



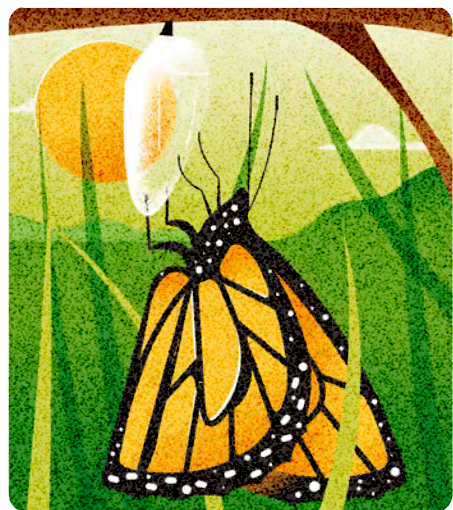
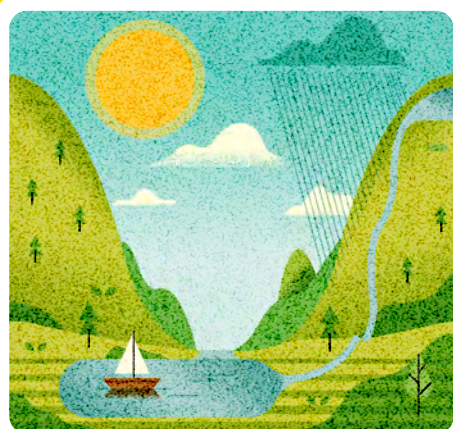
Radka Píro
Adam Quest

CYCLES

in nature



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CYCLES IN NATURE

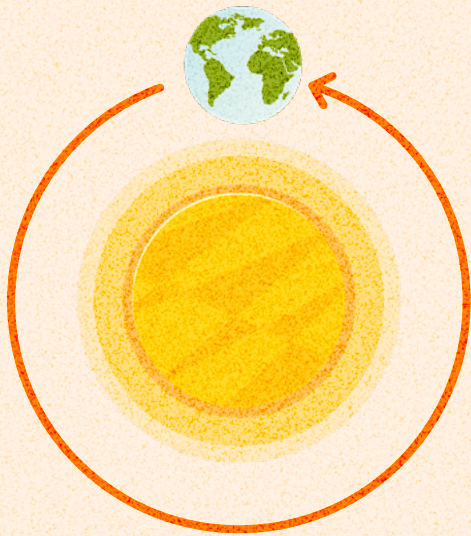


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What is a cycle?



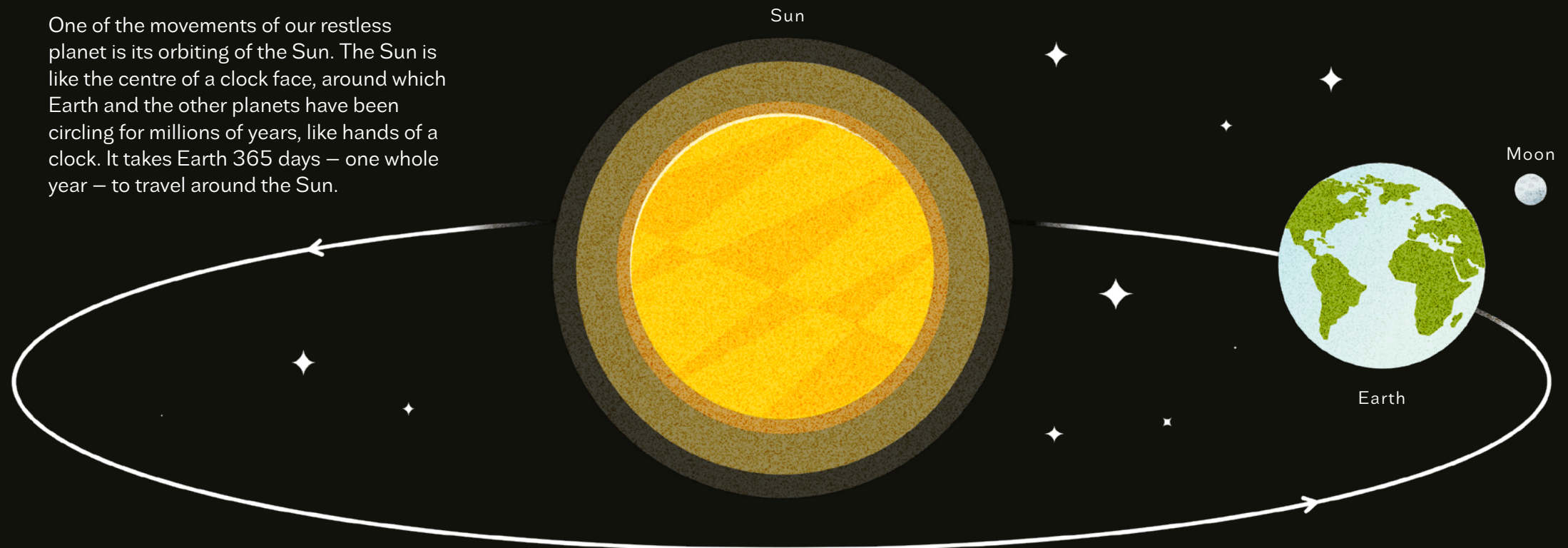
Imagine a clock face with hands. The hands move around from one to two to three and so on, until they get to twelve. Over and over again. This series, in which events repeat themselves in a regular sequence, is known as a cycle.



One of the basic cycles is the movement of our planet in space. Although we may not realize it, this cycle affects everything that happens on Earth, most notably our perception of time.

The year

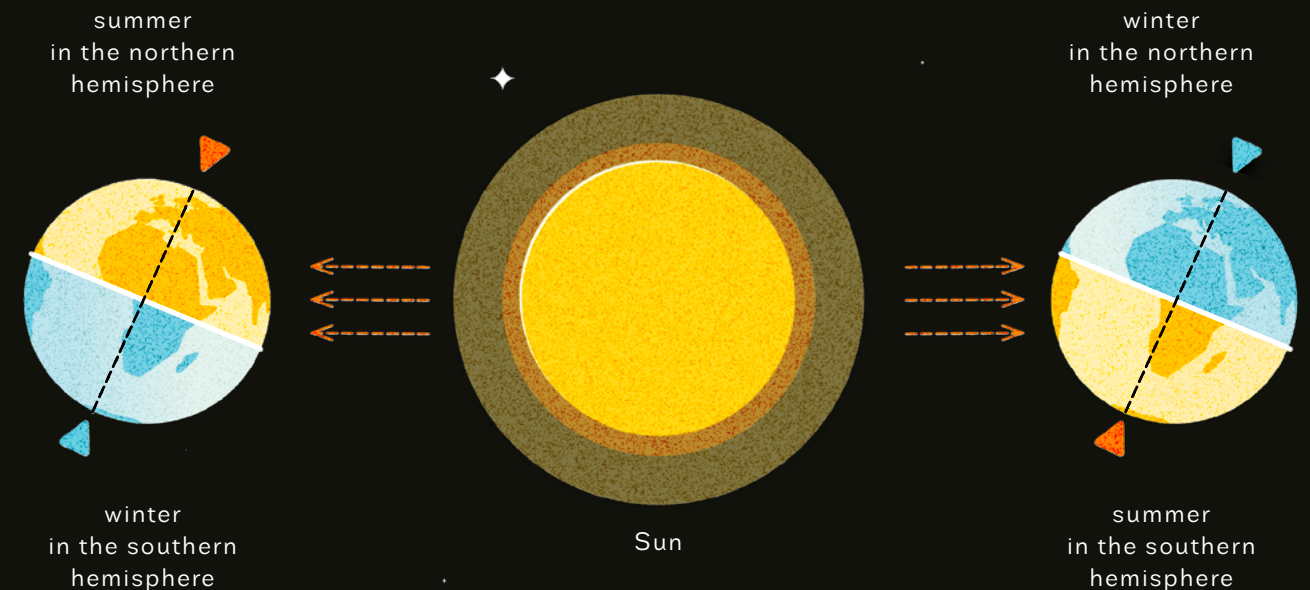
One of the movements of our restless planet is its orbiting of the Sun. The Sun is like the centre of a clock face, around which Earth and the other planets have been circling for millions of years, like hands of a clock. It takes Earth 365 days – one whole year – to travel around the Sun.



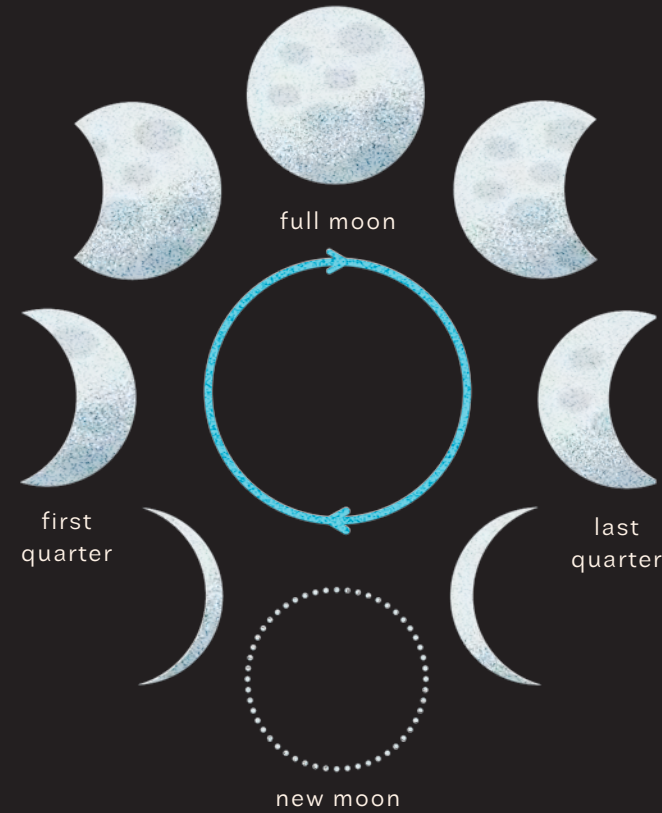
The seasons

Did you know that we have seasons because our planet revolves around the Sun?

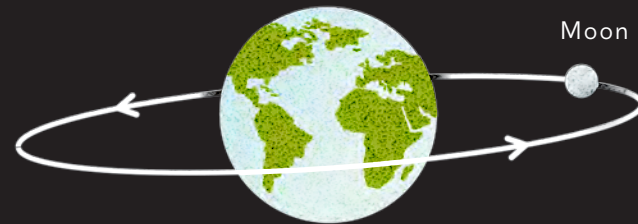
Imagine a vertical line running from north to south through the centre of the planet. The Earth is tilted along this line. As Earth journeys around the Sun, the northern and southern halves of the planet alternate so that one is closer to the Sun's heat and warmth while the other is further from it. Summer rules in the half closer to the Sun, winter in the more distant half.



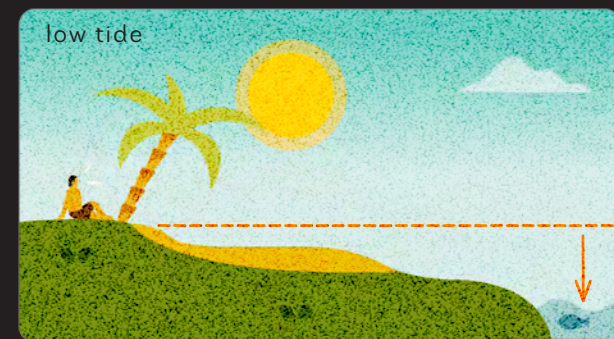
The Moon



Just as Earth orbits the Sun, the Moon orbits Earth. A single journey around Earth takes the Moon... guess how long? That's right, roughly one calendar month.



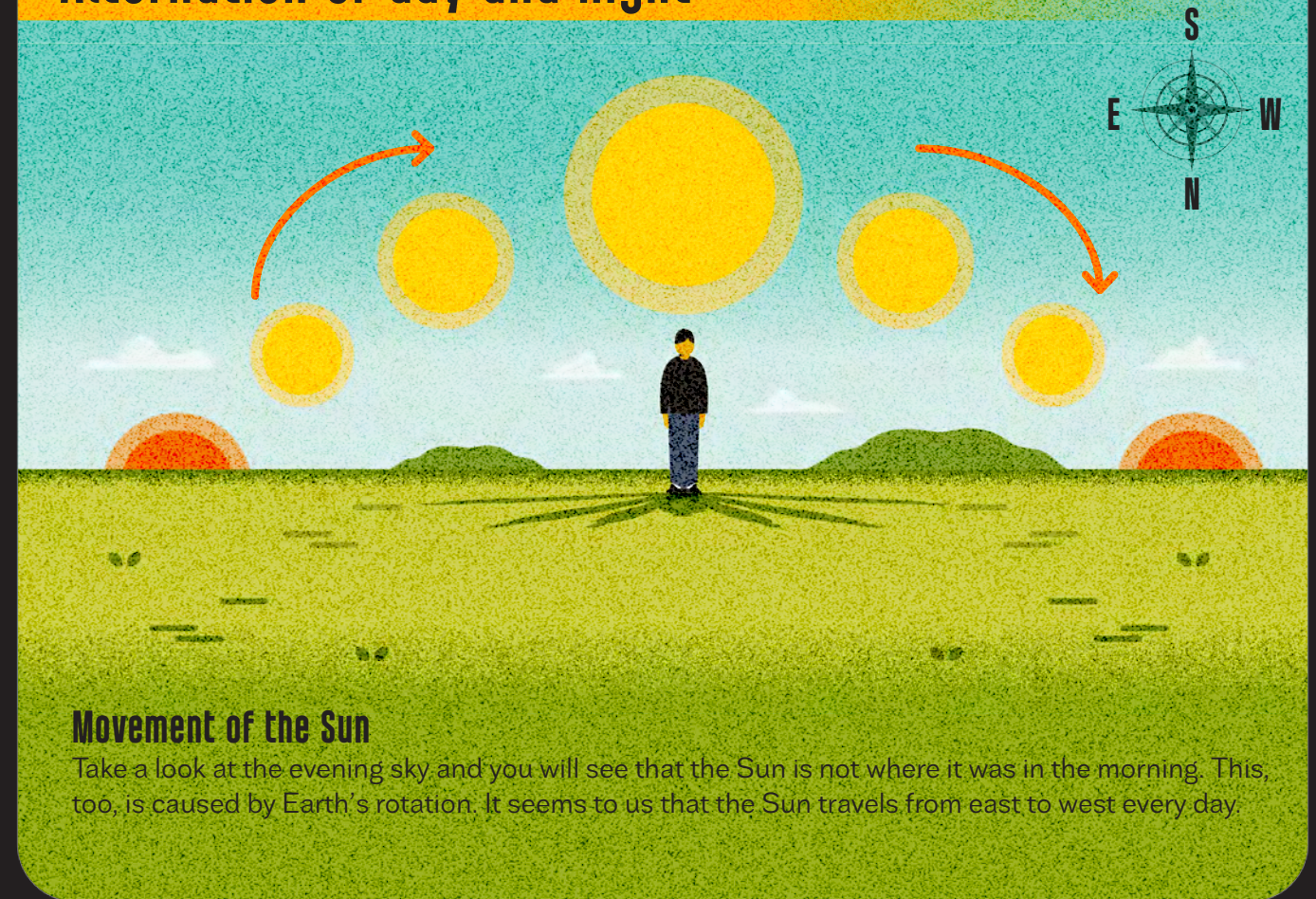
The Moon emits no light. We see it in the sky thanks to the glow of the Sun. As the Moon orbits Earth, sunlight always falls on it from the same side. This explains why it seems to us on Earth that the Moon changes shape; all that really changes is how much of its illuminated part we can see.



HIGH TIDE AND LOW TIDE

Another well-known Earth cycle is influenced by the Moon: the alternation of the tides. How does the Moon cause this to happen? Well, while gravity from the Sun keeps Earth in its orbit, the Moon, too, boasts a gravitational pull. Although this pull is not great, it is enough to affect Earth's sea levels. As gravity from the Moon pulls the water of Earth's oceans towards it, the sea level rises in some places, creating high tide, and falls in others, creating low tide.

Alternation of day and night



Movement of the Sun

Take a look at the evening sky and you will see that the Sun is not where it was in the morning. This, too, is caused by Earth's rotation. It seems to us that the Sun travels from east to west every day.

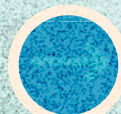
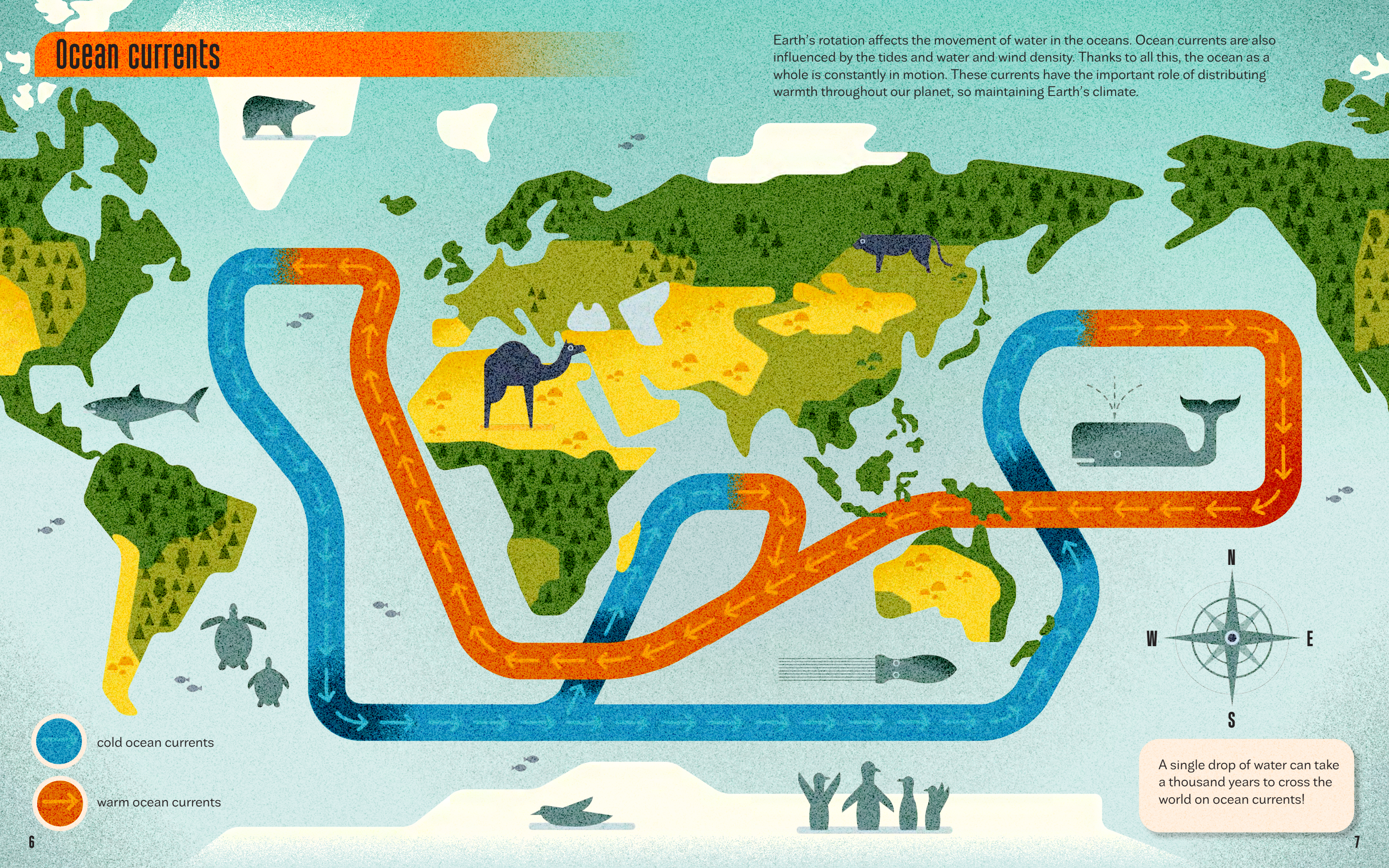


WHY DO WE HAVE DAY AND NIGHT?

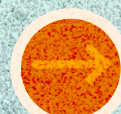
Not only does our planet orbit the Sun, but it also spins like a top – which is why we have day and night. The part of Earth that is turned away from the Sun receives no sunlight, making it night there; at the same time, the half that is closer to the Sun is enjoying the day.

Ocean currents

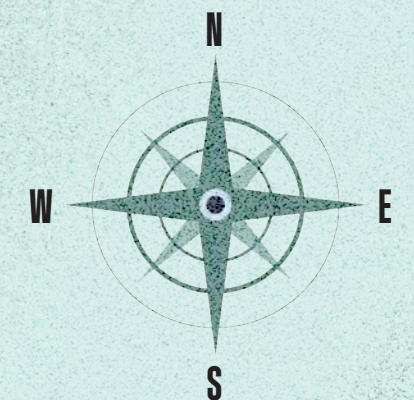
Earth's rotation affects the movement of water in the oceans. Ocean currents are also influenced by the tides and water and wind density. Thanks to all this, the ocean as a whole is constantly in motion. These currents have the important role of distributing warmth throughout our planet, so maintaining Earth's climate.



cold ocean currents



warm ocean currents



A single drop of water can take a thousand years to cross the world on ocean currents!

Water cycle

As without water there would be no life on Earth as we know it, the so-called water cycle is of vital importance. This cycle ensures that water reaches all living organisms. Water is constantly recycled on our planet. This means that the water you get from the kitchen tap may have been drunk by the very first humans!



1 The water on Earth's surface heats up, and some of it **evaporates**. Evaporation means that the liquid turns into water vapour – like the steam that appears over a pan in which soup is being boiled. Water vapour rises because it is very light.

2 When water vapour has risen high enough, it begins to cool. Eventually it becomes small drops of water and crystals of ice; it is these that form the **clouds** that float above your head.

3 Water falls from clouds back to the ground in the form of **precipitation** (rain or snow).

4 On reaching the ground, water either evaporates straight away, **flows** gradually into a body of water, or is **absorbed** into the earth. This groundwater fills small gaps in the soil.

There are cycles all around us.
Now you know about some of them.
How many cycles can you find here?





Did you know that natural events occur in cycles? Some of these will be obvious to you: day alternates with night, the seasons come and go, and the animals reproduce and reproduce. But there may be some – such as the water cycle and the process of photosynthesis – that you don't know about. Even death is part of a natural cycle. If you can't think of any other cycles, no matter – this book will introduce you to all the most common ones.