



DISCOVER THE BEAUTY OF OUR HOME PLANET ON SIX FLAP MAPS

# ATLAS OF PLANET EARTH FOR CHILDREN

ATLAS OF PLANET EARTH FOR CHILDREN



# EARTH IN SPACE

## STAR

A huge shining ball of hot gas. Reactions inside release enormous amounts of energy. They appear like tiny spots in the night sky. The best-known star is our Sun.

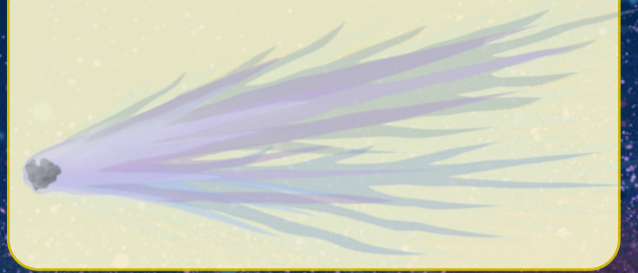


## THE SOLAR SYSTEM

There's a solar system inside the Milky Way galaxy. It has eight planets, all orbiting a star known as the Sun. The system is home to our own planet, Earth.

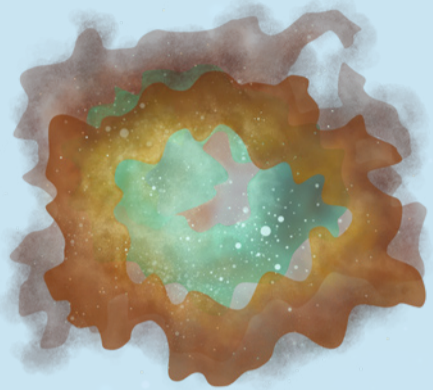
## COMET

A body of ice and dust; sort of a dirty ice ball. But when it approaches the Sun and becomes visible in the sky it creates a wonderful celestial show. The tail of a comet is made of gas and dust.



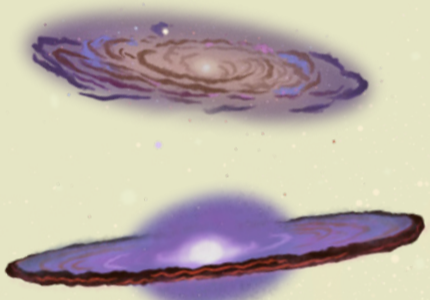
## NEBULA

A cloud of dust and gasses in outer space. Some are visible to the naked eye, appearing as a vague haze in the sky. They teem with colours when seen through a quality astronomical telescope.



## GALAXY

An enormous space full of stars, planets, dust, and gasses, held together by gravity.



## WHAT IS GRAVITY?

Gravity is a force attracting things to one another. It's why we can stay on Earth instead of being flung off into outer space. When you throw a ball up in the air, it never flies off but always falls down again. This is thanks to gravity.

## NEPTUNE

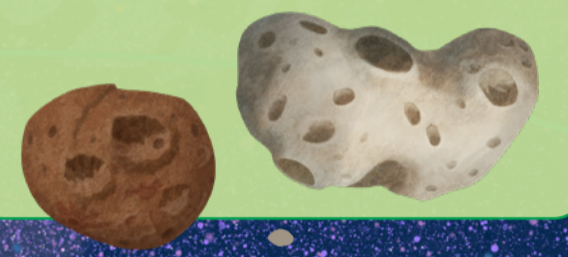
Neptune is the outermost planet. It is made mostly of gases and is blue in colour.



NEPTUNE

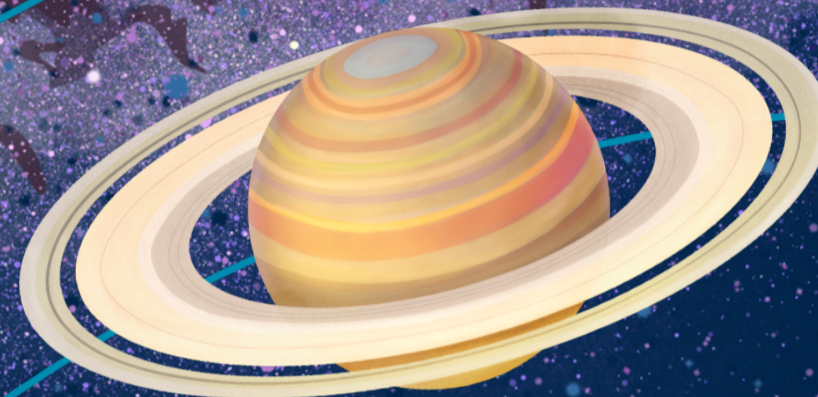
## ASTEROID

A small body in outer space, consisting of rock, metal, and dust. Asteroids are much smaller than planets. Some are only a few meters big while others measure up to hundreds of kilometres.



## SATURN

The second largest planet in the Solar System, Saturn is known for its beautiful rings which consist of dust and ice.



SATURN

## MARS

Mars, covered with red dust, is known as the "Red Planet". Its surface is peppered with huge volcanoes and deep canyons. Scientists explore it for signs life used to exist there. It's the second smallest planet in the Solar System.



MARS

## MERCURY

Mercury is the smallest planet in the Solar System, one closest to the Sun. It has no atmosphere which makes its surface extremely hot during the day and very cold during the night.



MERCURY

## URANUS

The blue-green Uranus is an ice giant and the third largest planet in the Solar System.



URANUS

## JUPITER

A gas giant, Jupiter is the biggest planet in the Solar System. A huge storm, called the Great Red Spot, rages on its surface.



JUPITER

## SUN

A huge star, orbited by our Earth. It has a centre—a large hot core. Temperatures on the surface are enormous and the core is even hotter. The Sun is 109 times larger than Earth. It's the source of light and warmth on our planet. Without the Sun, no plants would grow and no life would exist here.



## EARTH

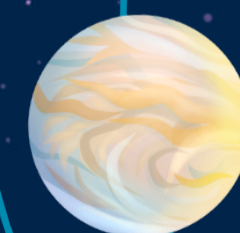
This planet is our home—Earth, the subject of this book. When seen from outer space it's definitely one of the most beautiful planets there are. It's the third planet in the Solar System, in terms of its distance from the Sun. The majority of its surface is covered with water.



EARTH

## VENUS

Venus is similar to Earth in terms of size but its atmosphere is dense and full of toxic gasses which cause extreme heat. It's often called the "Evening Star" or the "Morning Star" because it shines like a bright star in the sky.



VENUS



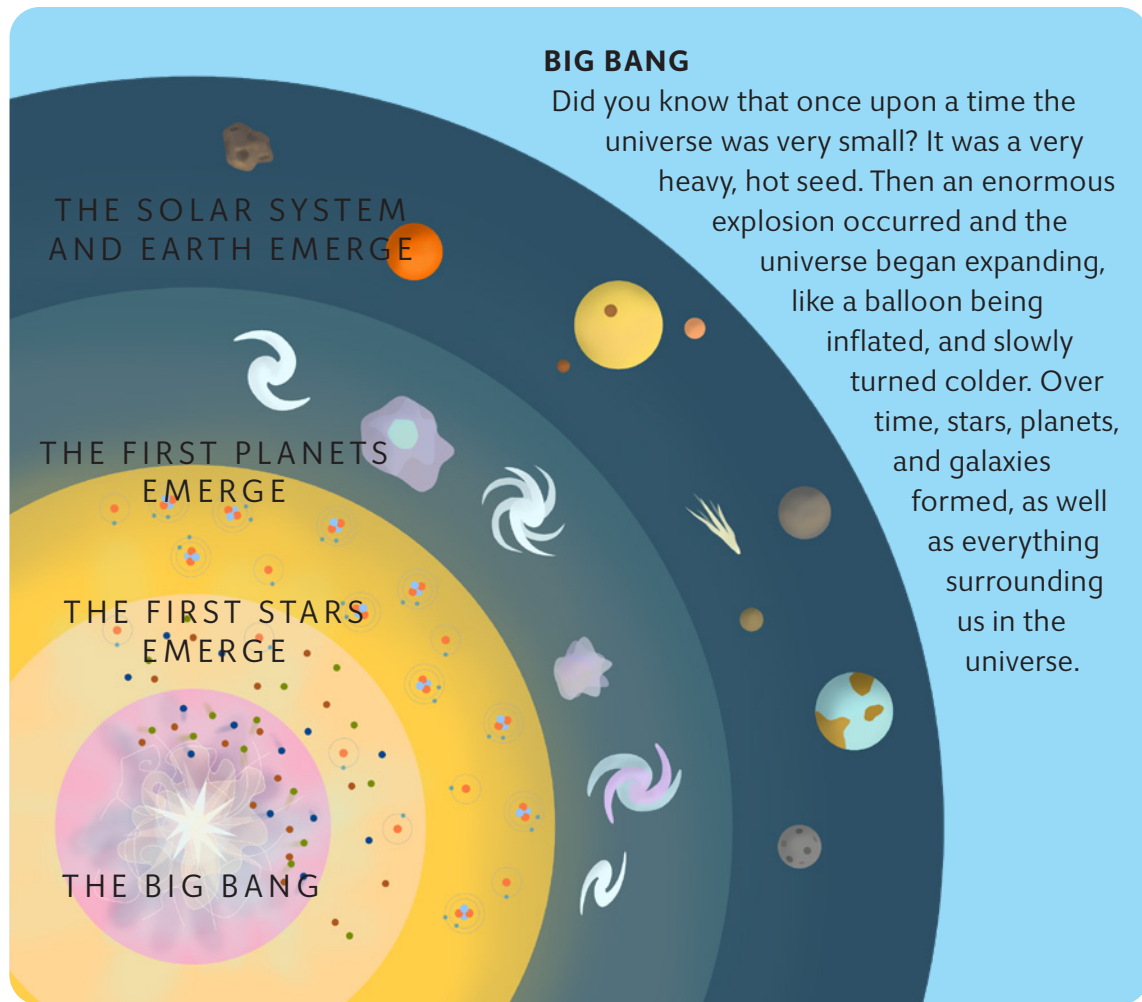
SUN

# THE ORIGIN OF EARTH

Planet Earth is a wonderful place, full of people, animals, and plants. It's still the only known place in the universe where life exists. Earth is our home and began forming over 4.5 billion years ago. It became a part of a long story which started with a huge explosion, known among scientists as the Big Bang.

## BIG BANG

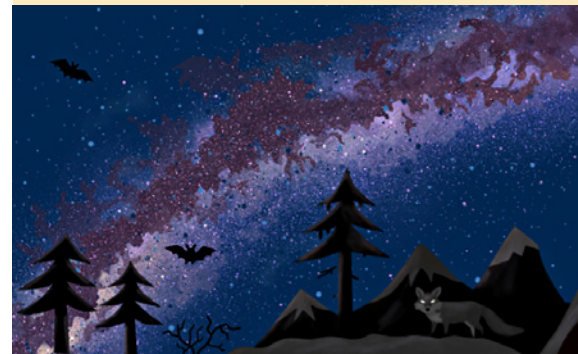
Did you know that once upon a time the universe was very small? It was a very heavy, hot seed. Then an enormous explosion occurred and the universe began expanding, like a balloon being inflated, and slowly turned colder. Over time, stars, planets, and galaxies formed, as well as everything surrounding us in the universe.



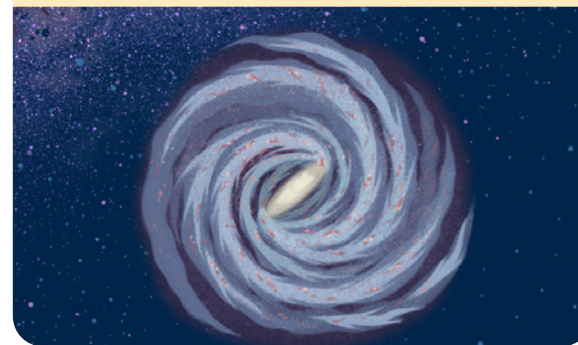
## MILKY WAY

The Milky Way is a galaxy which houses our Solar System. Why is our galaxy called the Milky Way? You can learn the answer by looking up at the night sky. You'll see a band of stars which looks like spilt milk.

AS SEEN FROM EARTH

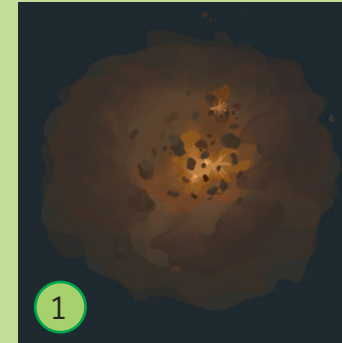


MILKY WAY AS SEEN FROM OUTER SPACE



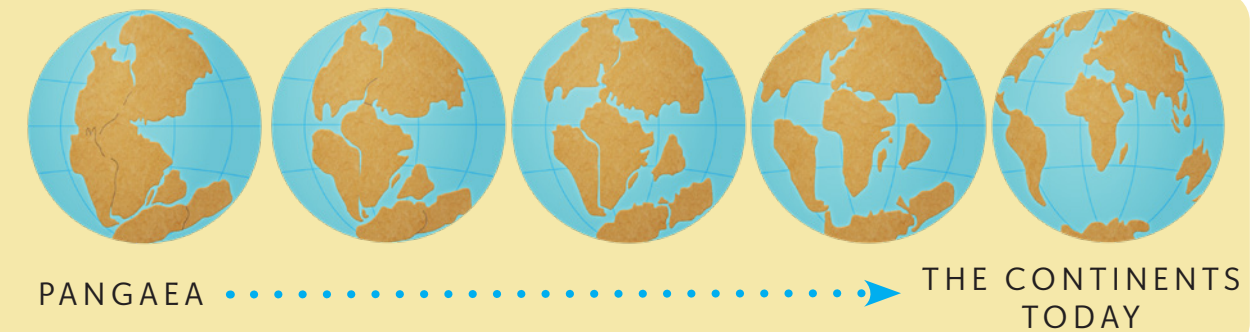
## THE ORIGIN OF PLANET EARTH

1. At first there was nothing but lots of dust and gas which then started clustering into bigger parts. They kept colliding with each other over and over again, growing even bigger.
2. The parts grew, turning into the seed of our planet. Because the collisions produced a lot of heat, Earth became a scorching ball of molten rock.
3. The new planet started attracting more material, colliding with many cosmic bodies, asteroids, and comets containing frozen water.
4. The planet's surface began slowly turning colder. Water vapours condensed and along with melted ice formed the first oceans.
5. Volcanic activity at the bottom of the oceans created the first islands and foundations of emerging continents.
6. Tectonic movements caused individual islands and parts of land to move and combine, growing bigger.



## CONTINENTAL DRIFT

The Pangaea supercontinent came to be over 300 million years ago when individual pieces of land combined into a single large one. Many years later, it broke up again into separate parts which kept moving until they gained their current shape. Because the continents still move, slowly and imperceptibly, the world will once again look different several hundred million years into the future.



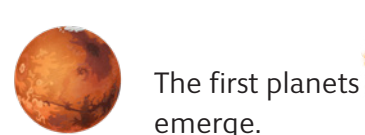
13.7 billion years ago



13,5 billion years ago



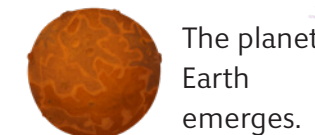
13,4 billion years ago



13,3 billion years ago



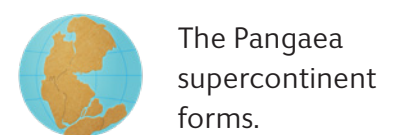
4,6 billion years ago



4,54 billion years ago



4 billion years ago



300 million years ago

# EARTH AND ITS SURROUNDINGS

## EARTH'S ATMOSPHERE

Earth is surrounded by different atmospheric layers, each reaching a different altitude.

- 1. TROPOSPHERE** — roughly 0–12 km above Earth's surface. This is where most of weather events happens and where clouds are.
- 2. STRATOSPHERE** — located 10–50 km above Earth's surface. It contains the ozone layer which protects Earth from harmful UV radiation.
- 3. MESOSPHERE** — located roughly 50–85 km above Earth's surface. It's the coldest atmospheric layer where temperatures can drop all the way to -90°C.
- 4. THERMOSPHERE** — located 85–600 km above Earth's surface. This is where aurora borealis occurs and satellites orbit.
- 5. EXOSPHERE** — starts at 600 km above Earth's surface and reaches the altitude of roughly 10,000 km. It's a transition zone between Earth's atmosphere and outer space.

10 000 km 5  
EXOSPHERE

600 km 4  
THERMOSPHERE

85 km 3  
MESOSPHERE

50 km 2  
STRATOSPHERE

12 km 1  
TROPOSPHERE

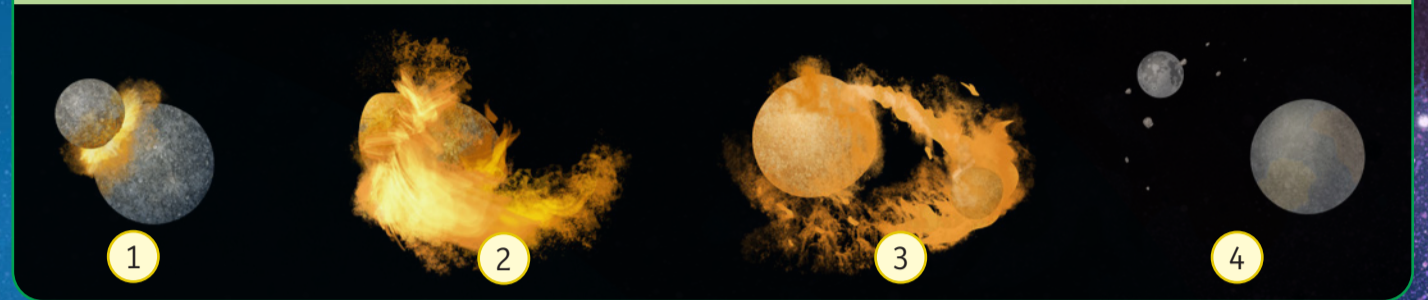
## WEATHER BALLOONS

To predict weather accurately, scientists need information from high above the ground. To get it, they use weather balloons which gather information in the stratosphere and sent it back to them.



## THE ORIGIN OF THE MOON

**1.** Over 4.5 billion years ago, the young Earth collided with a huge planet called Theia. **2.** The collision hurled a large amount of rocks and dust into outer space. **3.** These pieces began orbiting Earth, combining into a large ball over time. **4.** This is how the Moon came to be. The Moon's responsible for the tides and helps keep Earth stable, giving us the constant weather we know.



## MOON

The Moon is the cosmic body closest to Earth and orbiting it. The moonlight we can see at night is actually light reflected from the Sun. The Moon's gravity is responsible for the tides and helps keep Earth stable.



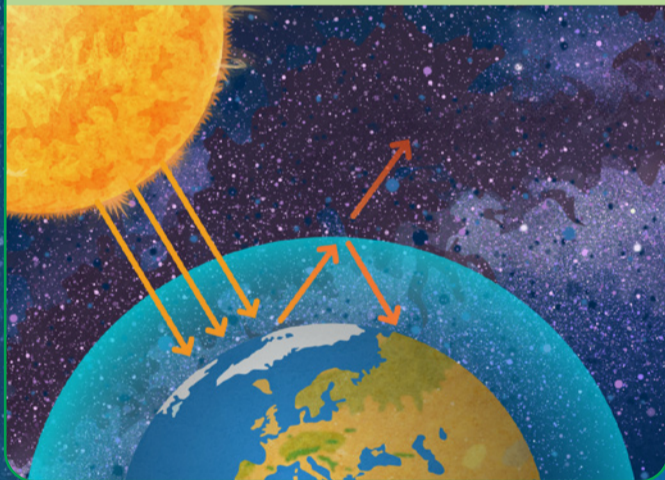
## PROTECTIVE SHIELD

The atmosphere fulfils many functions which are useful to the life on Earth. Among other things, it's Earth's protective shield. When asteroids enter it, the friction makes them hot. Most of them burn down before reaching the ground.



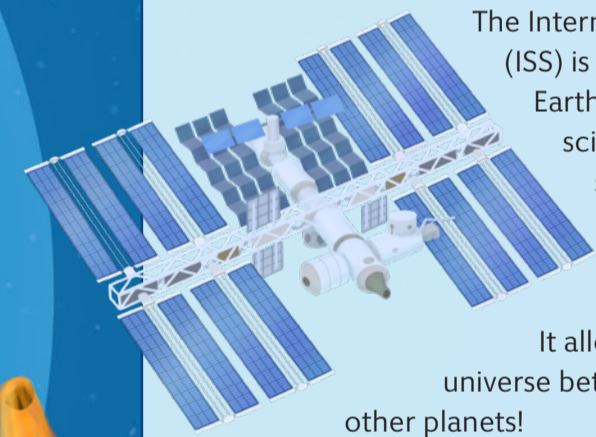
## GREENHOUSE EFFECT

Earth's atmosphere retains heat from the Sun, preventing the planet from becoming too cold. The Sun's light and heat pass through the atmosphere to Earth. Some of the heat is reflected back to outer space but the rest is retained in the atmosphere thanks to such gasses as carbon dioxide. It's as though the planet is wrapped in a warm blanket. But Earth can become excessively hot when the gasses are too plentiful.



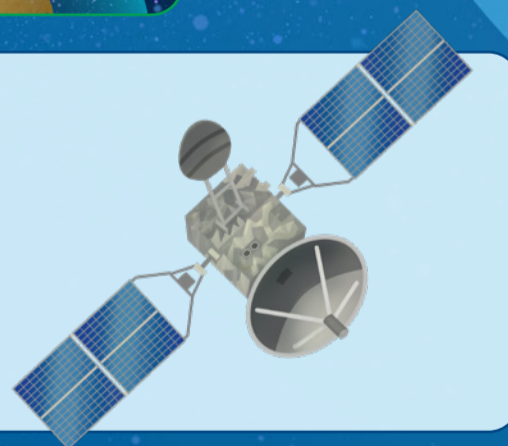
## ISS

The International Space Station (ISS) is a large laboratory orbiting Earth. Its astronauts conduct scientific experiments and study ways to survive away from the planet. The station orbits Earth once every 90 minutes. It allows us to understand universe better and plan voyages to other planets!



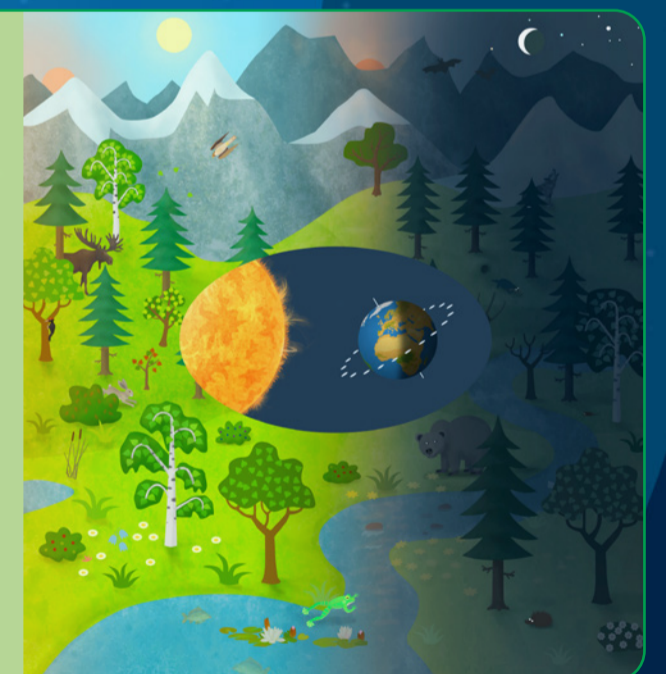
## SATELLITES

Machines orbiting Earth in outer space, they help scientists monitor weather, transmit television and internet signals, or explore the universe.



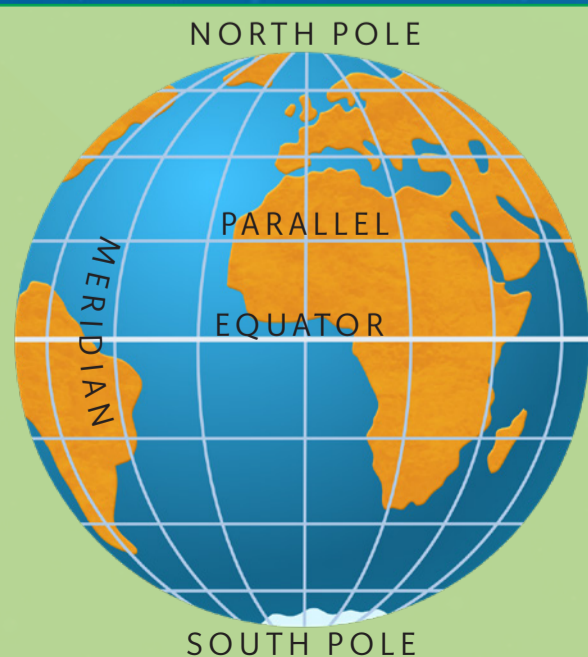
## DAY AND NIGHT

Earth revolves around its own axis, once every 24 hours. This is why there's day and night. Day is on the side of Earth where sunlight falls while the other half is plunged into shadow.



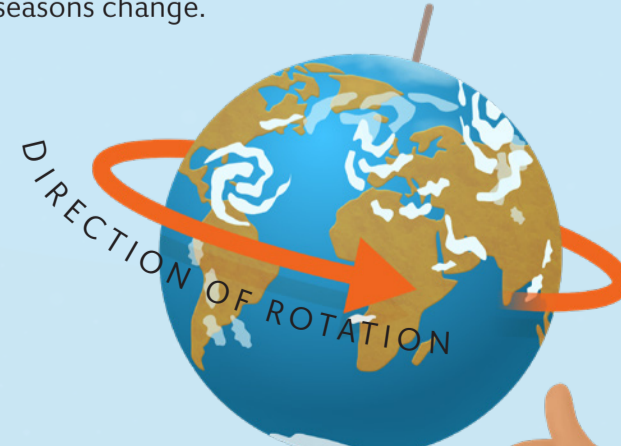
## EARTH

Parallels and meridians are imaginary lines on a map or globe which help us accurately locate places on Earth. Parallels are horizontal lines, with the equator right in the middle. Meridians are vertical lines, going from the North to South Pole and connecting the top of the planet with its bottom. Together, they form a network which show us where any place on Earth is.



## EARTH'S MOVEMENTS

Earth is always on the move, revolving around its axis which causes day and night to change. It also orbits the Sun. This takes one year and is the reason why seasons change.



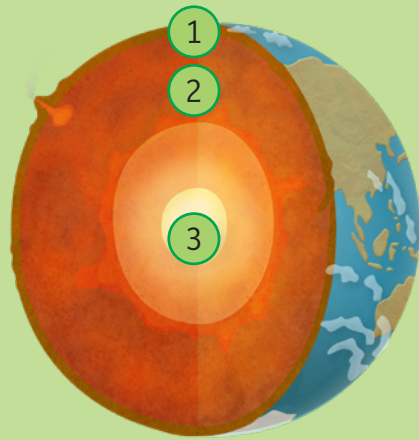
## THE SEASONS

Earth's axis is tilted, and so as the planet orbits the Sun, there's always a part that's inclined towards the star. When the north is tilted towards the Sun, it's summer there because the area receives more sunlight and warmth. Conversely, if it's tilted away from the Sun it experiences winter as it gets less sunlight. It's the other way around in the south, and so when the north is enjoying summer, it's winter in the south, and vice versa.



# EARTH AND ITS SURROUNDINGS

Our planet doesn't stay the same; its surface changes over time. The movement of tectonic plates leads to such unpleasant things as earthquakes and molten rocks cause volcanic eruptions. Still, Earth is a safe place to be. It's not surrounded by empty space but by environment which protects it and allows life to exist. The Moon, our nearest cosmic neighbour, also plays an important part in life on Earth.



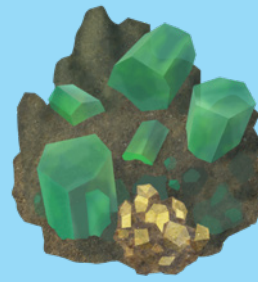
## WHAT EARTH IS MADE OF

1. Earth's crust — a thin outer layer of Earth, consisting of solid rocks and divided into plates.
2. Earth's mantle — a much thicker layer than Earth's crust, formed of hot, almost liquid rocks.
3. Core — located in Earth's centre. The outer core is liquid but the inner one is solid.



## TECTONIC PLATES

A tectonic plate is a huge piece of Earth's crust which very slowly moves across a more liquid layer underneath. These plates form Earth's crust and are divided like huge puzzle pieces.



## MINERALS

Minerals are solid natural substances formed in Earth's crust. They have a regular structure (crystals). Examples include the quartz, mica, or diamond. Many find use in industry, jewellery, or technology. Simply put, minerals are the "building blocks" of our planet.



## DIAMONDS

They're formed deep underneath Earth's surface where there's enormous pressure and high temperatures. Volcanic eruptions and plate motion move them closer to Earth's surface.

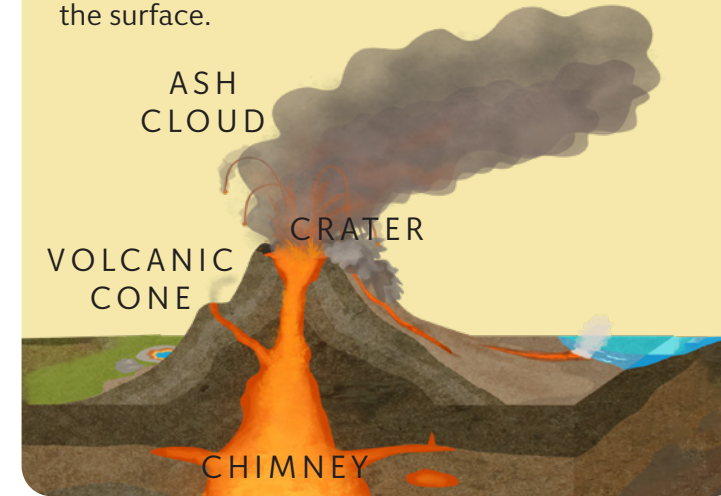
## THE HIGHEST PLACE ON EARTH

The highest place on Earth is Mount Everest in the Himalayas at the border of Nepal and China, 8848.86 meters above sea level. Air at the summit is thin, temperatures extremely low, and wind often very strong.



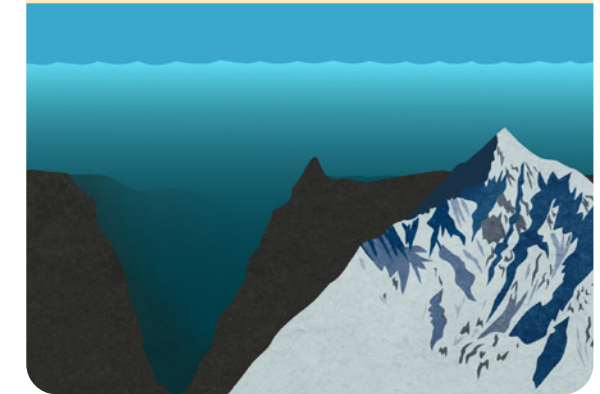
## VOLCANOES

Volcanoes usually form at the edges of tectonic plates. When plates diverge or slip underneath one another, it results in tears. Molten rocks push from huge depths through these tears and come up to the surface.



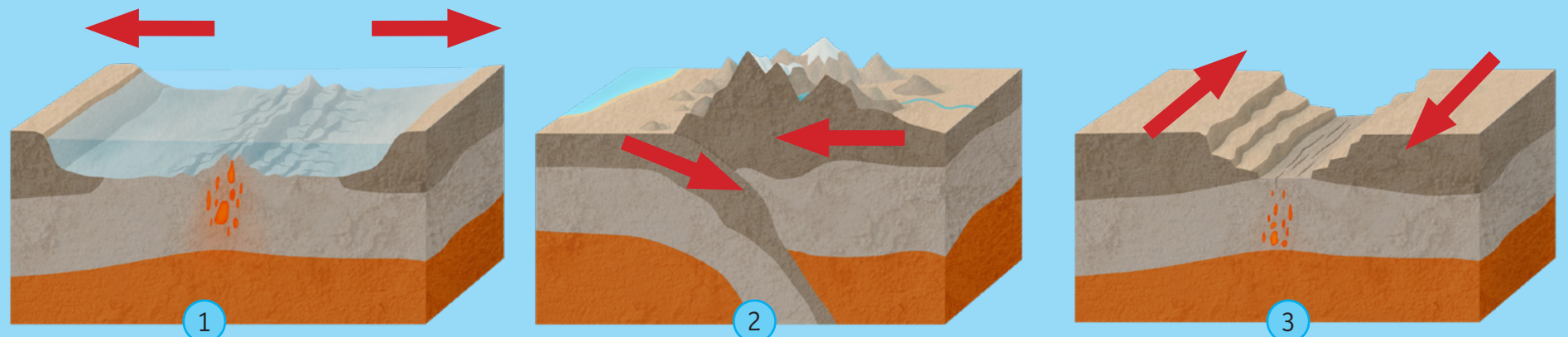
## THE DEEPEST PLACE ON EARTH

The deepest place on Earth is the Mariana Trench in the Pacific Ocean, roughly 10,984 meters deep. The pressure at such a dark, cold place is enormous, almost 1000 times larger than at the ocean's surface.



## PLATE MOTION

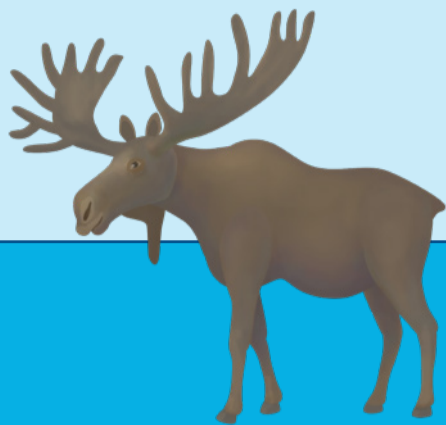
When plates move against one another, their edges collide. This bends and lifts Earth's crust, forming mountain ranges over time. For example, the Himalayas rose when the Indian plate hit the Eurasian one. Plate motion changes Earth's appearance, creating mountains, oceans, and islands. There are three types of plate motion. **1.** Divergent (new oceans emerge). **2.** Convergent (new mountain ranges or deep trenches form). **3.** Transform (earthquakes and formation of volcanoes).



# LIFE ON EARTH

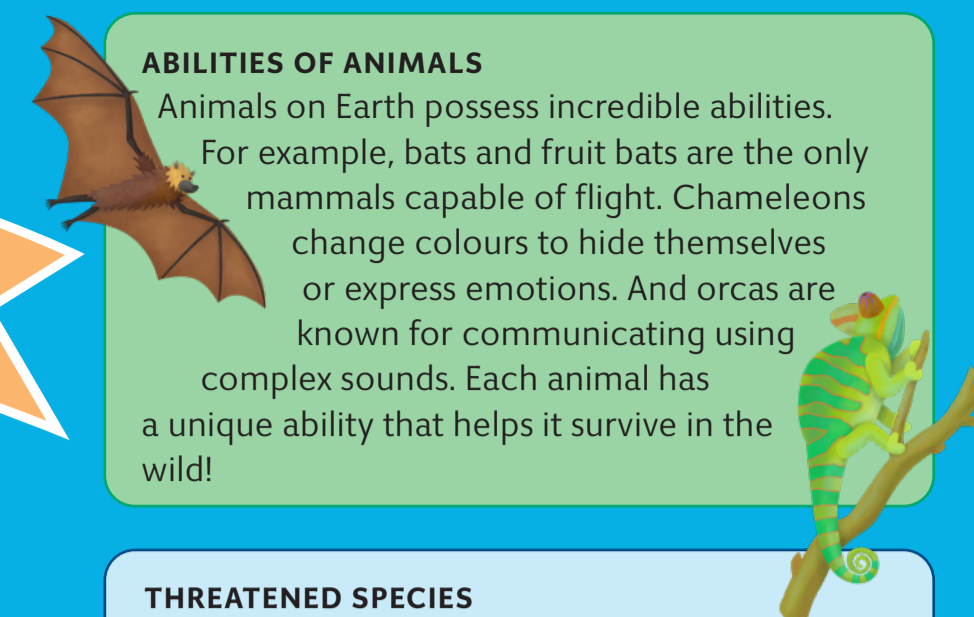
## MOOSE

Moose have excellent hearing and sense of smell. They can hear certain sounds at the distance of up to three kilometres. Their eyesight is relatively weak. The eyes are placed at the sides of the head. This allows the animal to literally look behind without having to turn.



## ABILITIES OF ANIMALS

Animals on Earth possess incredible abilities. For example, bats and fruit bats are the only mammals capable of flight. Chameleons change colours to hide themselves or express emotions. And orcas are known for communicating using complex sounds. Each animal has a unique ability that helps it survive in the wild!

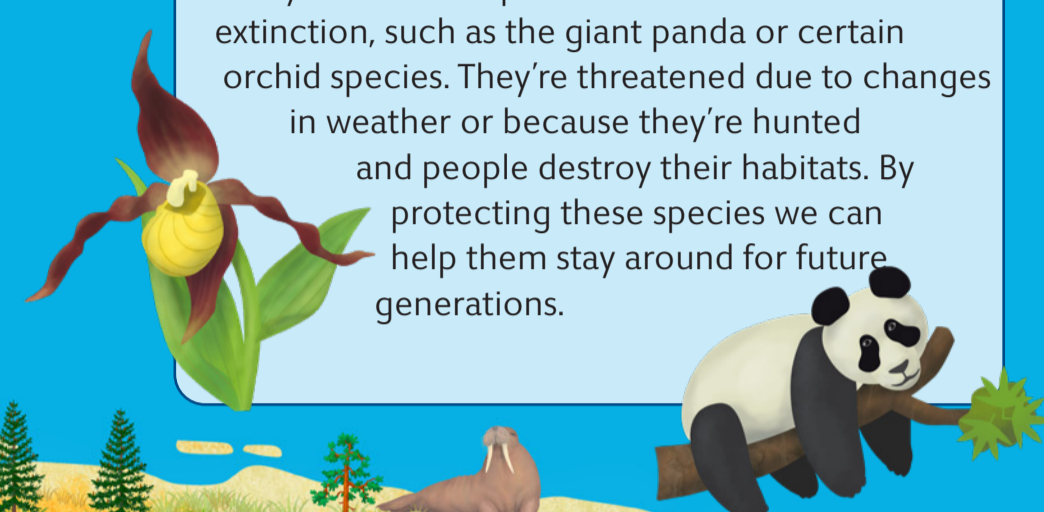


## LIFE ACROSS CONTINENTS

Our planet is a home to many animals and plants, from tiny to really big ones. Every corner of the world, from hot deserts to icy regions, is full of life. Some animals adapted to life in water, others fly high above ground, and others inhabit thick forests or vast grassy plains. Animals and vegetation are a part of nature and need to be protected. Without them, our planet would be nowhere near as charming as it is.

## THREATENED SPECIES

Many animals and plants are threatened with extinction, such as the giant panda or certain orchid species. They're threatened due to changes in weather or because they're hunted and people destroy their habitats. By protecting these species we can help them stay around for future generations.



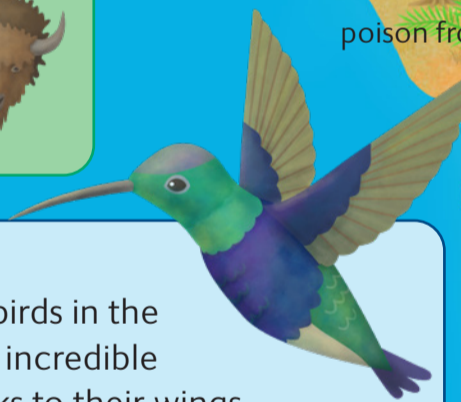
## BISON

Once upon a time, the bison lived almost all over North America but hunting decimated their numbers. Today it's a strictly protected species.



## HUMMINGBIRD

One of the smallest birds in the world. They have the incredible ability to hover, thanks to their wings beating at the rate of up to 80 times a second! Hummingbirds collect flower nectar and help pollinate plants.



## PLANTS AND ANIMALS

At first glance, plants and animals are very different. But their worlds are in some respects quite similar. Both groups need water, sunlight, and a suitable environment in order to live. Both plants and animals have their ways of protecting themselves against danger, and both adapt to their environment in order to survive.



## GORILLA

Gorillas are threatened due to the loss of their natural habitat. People fell down forests where they live, and some even hunt them. Although gorillas are a protected species, their numbers are dwindling.



penguin

## ALBATROSS

It has the greatest wingspan of all birds—up to 3.5 meters! An albatross can fly for days without ever coming down, using winds blowing above the ocean to conserve its strength.



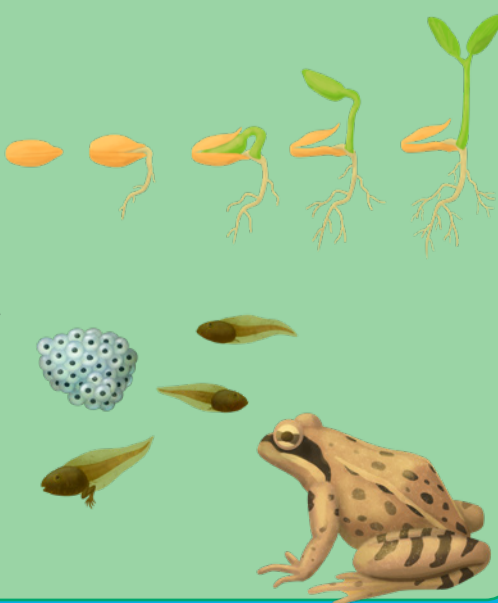
## SLOTH

Sloths are slothful indeed. They spend most of their lives on trees, moving very very slowly to conserve energy. If they do bother to come down, they can cover up to five meters a minute—an athletic performance by their standards.



## DEVELOPMENT

A plant starts out as a seed which then grows, germinates, and turns into an adult plant. This is similar to what happens with animals. Frogs, for example, begin as an egg, then a tadpole emerges and gradually turns into an adult frog. A small life grows into something big and strong.



## VEGETATION ROOTS

Roots keep a plant firmly in the ground. Animals receive and process food with their mouth and digestive system. Meanwhile, plants absorb water and nutrients from soil with their roots, gaining the strength and energy needed for them to grow.



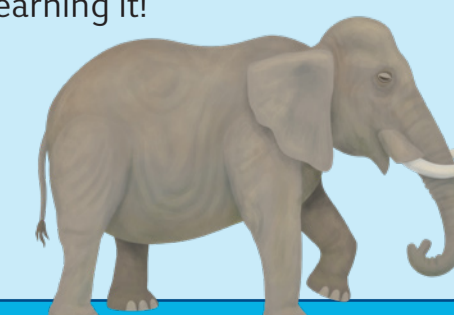
## PLATYPUS

This curious animal is a mammal, yet it lays eggs! It has a toothless beak like a duck, swims like an otter, and the males have feet with dangerous venomous stings.



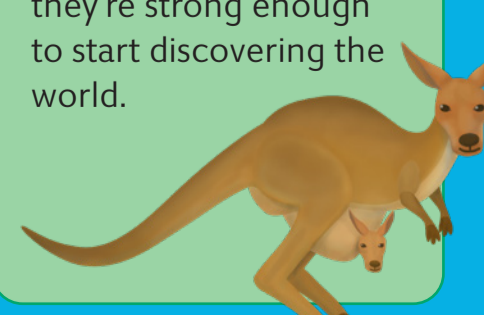
## ELEPHANT

Elephants are the largest terrestrial mammals on earth. They have enormous ears which help cool them down, and an excellent memory—they can remember where water is, even many years after learning it!



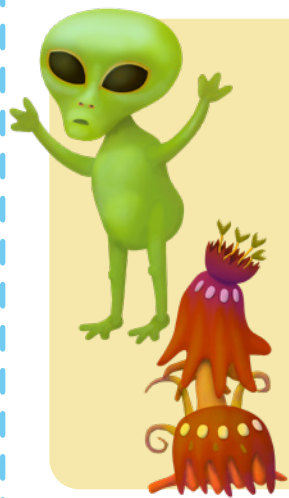
## KANGAROO

The females carry their young around in a belly pouch. Once the babies are born, they crawl inside where they grow and develop until they're strong enough to start discovering the world.



# LIFE ON EARTH

Life on Earth is incredibly diverse and varied. You can find it wherever you look – in oceans, on land, even in the air. Together, plants, animals, and small organisms form a natural community where everyone plays a vital role. Without life, our planet wouldn't be the wonderful place we know it to be. Let's see how diverse life on Earth is and what makes it so unique. We'll also learn how it first came to be and how it developed over the course of millions of years.

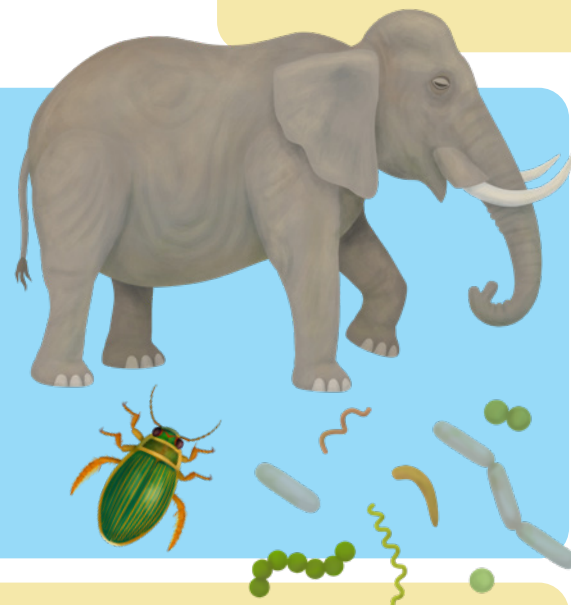


## LIFE

For life to emerge, a planet must fulfil a number of necessary conditions. Planet Earth meets them all, which makes it very unique. A similar planet may exist somewhere else in the universe but if it has life it likely takes a different form.

## DIVERSITY

There are billions of plant and animal species, living in various environments (forests, oceans, deserts). Some are very small, like bacteria or insects, while others are large, such as elephants or whales.



## PLANTS

There is an incredible amount of them growing on Earth—some produce sweet fruits, such as plums, dates, or figs, while others are grown as vegetables, like carrots or onions. Plants have different shapes, colours, and smells and some of them, for example the pineapple, yield special fruits you can't find everywhere.



## FLOWERS

The diversity of flowers on Earth shows how wonderful and varied nature can be. Flowers have different shapes, colours, and sizes; some of them smell sweet, others not at all; some are small, like the daisy, others large, such as the sunflower.



## ADAPTABILITY OF PLANTS

Plants can adapt to extreme conditions, characteristic of certain places on Earth—high temperatures, lack of water, or specific types of soil. Cacti, for instance, have their own water supply to help them survive in the desert.



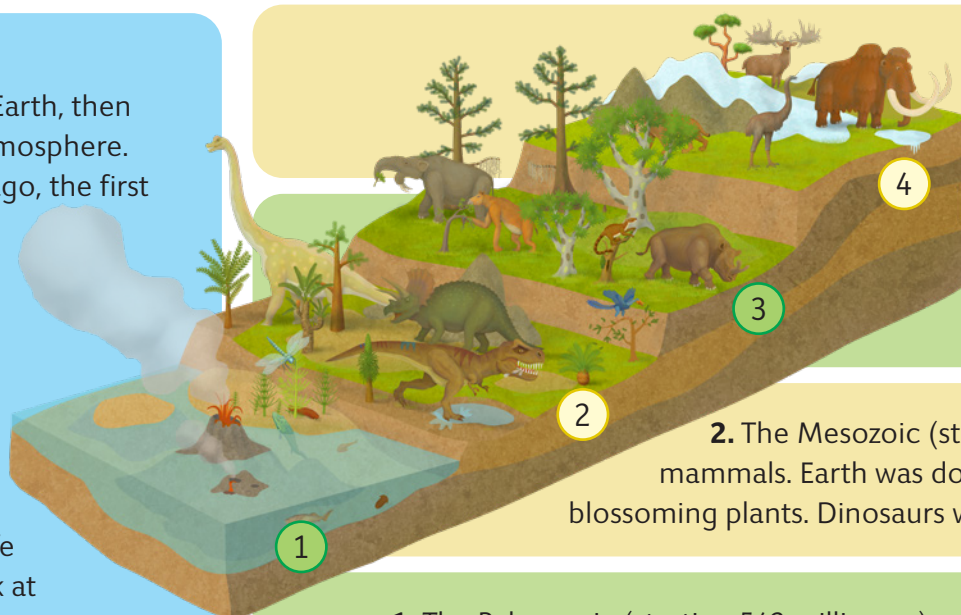
## LEAVES

The leaves of plants and trees can be as small as the needles of a pine tree, or as large as those of the banana tree. Some have smooth edges, others are jagged, and many turn beautiful shades of red, orange, and yellow come autumn.



## PREHISTORY

First came planet Earth, then the oceans and atmosphere. Four billion years ago, the first living organisms emerged—simple bacteria. It took another hundreds of millions of years before a fascinating story began—the development of life on Earth. Let's look at a brief overview.



1

2

3

4

**1. The Palaeozoic** (starting 542 million ya) — the tumultuous development of life in the oceans, the first fish, the first plants on land, the first amphibians, the first trees, large reptiles.

**2. The Mesozoic** (starting 252 million ya)— small mammals. Earth was dominated by dinosaurs, the first birds, blossoming plants. Dinosaurs went extinct at the end of the period.

**3. The Tertiary** (starting 66 million ya)—large mammals, birds, the first monkeys, human predecessors.

**4. The Quaternary** (starting 2.6 million years ago)—the boom of mammals, the evolution of humans.

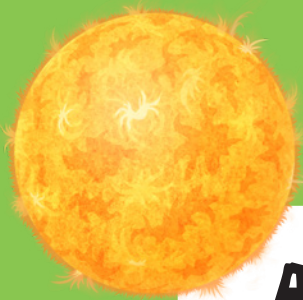
## ADAPTABILITY OF ANIMALS

Some animals can survive at quite inhospitable places. The emperor penguin lives in the Antarctica where temperatures regularly drop to  $-40^{\circ}\text{C}$ . It has thick feathers and a layer of fat which provides protection against cold.



## TREES

Some trees are as small as bushes, others huge like sequoias. Some trees yield fruit, such as the lemon tree, while others have leaves that turn wonderful colours in the autumn.



# ATLAS OF PLANET EARTH FOR CHILDREN

## DISCOVER THE BEAUTY OF OUR HOME PLANET ON SIX FLAP MAPS

Written by Oldřich Růžička

Illustrated by Tomáš Tůma



Set out on a fascinating journey around our shared home—planet Earth! You'll learn a lot of fascinating things, such as how it came to be, where its place in the universe is, what it's made of. You'll learn many interesting facts about nature, animals, plants, people, and all which makes up our world. You'll explore hot deserts, freezing polar regions, and rainforests teeming with life. You'll learn how people build amazing buildings, invent new things to make their lives easier, and how each and every one of us can help protect our beautiful planet for future generations. The book is full of simple, captivating texts and illustrations which playfully invite the reader to discover the secrets of planet Earth!



### The atlas includes:

- 6 flap maps full of information and pictures.
- Information on Earth's immediate surroundings in outer space.
- On Earth's movements and the changing of night and day and of the seasons.
- On various climates across the planet.
- On people's mark on the planet.
- On Earth's future and how everyone can affect it.



over 200 full-colour illustrations



big folding maps

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WARNING: CHOKING HAZARD  
Small parts.  
Not suitable for children under 36 months.

