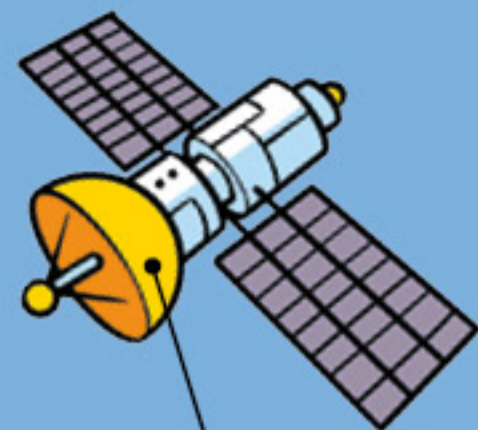


STUDYING STORMS

LITTLE EXPLORERS



WEATHER



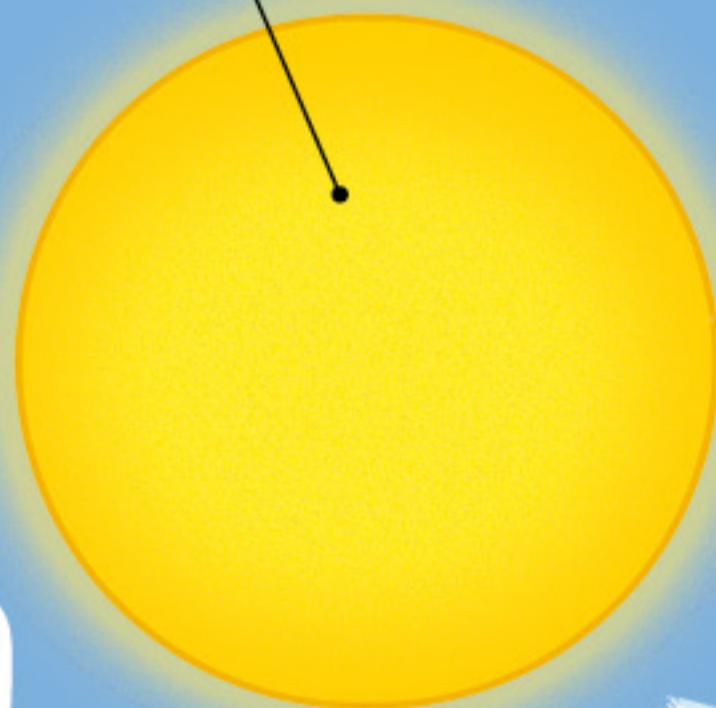
WEATHER SATELLITE

LIFT THE FLAPS TO DISCOVER HOW WEATHER WORKS INSIDE AND OUT!

WHAT POWERS OUR WEATHER?



COOL CLOUDS



MEASURING THE WEATHER



CHANGING SEASONS



WHOOSHING WINDS



METEOROLOGY

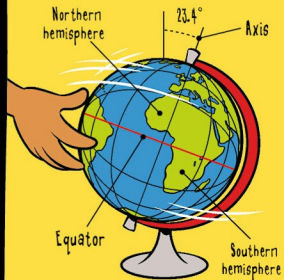
MORE THAN 30 FLAPS!

THE SUN AND THE SEASONS

As weather patterns change through the year, we get different seasons. Many places have four seasons: spring, summer, autumn and winter. Which season is your favourite?

On a tilt

Earth tilts on its axis at an angle of 23.4 degrees. This means that it leans as it moves around the Sun. Places tilted towards the Sun get more heat and sunlight, and areas facing away from the Sun get less.

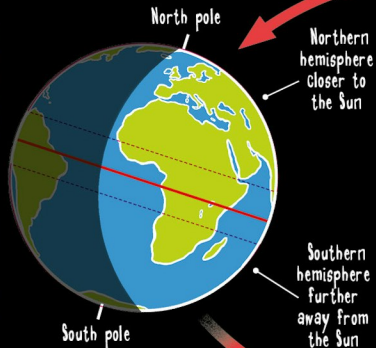


Top and bottom

The equator splits the planet into a top half called the northern hemisphere and a bottom half called the southern hemisphere. The two hemispheres have opposite seasons because of Earth's tilt.

Always moving

Earth is always moving around the Sun in space. It takes one full year for Earth to do a complete loop or orbit. During that time, parts of Earth get more or less sunlight than others, causing the different seasons.



Four seasons

When an area of the planet is closest to the Sun, it's summer. It is hot and bright. As Earth turns away from the Sun, the air cools and autumn arrives. Winter comes when an area is furthest away, with colder weather and sometimes snow. Finally, as Earth moves closer again, the air warms and spring blossoms.



Wet and dry

Some areas close to the equator are warm all the time and only have two seasons: wet and dry. In the wet season, rain falls freely and plants flourish. In the dry season, rain hardly falls at all.

Northern hemisphere further away from the Sun

Southern hemisphere closer to the Sun

Sun never sets

In the most northern parts of the world, the Sun does not set for more than 70 days. In summer, Earth is rotating on a tilted axis that means the North Pole is always facing the Sun.



THE WATER CYCLE

Did you know that the water you drink and the rain that falls on your head was once in the ocean? All the water on our planet is recycled over and over again, in a never-ending cycle.

Sun

What's inside a cloud?

Sun rays

① Evaporation

The Sun's heat warms up the water on the surface of the sea or a lake. The surface water turns to a gas called water vapour and floats up into the sky. This is called evaporation.

② Condensation

In the sky, the water vapour cools down into water droplets or ice crystals and gathers together to form in clouds. This is called condensation.

③ Precipitation

Finally, the water in the cloud becomes so heavy that the air can't hold it. It falls to the ground again as rain, snow or hail. This is called precipitation.

Ice storm

If it is very stormy, water droplets can be lifted even higher into the sky and freeze. They fall to the ground as hard balls of ice called hail.

④ Collection

Just like anything on a hill, water flows downwards. It runs off the ground and through rivers and streams until it reaches a large lake or the sea. This is called collection.

Rainbow

When the Sun shines on a rainy day, you might see a rainbow!

IN THE CLOUDS

On a sunny, rainy or grey day, you might see clouds in the sky. There are 10 common types of cloud, and they all mean different things for what weather we may have.

AltoCumulus



StratoCumulus



Cumulus



Stratus



Cirrus



Cirrostratus



Cirrocumulus

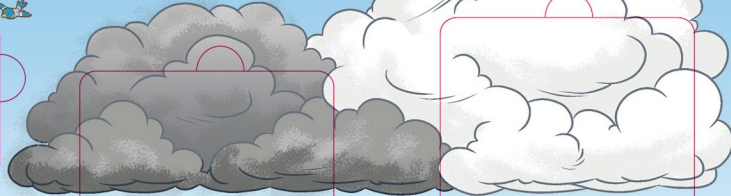
Is it a UFO?



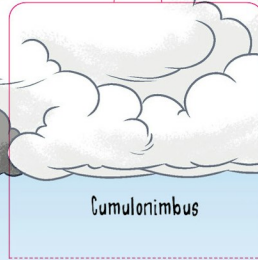
Altostratus



Nimbostratus



Cumulonimbus



Fog

When clouds lie low on the ground, they create fog.



Stay safe

Lightning from clouds can be dangerous because it is electric. It heads to the ground and strikes the tallest object it finds. Never use an umbrella during a thunderstorm, and don't go in a swimming pool or near trees either. Stay safe indoors until the storm passes.



WHOOSHING WIND

A gentle breeze or a strong gale – some days you barely feel the wind at all, while other times it whooshes wildly around you! But where does it come from?

Under pressure

The weight of the air in the atmosphere presses down on Earth. This is called air pressure, and changes in air pressure cause wind.



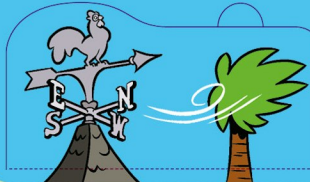
Air on the move

Wind is created when air moves from areas of high pressure to areas of low pressure. The bigger the difference in pressure, the faster the air will move and the stronger the wind.



Which way?

Wind travels in all directions, the name we give to the direction of the wind is based on where it comes from, so a wind travelling from north to south would be a northerly wind.



How fast?

An anemometer is an instrument that tells you how fast the wind is blowing.



Wind power

As the wind blows across our planet, it can be used to help the planet too! Its energy can be used to make electricity. Wind spins the blades on a wind turbine, which in turn spin a machine inside. This changes the wind's movement energy to electrical energy.



Calm to chaos

The Beaufort Scale measures how strong a wind is, ranging all the way from nearly nothing, to a strong windy gale, to a violent hurricane.

Beaufort Scale



Lift the flaps to see what each level on the scale looks like.

0

Calm

1

Light air

2

Light breeze

3

Gentle breeze

4

Moderate breeze

5

Fresh breeze

6

Strong breeze

7

Near gale

8

Strong gale

9

Gale

10

Storm

11

Violent storm

12

Hurricane