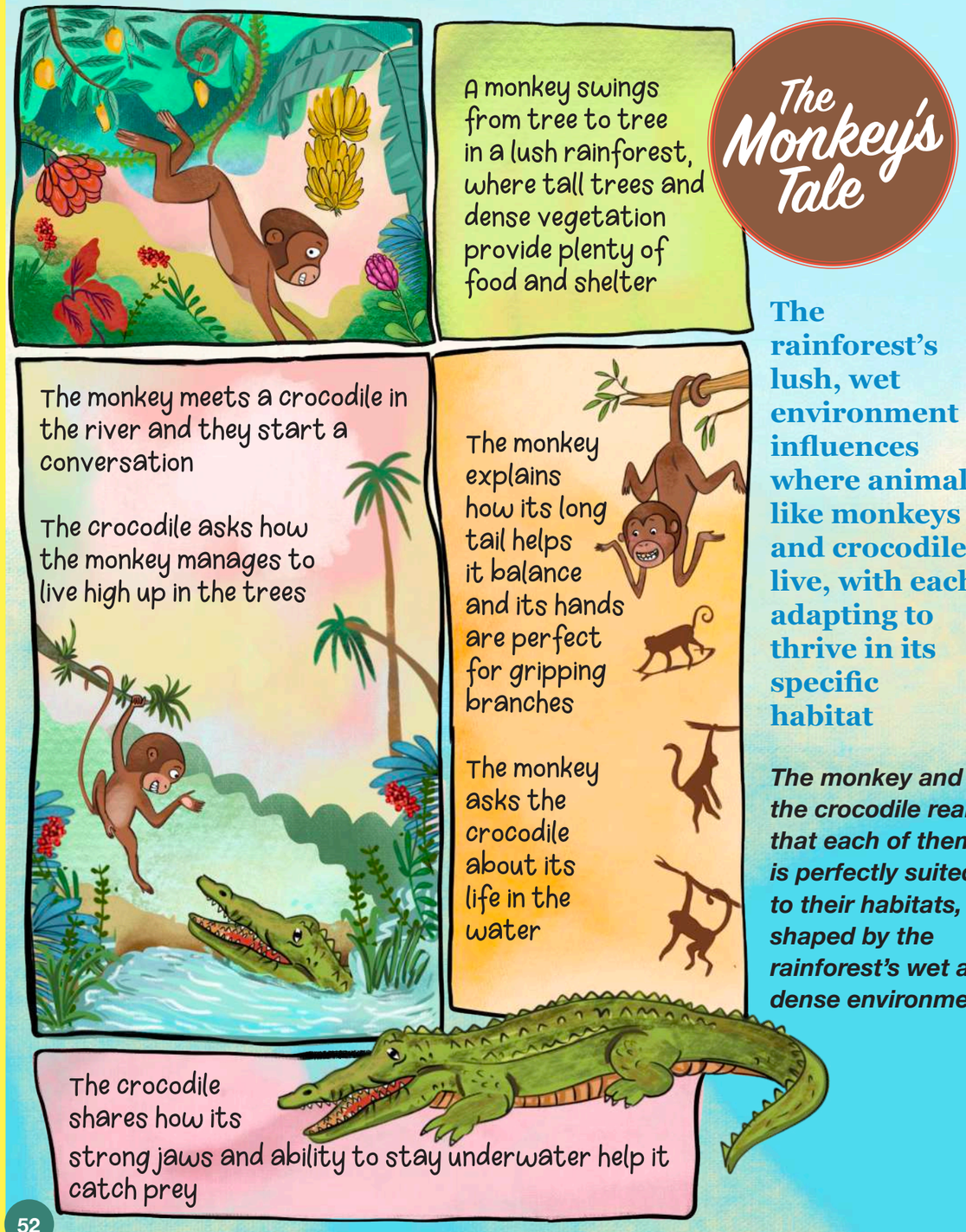
Elephants live in hot places, so they have large ears that act like fans. When the elephant flaps its big ears, it helps cool down its body!

DID YOU KNOW?



What is special about an animal's adaptation?

Animal adaptations help them live comfortably in their habitats. If their habitats change, they might have a hard time living there. Here is a story that will help you understand this better.



The rainforest's lush, wet environment influences where animals like monkeys and crocodiles live, with each adapting to thrive in its specific habitat

The monkey and the crocodile realize that each of them is perfectly suited to their habitats, shaped by the rainforest's wet and dense environment

Activity 4.4

How do you think these animals will struggle if they were to live in habitats that are not their own?

Discuss in groups

- A tiger in the tundra
- A polar bear in a tropical forest
- A crocodile in a desert

Reflections

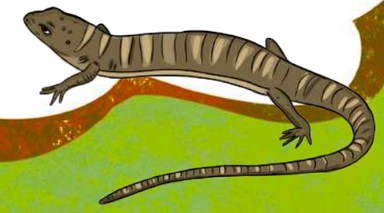
- I can explain how climate influences the way animals live
- I can describe different adaptations animals have for living in different climates
- I understand that animals might struggle to live outside of their habitats

Write!

Draw!

Glossary of terms

Lush	Trees and plants that are really healthy, green, and thick
Adaptation	A special feature or behaviour that helps an animal survive in its environment
Predator	An animal that hunts and eats other animals
Blubber	A thick layer of fat under the skin of some animals that keeps them warm even in extreme cold weather
Habitat	The natural home or environment where an animal lives, providing food, water, and shelter
Camouflage	The ability of an animal to blend in with its environment to stay safe from predators
Migration	The movement of animals and birds from one place to another, usually to find food or a suitable habitat
Hibernation	A long period of deep sleep that some animals go through in winter to save energy and survive when food is not available easily



LESSON **FIVE**

OUR CLIMATE is changing!

Learning outcome

By the end of the lesson, students will be able to:

- Describe what greenhouse gases are
- Explain the role of greenhouse gases in causing climate change
- Identify how climate change is affecting the Earth and us

In Lesson 1, we learnt about Earth's natural features like mountains, oceans, and the atmosphere. In Lesson 2, we explored the difference between weather (what happens today) and climate (what happens over many years). Now, in this lesson, we will learn about something that is changing our climate —

GREENHOUSE GASES!

Greenhouse gases are gases that make up our atmosphere and keep it like a warm, cosy blanket. These gases, like carbon dioxide, methane and water vapour, keep our planet warm enough for us to live.

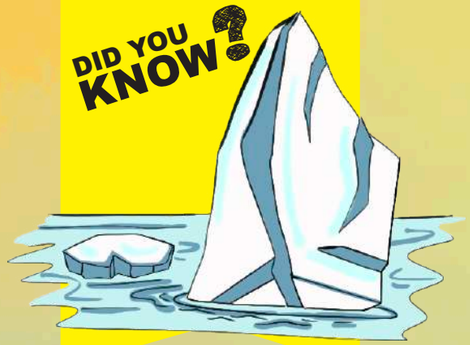
But what happens if we add too much of these greenhouse gases?

Imagine wearing a thick sweater on a hot day—it would get uncomfortable, right? When there are too much greenhouse gases in the atmosphere, it makes the blanket too thick! This means the Earth becomes warmer than it should be.

We call this the greenhouse effect.

Glaciers are like huge frozen rivers and provide fresh water for millions of people! These are now melting because the Earth is getting warmer

DID YOU KNOW?



The role of greenhouse gases in causing climate change

We have learnt that weather changes daily, but climate mostly stays the same over many years. However, when too much greenhouse gases are added to the atmosphere, they cause Earth's climate to change more quickly than it should. This is called climate change.

In other words, climate change means that the Earth's climate is changing from what it used to be earlier. Normally, our planet has a balance of hot and cold climate, but now it is getting hotter than usual and colder than usual too. This leads to extreme weather events like **heatwaves, floods, droughts** etc.

Activity 5.1

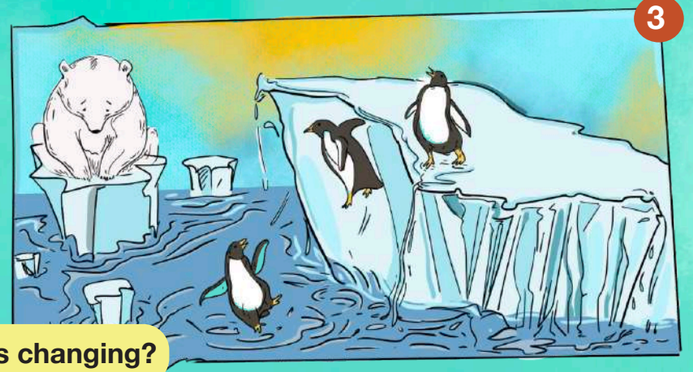
Look at the storyboard and write below

1

What do you see?

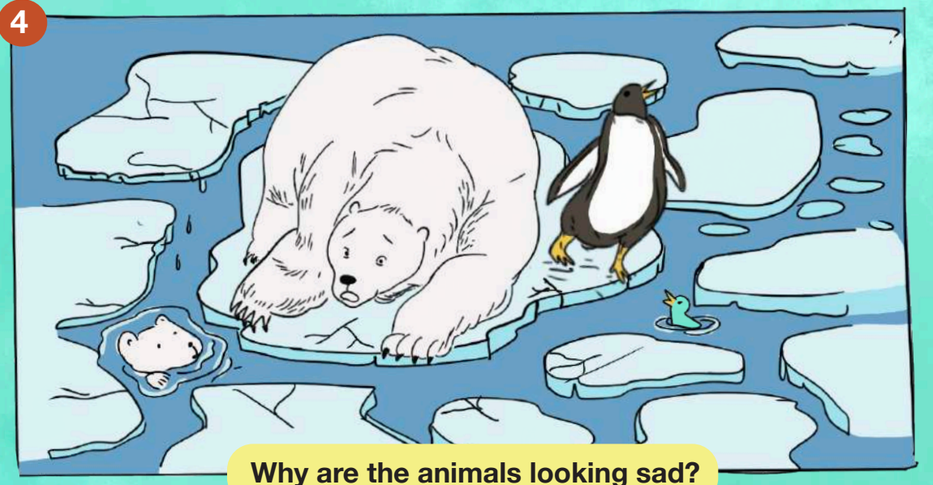
2

3



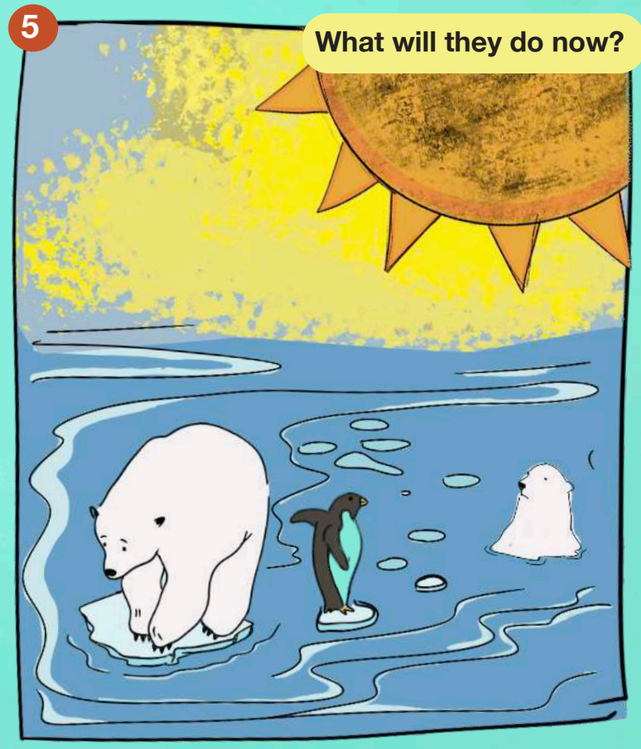
What is changing?

4



Why are the animals looking sad?

5



What will they do now?

Activity 5.2

Fill in the blanks with the given words

sea levels, flooding, polar bears, droughts, hot, heatwaves, heat, penguins, floods

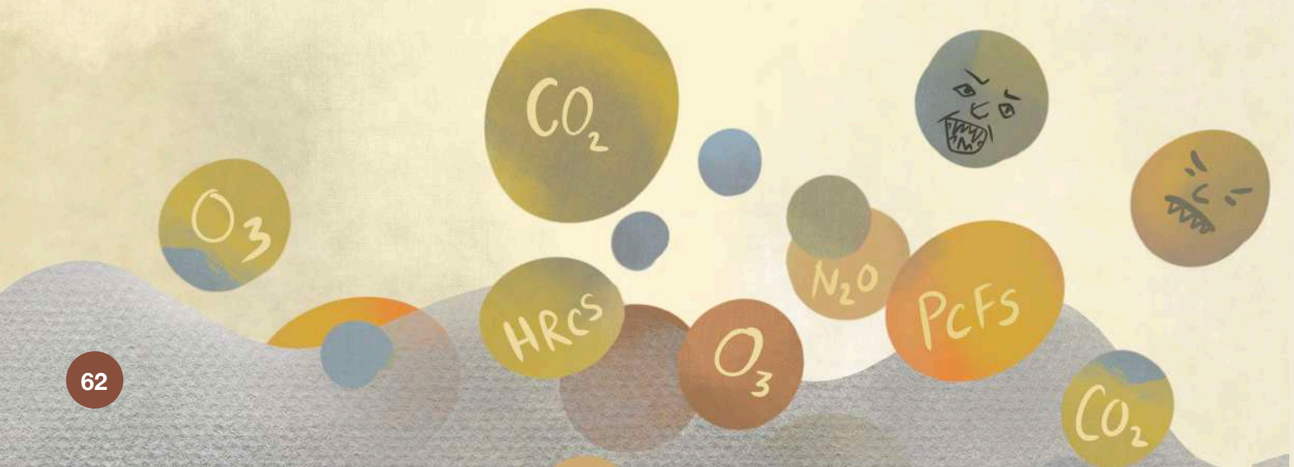
1. Greenhouse gases trap _____ in the atmosphere.

2. _____ and _____ are two examples of animals affected by melting ice.

3. Climate change can cause more _____ and _____, making it hard for people to live in some places.

4. When ice melts, it causes _____ to rise and this can lead to _____ in coastal areas.

5. Increased greenhouse gases can lead to more _____, which can make people feel very _____ and tired.



So what if the climate is changing?

Climate change affects humans, animals and our environment. This is because climate determines so much of how we live, what we eat and what we do.

Activity 5.3

Think and discuss:

Choose one of the scenarios and discuss the questions given

Excess Rains

It has been raining heavily for one whole day

Extremely hot day

It is an extremely hot day and when you open the door you can feel hot air.

When you spill water on the floor, it dries up instantly.

- What do you think will happen if it rains continuously or continues to be hot for days?
- How will it affect your day-to-day life?
- Has this ever happened to you?

Here are some things that are changing because our climate is changing:

Climate Change and Humans

Climate change is making big changes to our world, and people are feeling it too!

FEELING TOO HOT

When the Earth gets hotter, we have more heatwaves.

This makes people feel very hot and tired.

LESS FOOD AND WATER

In some places, there isn't enough rain, which makes it hard to grow food and get water.

HOMES IN DANGER

Rising sea levels and stronger storms can cause floods that damage homes, making it hard for people to live in some areas.

FUN FACT!

Bees are declared the most important species on Earth because they are part of the biodiversity on which we all depend for our survival.

Climate Change and the Environment

Climate change is also changing our environment! It's causing more extreme weather events.

MORE FLOODS AND DROUGHTS

Some places are getting too much rain, causing floods, while others are getting too little, leading to droughts.

MELTING ICE

Polar ice caps and glaciers in the Arctic and Antarctica are melting, causing sea levels to rise and leading to floods in coastal areas.

SEVERE CYCLONES

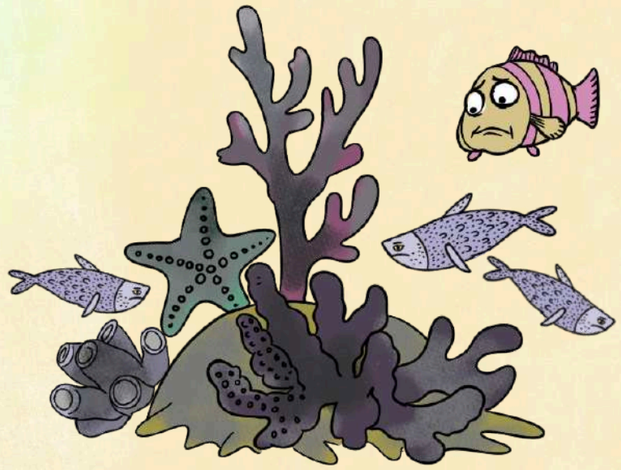
More heat in the atmosphere can cause severe **cyclones,** making them stronger and more frequent.

CHANGING SEASONS

Some regions may experience hotter summers, warmer winters, or change in when plants bloom and animals migrate.

FOREST FIRES

When the Earth gets hotter than usual, it can cause wildfires, which burn down forests and harm animals living there.



HURT CORAL REEFS

Corals are like underwater homes for many sea creatures, they are usually colourful. When the ocean gets warmer, corals can bleach and die.

Climate Change and Animals

Animals are also affected by climate change.

LOSING THEIR HOMES

As the ice melts in the polar regions, animals like polar bears and penguins are losing the ice they need to live.

CHANGING HABITATS

Turtles lay eggs on beaches, but rising sea levels and warmer weather can wash away their nests.

MIXED-UP SEASONS

Animals' and birds' lives depend a lot on seasons and seasonal changes. Some animals get confused when seasons change too much. They might not find food or have babies at the right time.

Activity 5.4

Circle the correct answers.

Which of these changes are caused by the Earth getting warmer?

Floods

Earth moving closer to the Sun

The Sun getting bigger

Crops dying

Forest fires

Nesting homes of turtles washed away

Powerful cyclones

Climate change is a big challenge, but understanding it is the first step to making a difference! By learning how these greenhouse gases are being created, and how this affects humans, animals and the environment, we can all start thinking about ways to help and make our only planet a safer place to live.

Reflections

- ○ I can explain what greenhouse gases are
- ○ I can describe how greenhouse gases cause climate change
- ○ I can identify how climate change is affecting the Earth and us

Write!

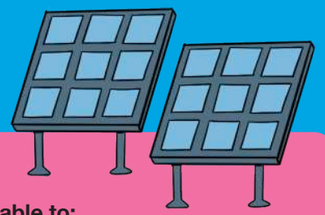
Draw!

Glossary of terms

Greenhouse Gases	Gases in the air that keep Earth warm by trapping heat from the sun
Melting	When ice turns into water because it gets too warm
Heatwaves	When it gets very hot for a long time
Floods	When too much water covers the land and can make things wet or damaged
Droughts	When there is no rain for a long time, and the ground gets very dry
Sea Levels	The height of the sea's surface, which can go up or down
Cyclones	Strong storms with very strong winds and heavy rain

LESSON **SIX**

Together WE CAN MAKE A DIFFERENCE



By the end of the lesson, students will be able to:

- Identify human activities that contribute to the production of greenhouse gases
- Describe how these activities lead to climate change
- Explore ways we can work together to slow down climate change

In Lesson 5, we learnt about how greenhouse gases are warming our planet and causing climate change. In this lesson, we will learn how our actions contribute to the increase in greenhouse gases, in larger amounts than our atmosphere actually needs.

But, the good news is, if we are causing the problem, we can also fix it!

So, let's think of ways in which we can help slow down climate change.

Human Activities that contribute to Climate Change

Have you ever wondered which human activities contribute to climate change? Some of our everyday activities are responsible for adding more greenhouse gases into the atmosphere, thus causing climate change. Let us look at them in detail.

MAKING ELECTRICITY

Electricity is often produced by burning coal. This process releases gases like carbon dioxide and methane into the atmosphere in large quantities.

The ice at the North and South Poles reflects a lot of sunlight back into space, helping keep the Earth cool.

As the ice melts, less sunlight gets reflected, and the Earth gets warmer

DID YOU KNOW?

DRIVING

In cities, many people drive either a two-wheeler or a car. These vehicles usually run on petrol or diesel. Burning petrol or diesel also releases carbon dioxide into the air. This gas makes the Earth warmer.

CUTTING DOWN TREES

Trees help clean the air, but when we cut down or burn trees, it adds more carbon dioxide to the air. Without enough trees, the Earth warms up even more.

FOOD PRODUCTION

When we grow rice or raise animals like cows, goats and sheep it produces a lot of methane.

THROWING AWAY WASTE

When food, plastic and other **waste** is thrown into the **dumpyards**, they release harmful gases like methane, which heats up the Earth. Throwing away plastic is also very bad because it does not break down and stays in the environment for many years, polluting the land and oceans.

Activity 6.1

Below are pictures of different activities. Tick the ones that cause greenhouse gas emissions

☐ Driving a car

☐ Doing homework

☐ Cycling to school

☐ Making electricity

☐ Cutting down trees

☐ Flying a kite

☐ Playing outside

☐ Bursting crackers

How Can We Help?

Even though human activities contribute to climate change, we can all make a difference by changing our daily habits. Here are some simple ways we can help:

1 The five Rs

Refuse, Reduce, Reuse, Repair, Recycle

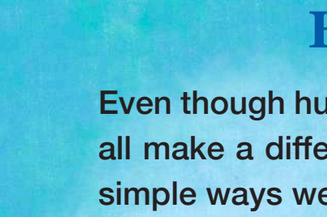
Refuse Say 'no' to things you don't need

Reduce Buy fewer things and use them carefully

Reuse Think of new ways to use things you wanted to throw away

Repair Don't be quick to throw things away. You can repair and continue using it

Recycle Recycling means some **materials** can be **processed** and used as **raw materials** for making new things



Using energy from the sun doesn't hurt the planet like burning fossil fuels (coal, petrol and diesel) does. This is called "renewable energy" source

Activity 6.2

Choose the correct R

Look at the image below and decide which of the 5 Rs you can use:

1

Old newspapers

2

An empty room with fan and TV running

3

A plastic bottle

4

An old torn T-shirt

5

Glass bottles

6

Taking long showers

What was your answer to this riddle?

"I do not own Earth. But I behave like I do. There is one of me. But what I do can be felt around the world. What am I?"

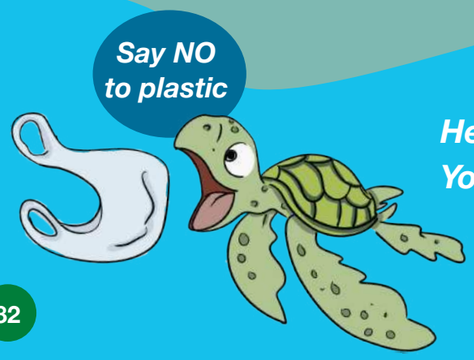
The answer is human beings!

Yes, some people don't understand that Earth's limited resources need to be used carefully, and sparingly. If we are all careful with Earth's resources, life on Earth will be better for everyone.

2 Sorting our waste

Sorting our waste means not tossing everything into one bucket and giving it to our municipality workers. We must separate our waste, depending on the type of material, and its nature. For example, just being left in the soil is enough to rot your kitchen waste and turn it back into fertile soil! But to do that, you need to keep your kitchen waste separate.

But if we toss it away with other items such as plastic or paper, instead of rotting and turning back into soil, this mixed waste will release methane as it breaks down. Plastic also takes hundreds of years to break down, giving out harmful chemicals and greenhouse gases, further warming the planet.



Here is how you can sort your waste. You can separate them into three piles

1

Things that do not rot: Materials like plastic, glass and metal, do not rot. Some of these, like glass and metal, can be recycled. It's best to refuse items made with plastic, as recycling plastic is not very **efficient**.

2

Things that rot: This includes kitchen scraps and items like paper that break down naturally and turn back into soil.

3

Toxic materials: Some things like bandaids, batteries, and electrical and electronic **devices** contain **toxic** chemicals. These must not be thrown into dumpyards, but handled by people with special skills.

By separating our waste in this way, we can manage our waste better and reduce greenhouse gas emissions.

3 Saving Electricity and Water

Electricity: Turn off lights and devices when not in use. Use energy-saving bulbs.

Water: Fix leaks and use water wisely, like turning off the tap while brushing your teeth.

4 Choose Greener Ways to Travel

Walk, cycle, or use **public transport** instead of taking a car or a bike. It's better for the planet and good for your health!

5 Working Together

When we work together with our families, friends and even companies and governments, we can make big changes. Encourage everyone to save water, electricity and reduce waste.

Together, we can protect our planet!

Activity 6.4

Oath Taking Ceremony

Let us commit to simple, everyday actions that protect our planet. Read this oath aloud with your teacher and write 3 sentences about how you plan to protect the planet.

I promise to help our planet by:

- Saying no to the things I don't need
- Reducing waste by using less and throwing away less
- Turning off lights to save electricity
- Closing taps to save water
- Walking, riding my cycle, or taking the bus whenever I can
- Refusing to use single-use plastic and choosing reusable options instead
- Sharing what I have learned and encouraging my friends and family to help too

Add one idea of your own here:

Remember, every little action counts!

Reflections

- I can identify human activities that contribute to greenhouse gases
- I can explain how these activities lead to climate change
- I can describe ways we can work together to slow down climate change

Write!

Draw!

Glossary of terms

Waste	Anything that is thrown away or no longer needed
Dumpyard	An open piece of land where we dump all our waste
Materials	Things we use to make stuff, like wood or metal
Processed	Taking an object, and breaking it down into smaller pieces, so something new can be made from it
Raw Materials	The special parts or resources that we need to make something new
Sorting	Separating things into different groups
Efficient	Doing something in the best and quickest way
Devices	Machines that help us, like phones, laptops etc.
Toxic	Something that can make you very sick or hurt if you touch, breathe, or eat it
Public Transport	Buses, trains, and other shared vehicles that help reduce the number of motor vehicles like cars, bikes etc on the road

REFUSE

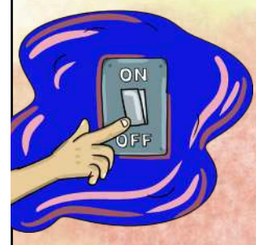
SAY ‘NO’ TO THINGS YOU DON’T NEED

Small Changes.
Big Difference

REFUSE, REDUCE, REUSE, REPAIR, RECYCLE

REDUCE

EARTH’S RESOURCES ARE LIMITED. USE IT WISELY

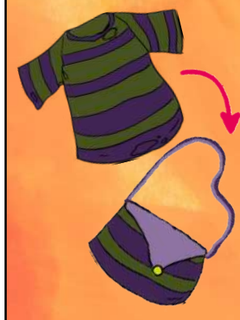


Small Changes.
Big Difference

REFUSE, REDUCE, REUSE, REPAIR, RECYCLE

REUSE

THINK OF NEW WAYS TO USE THINGS YOU WANTED TO THROW AWAY



Small Changes.
Big Difference

REFUSE, REDUCE, REUSE, REPAIR, RECYCLE

Cut out and make your own bookmarks and climate warrior badges!

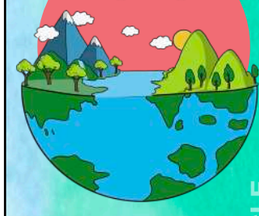
REPAIR

DON’T BE QUICK TO THROW THINGS AWAY. YOU CAN REPAIR AND CONTINUE USING IT

Small Changes.
Big Difference

REFUSE, REDUCE, REUSE, REPAIR, RECYCLE

RECYCLE



SOME MATERIALS CAN BE PROCESSED AND USED AS RAW MATERIALS FOR MAKING NEW THINGS

Small Changes.
Big Difference

REFUSE, REDUCE, REUSE, REPAIR, RECYCLE

As we fight for our planet's survival, those children that will inherit this, should not be left behind. This book aims to demystify climate action for young scholars through thought-provoking lessons, fun activities and interesting illustrations. We are creating the next generation of climate warriors - aware, empowered, and ready to act.

CLIMATE ACTION NOW!

CAG
Citizen consumer and civic Action Group