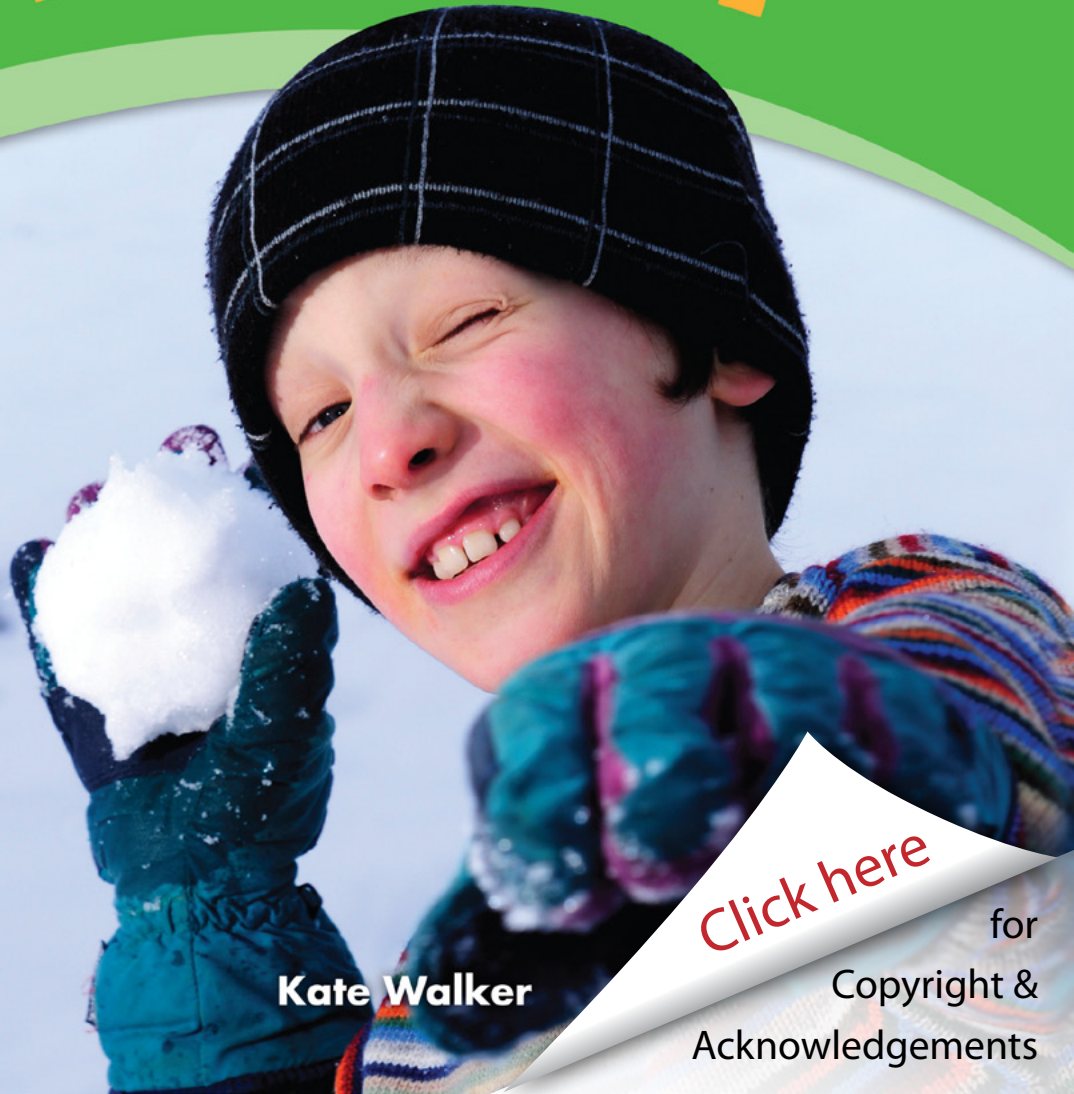


# Weather



Kate Walker

Click here

for  
Copyright &  
Acknowledgements

## Contents

Investigating Earth	4
Weather	5
What is weather?	6
What causes weather?	8
Different types of weather	10
Sunny weather	12
Windy weather	13
Wet weather	14
What makes weather change?	16
Why is weather important?	18
Weather helps plants make food	20
Weather helps new plants grow	22
Weather creates soil	24
Weather provides fresh water	26
Protecting weather	28
Amazing weather	30
Glossary	31
Index	32



When a word is printed in **bold**, you can look up its meaning in the Glossary on page 31.

# Investigating Earth

We investigate Earth to find out what makes it work. Earth is made from natural features. Some of these natural features are living and some are non-living things.



By investigating its natural features we can learn about how Earth works.



# Weather

Weather is a natural feature of Earth. Weather happens in a band of air around Earth called the **troposphere**. Every place on Earth has weather.

Weather happens in the part of the air that is closest to Earth.





# What is weather?

Weather is a non-living thing. Weather is what happens in the air above and around us. Weather can be hot or cold, sunny or cloudy, wet or dry, windy or still.



Wet weather happens when the sky is cloudy and rain falls through the air.

Weather is always changing. Dry weather changes to wet weather. Cold weather changes to hot weather. Weather usually changes from day to day.



Big weather changes such as storms can be seen moving across the sky.

# What causes weather?

Sunlight is the main cause of weather. It does three things that make weather happen. Sunlight:

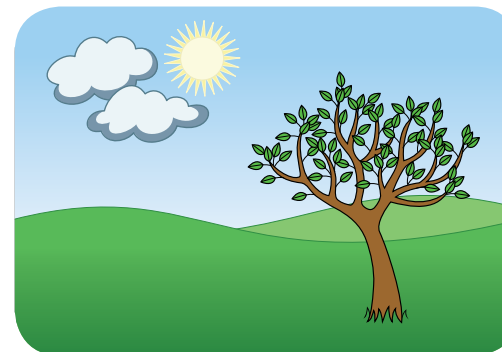
- heats the air
- makes air move
- causes water to rise into the air as **water vapour**.

Without the sun,  
Earth would not  
have weather.

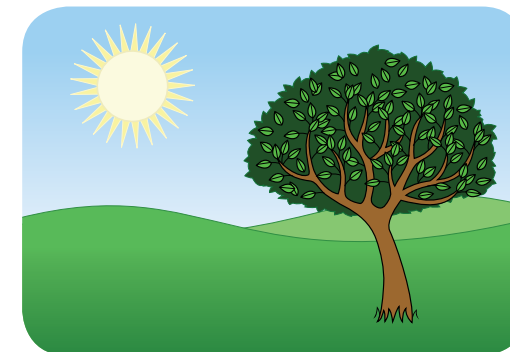


Very strong sunlight falls on different parts of Earth at different times of the year. This gives most places on Earth four different **seasons** of weather.

Earth's four main seasons have different types of weather.



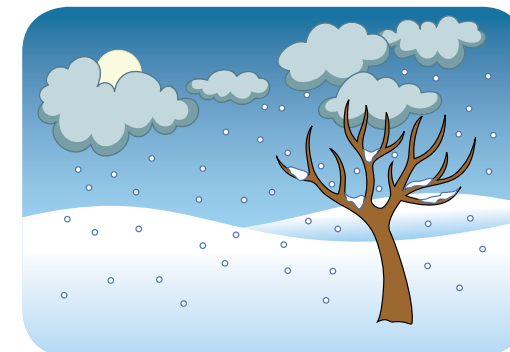
warm spring



hot summer



cool autumn



cold winter

# Different types of weather

There are three main types of weather on Earth.

## The three main types of weather

### 1 Sunny weather



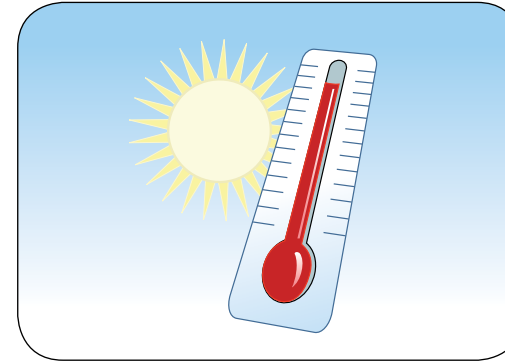
### 2 Windy weather



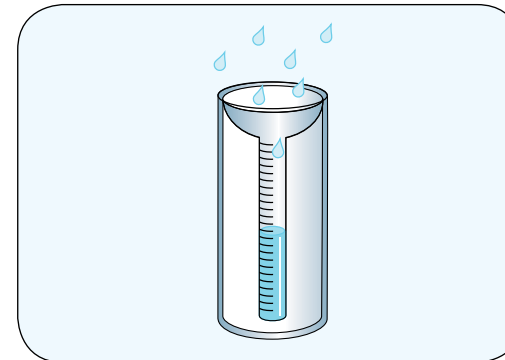
### 3 Wet weather



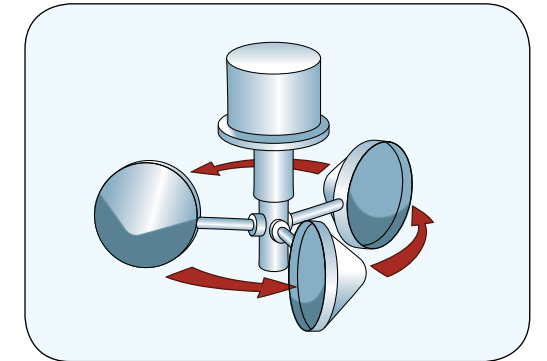
We use special instruments to measure how warm, windy or wet the weather is.



The **temperature** of the air is measured with a **thermometer**.



Rainfall is measured in a **rain gauge**.



The speed of the wind is measured with a **wind gauge**.



## Sunny weather

Sunny weather happens when the sky is clear or has few clouds. The sun's rays shine through the air. A lot of heat and light from the sun reach Earth's surface.



On sunny days, a lot of sunlight reaches Earth and warms it up.

## Windy weather

Wind is created by moving air. Air is always moving around Earth. We say the weather is windy when the air is moving fast.

On windy days, fast-moving air makes grass sway and blows people's hair and clothes around.



## Wet weather

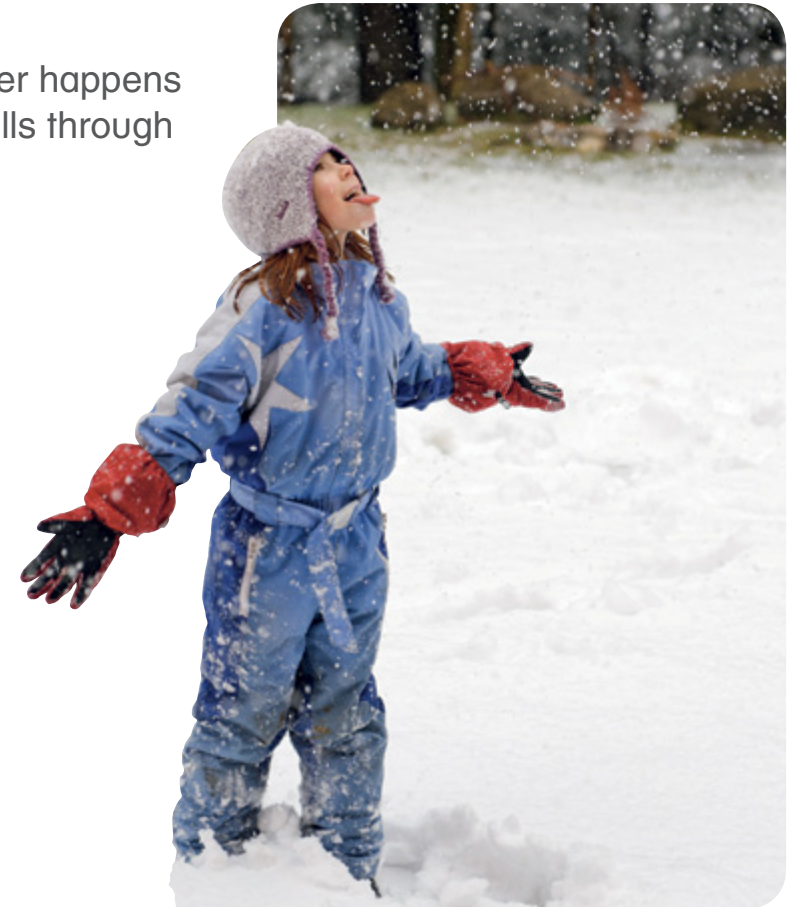
Wet weather happens when water falls to Earth from clouds. Clouds are made of tiny water droplets. When the droplets get too heavy, they fall to Earth as rain.



Water droplets falling as rain make wet weather.

Some clouds contain small ice pieces. Sometimes these ice pieces stick together and fall as snow. Sometimes they collect more ice and fall as hail.

Snowy weather happens when snow falls through very cold air.



# What makes weather change?

Weather changes as warm and cold air moves around Earth.

Air moves in giant air masses. Big weather changes happen when air masses bump into each other.

1 A warm **air mass** passes slowly over a town. It brings many days of warm, sunny weather.



2 A cool air mass bumps into the warm air mass. Strong winds blow and heavy rain falls for a few hours.



4 A warm air mass bumps into the cool air mass. Light winds blow and light showers of rain fall for a few days.



3 The cool air mass passes slowly over the town. It brings many days of cool, dry weather.





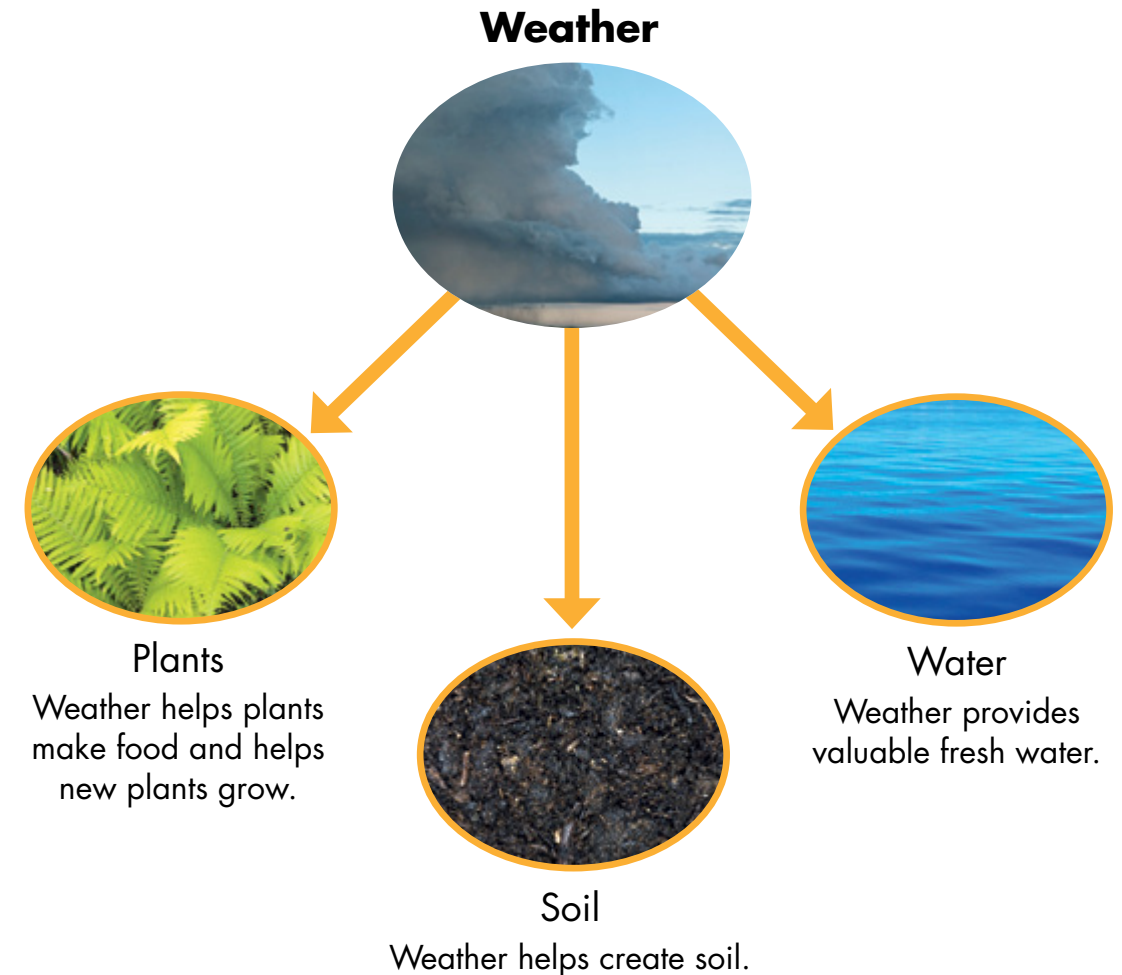
# Why is weather important?

Weather happens everywhere on Earth. Weather works together with some of Earth's other natural features. This helps to keep Earth healthy.

Earth has six main natural features that work together to keep Earth healthy.



Weather works together with plants, soil and water.



## Weather helps plants make food

Plants use energy from sunlight to make food. Plants grow toward the sun and spread out their leaves. Plants take in sunlight through their leaves. This helps plants make food.



Sunny weather helps plants make the food they need to grow.

Plants also need water to make food. Rainy weather puts water into the soil. Plants take rainwater from the soil through their roots.



Rainy weather gives plants water they need for making food.



## Weather helps new plants grow

Most plants grow from seeds. Healthy seeds come from flowers that share pollen with each other. Windy weather carries pollen from flower to flower. This makes healthy seeds that grow into healthy plants.



Windy weather helps lilies share pollen with each other.

Windy weather helps plants spread their seeds around. Plants survive in nature by spreading their seeds over a large area. Some plants make special seeds that blow easily on the wind.



Windy weather carries dandelion seeds a long way from the plant.

## Weather creates soil

Soil is mostly made from billions of tiny grains of rock. Rocks are broken into tiny grains by wind and water **erosion**. Windy weather erodes rocks by blasting them with sand.

Sand blown by the wind wears away rocks and turns them into soil.



Wet weather fills rivers with fast-moving water. Fast-moving water erodes rocks by wearing away the grains.

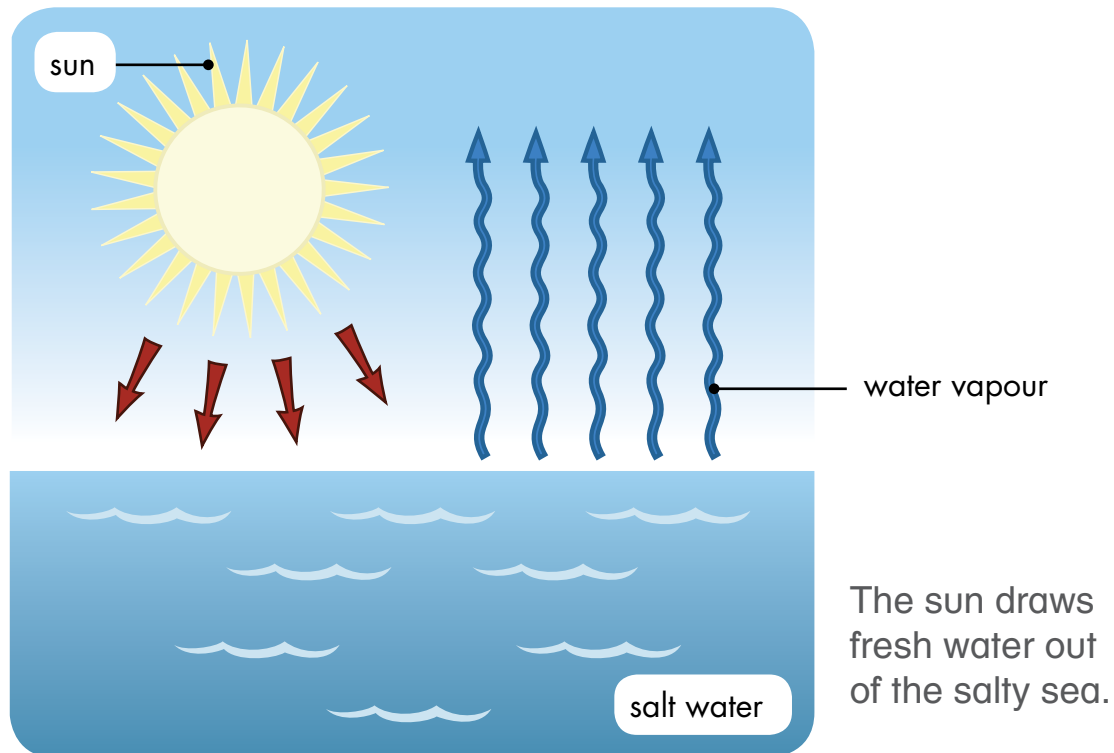
Wet weather fills rivers with water that wears away rocks and turns them into soil.





## Weather provides fresh water

Weather changes Earth's salty sea water back into fresh water. Sunny weather draws water out of the sea and into the air as **water vapour**. The salt is left behind.



Water vapour drawn into the air forms clouds. Clouds drift over the land. Clouds contain water droplets or ice pieces. They drop fresh water as rain, snow or hail.



Wet weather fills Earth's rivers and lakes with valuable fresh water.

# Protecting weather

Weather affects all living things on Earth and needs to be protected. Humans are changing the weather by burning **fossil fuels** in cars and power plants.



Humans are making the weather warmer by burning fossil fuels.

We protect Earth's weather when we burn fewer fossil fuels. One way to do this is to walk or ride a bicycle instead of using a car.



We can help protect weather by riding to school instead of going by car.



# Amazing weather

A **tornado** is a fast spinning column of air. Tornadoes happen often in the Great Plains of the United States. Tornadoes can cause damage to trees and buildings.



Winds in tornadoes can reach speeds of 480 kilometres per hour.

# Glossary

<b>air mass</b>	large mass of warm or cool air
<b>erosion</b>	breaking up and wearing away of Earth's surface by natural forces such as water or weather
<b>fossil fuels</b>	fuels that are burned to run cars and power plants
<b>rain gauge</b>	instrument that measures how much rain has fallen
<b>seasons</b>	times of the year that have different kinds of weather
<b>temperature</b>	how warm or cool something is
<b>thermometer</b>	instrument that measures how warm or cool something is
<b>tornado</b>	a powerful spinning column of air that reaches from a thunderstorm in the sky to the ground
<b>troposphere</b>	a band of air around Earth that reaches 15 kilometres into the sky
<b>water vapour</b>	water that has changed into an invisible gas in the air
<b>wind gauge</b>	instrument that measures wind speed



# Index

## **a**

air 5, 6, 8, 11, 12–13, 15,  
16–17, 18, 26–27, 30  
air masses 16–17

## **c**

clouds 6, 12, 14–15, 27

## **e**

erosion 24–25

## **f**

fossil fuels 28–29  
fresh water 19, 26–27

## **h**

hail 15, 27

## **n**

natural features 4–5, 18–19

## **p**

plants 18–23

## **r**

rain 6, 11, 14, 16–17, 27  
rain gauge 11  
rainy weather 21  
rocks 18, 24–25

## **s**

seasons 9  
seeds 22–23  
snow 15, 27  
soil 18–19, 21, 24–25  
sun 8, 12, 20, 26  
sunlight 8–9, 12, 20  
sunny weather 6, 10, 12,  
16, 20, 26

## **t**

temperature 11  
thermometer 11  
tornadoes 30

## **w**

water 8, 14, 18–19, 21,  
24–25, 26–27  
water vapour 8, 26–27  
wet weather 6–7, 10–11,  
14–15, 25, 27  
wind 13, 16–17, 23, 24, 30  
wind gauge 11  
windy weather 6, 10–11, 13,  
22–23, 24