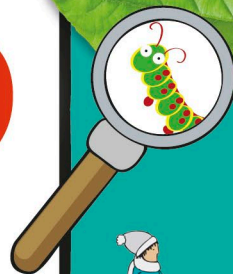
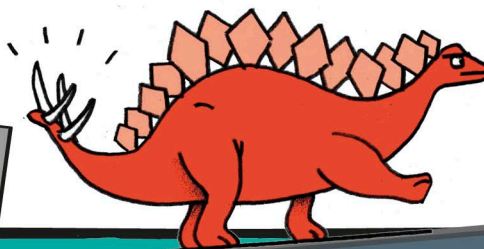
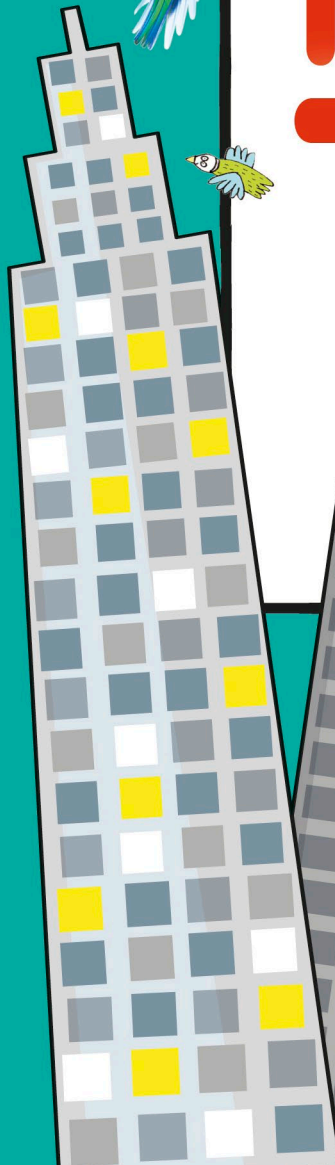


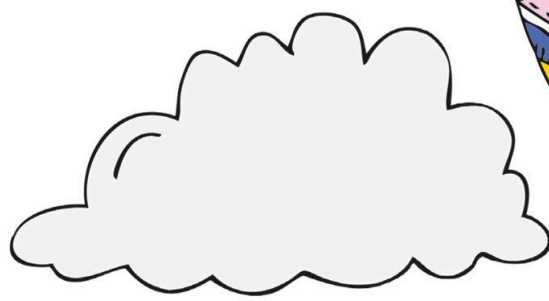
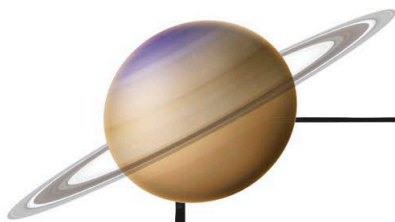
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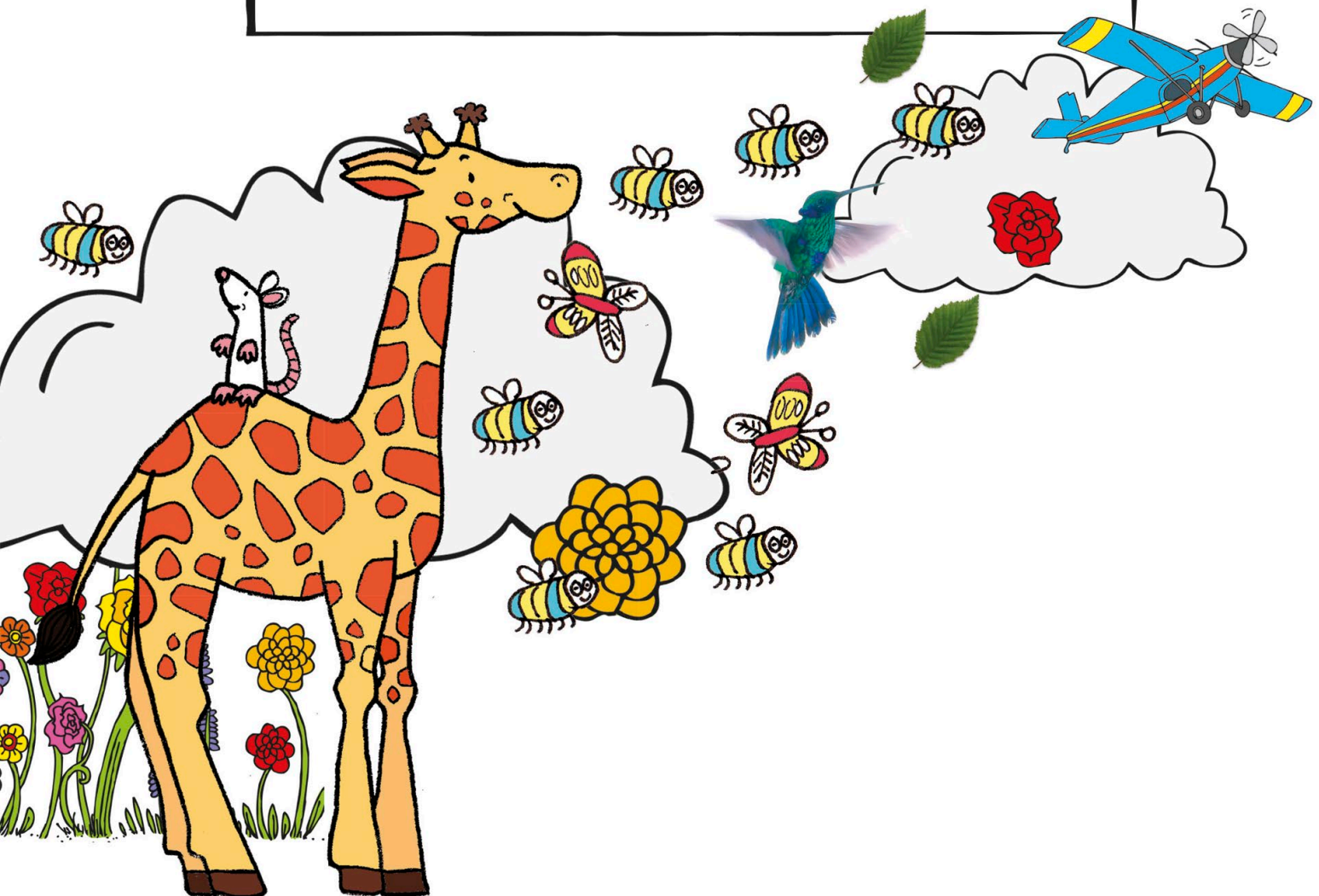
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**Designed by** Charlotte Milner, Hannah Moore, Claire Patané,  
Samantha Richiardi, Sadie Thomas

**Design Assistance** Eleanor Bates, Rachael Hare

**Fact Checker** Gill Pitts

**Pre-Production Producer** Dragana Puvacic

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**Jacket Designer** Charlotte Milner

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**Creative Technical Support** Sonia Charbonnier

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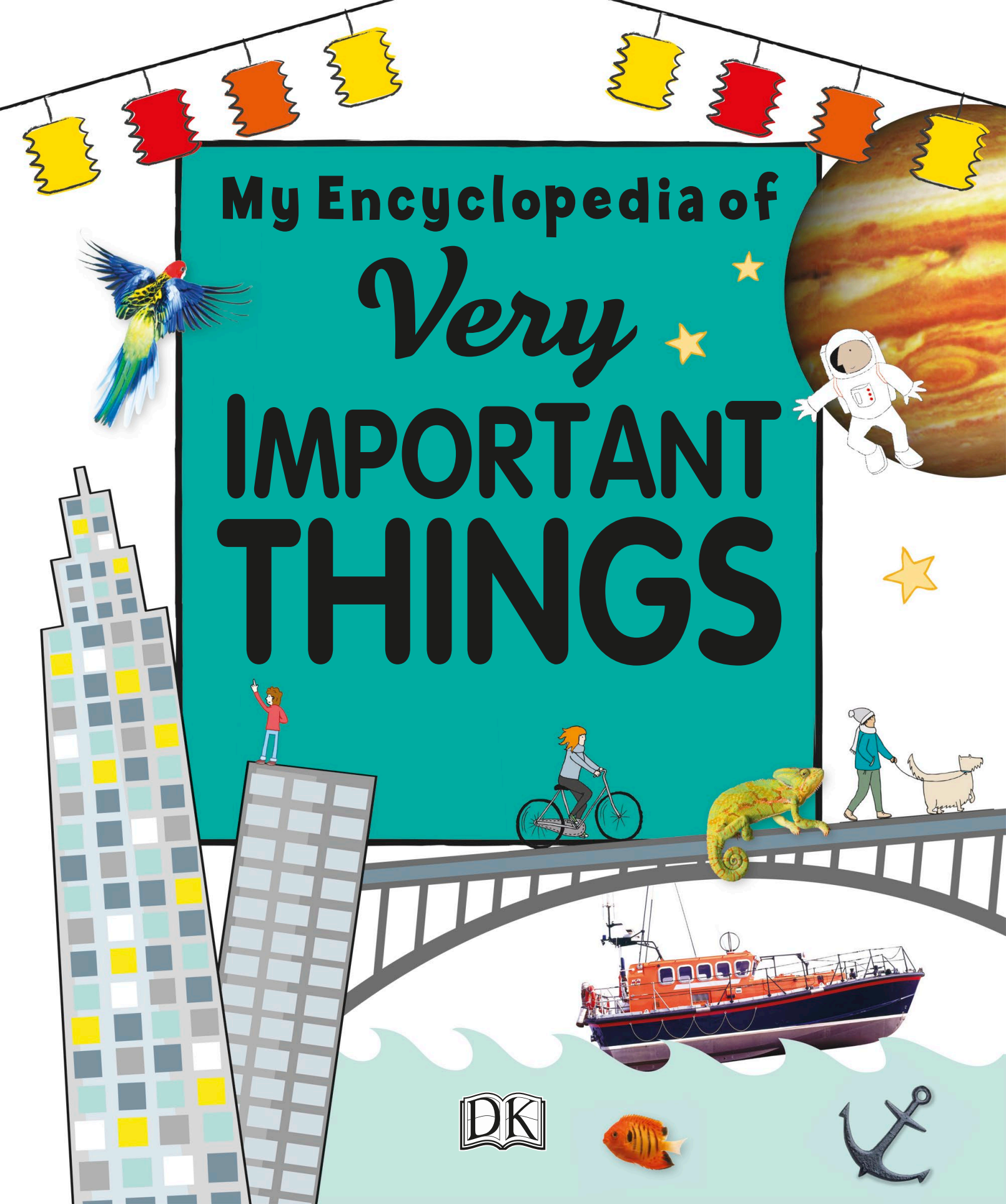
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My Encyclopedia of  
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THINGS



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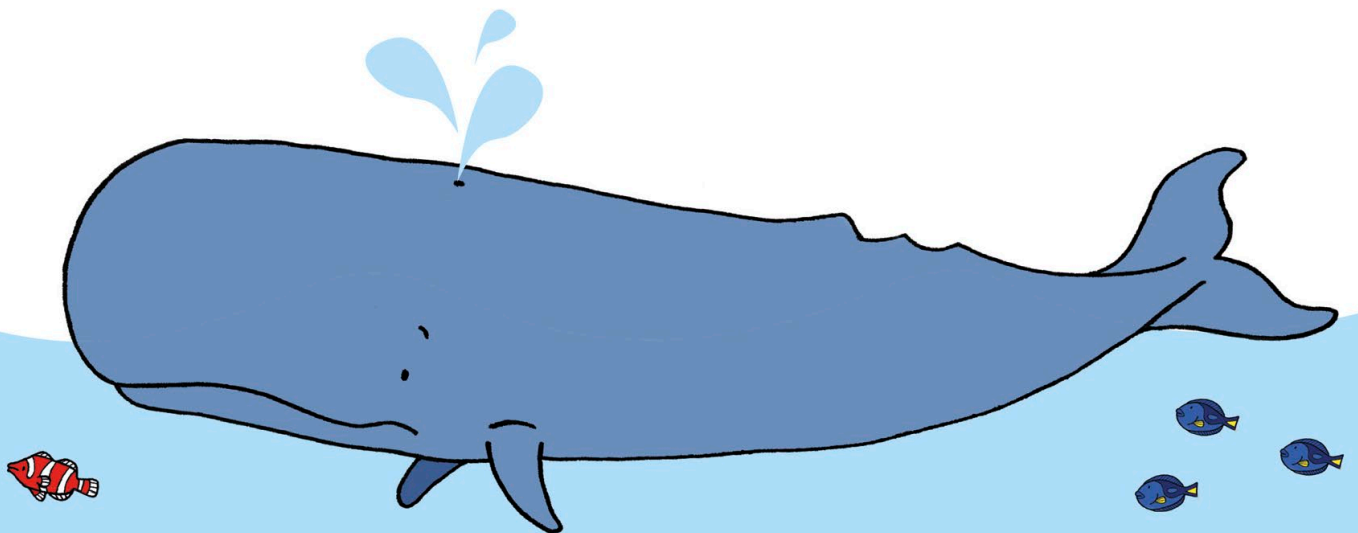




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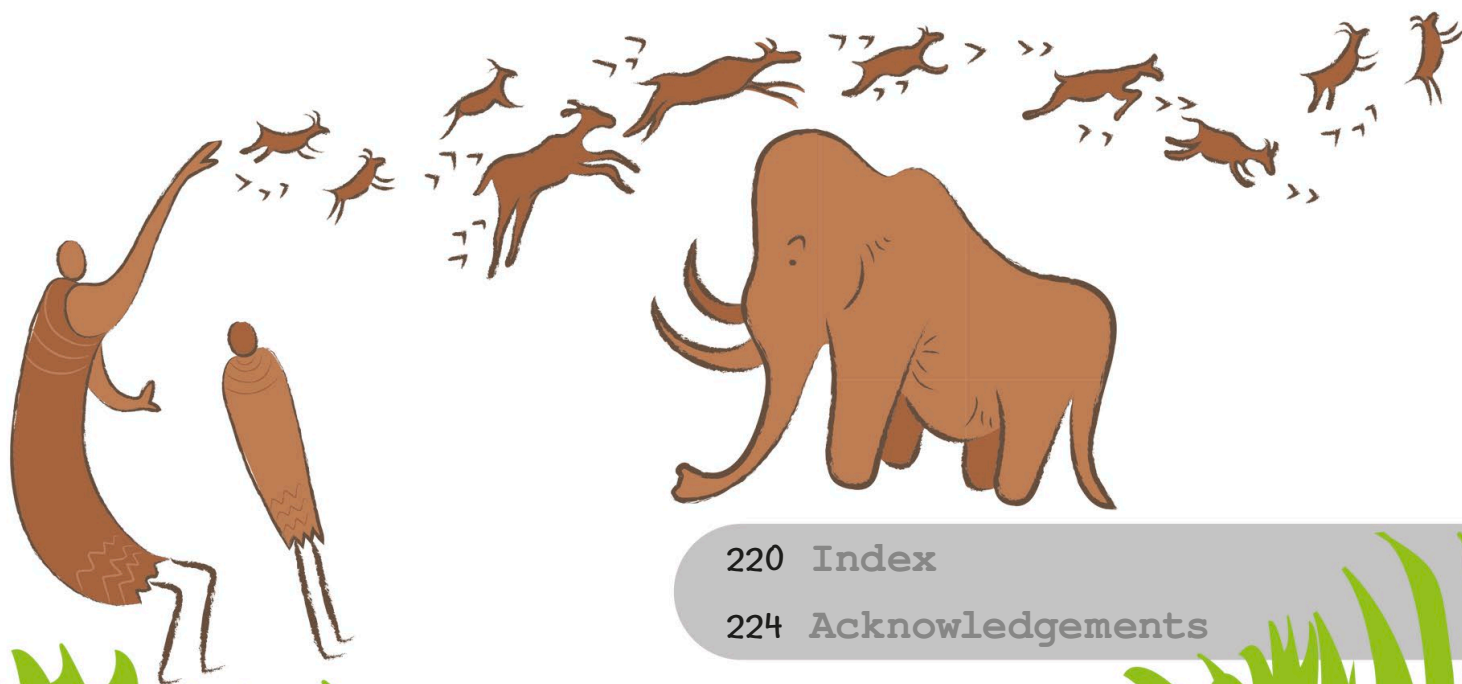




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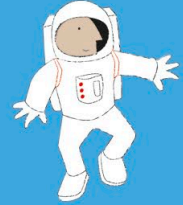
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Very important things about



# my planet



**Earth** is our amazing home. It's covered with lush forests, dry deserts, and big blue oceans (so big that Earth looks blue from space.) Earth is the only planet that we know of where things can live, so it's a **very special** place!





# Our place in space

Our planet (Earth) is in a group with seven other planets. This group is called the **solar system**.

## What are planets?

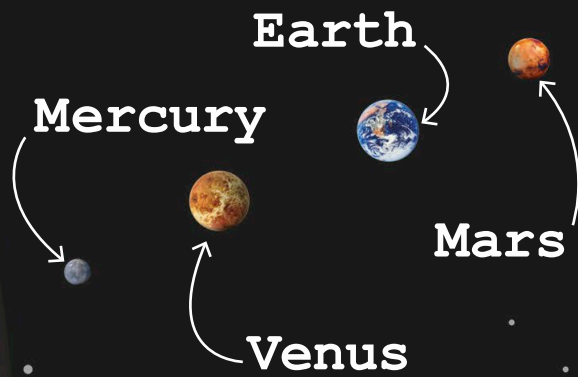
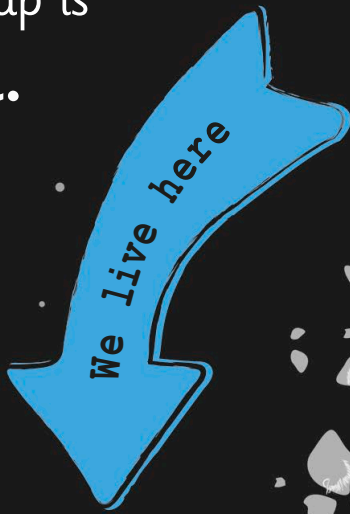
Planets are big round objects in space. Some are made of rock, and the others are big balls of gas. Most of them **orbit** (travel around) a star.

## The sun

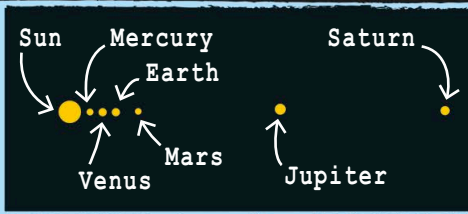
The sun is a star. Without its heat, no plants, animals, or people could survive on Earth. That includes you!



Huge rocks float between Mars and Jupiter in an area called the asteroid belt.

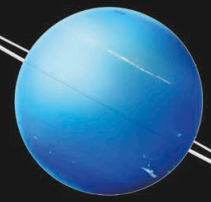


The solar system is so big even the planets that seem close to each other are VERY far apart.





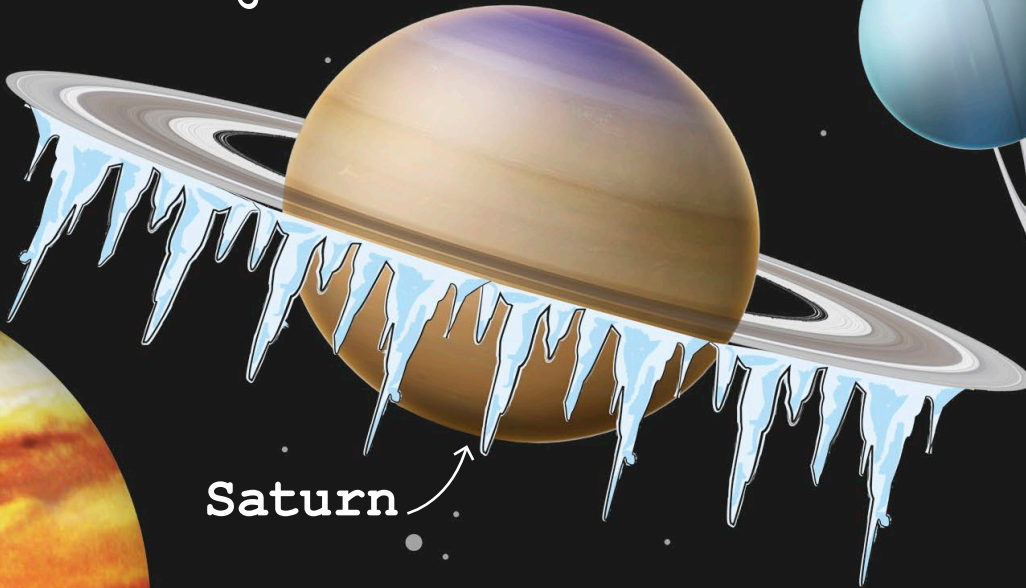
Neptune



Uranus

Uranus is different to the other planets, because it spins on its side.

The rings of Saturn are made of ICE and DUST.

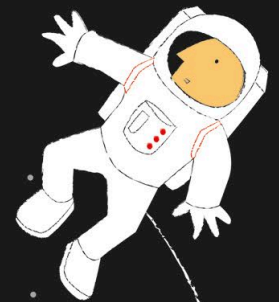


Saturn

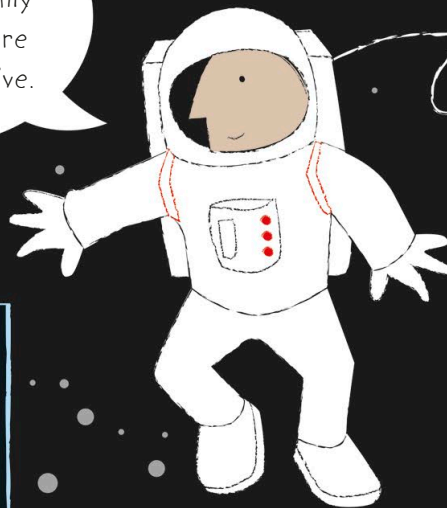
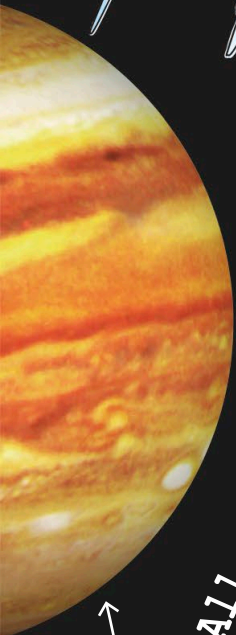
It would take years to reach the edge of the solar system.

All the planets SPIN as they move around the sun.

As far as we know, Earth is the only planet anywhere where things live.

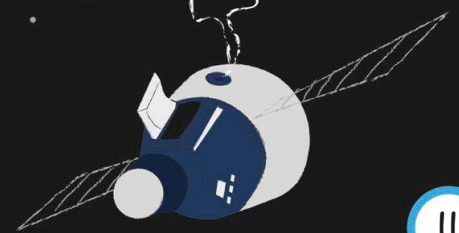
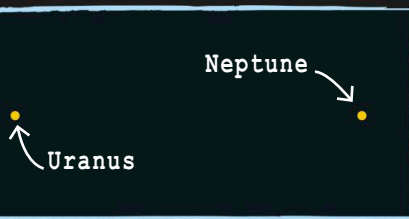


Jupiter



Neptune

Uranus





# Our Earth

Earth is **our planet**. Most of it is covered by oceans. The rest of the planet's surface is land.

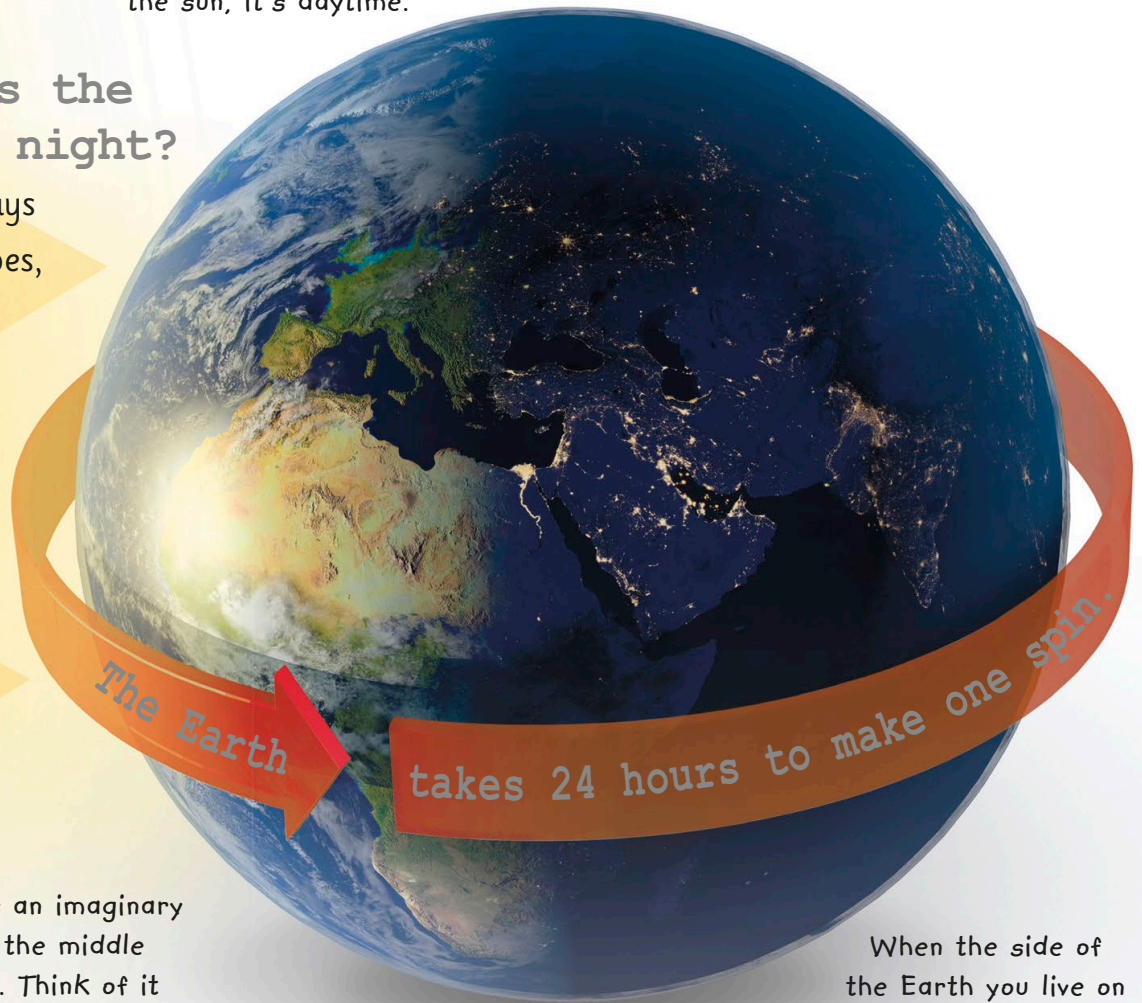
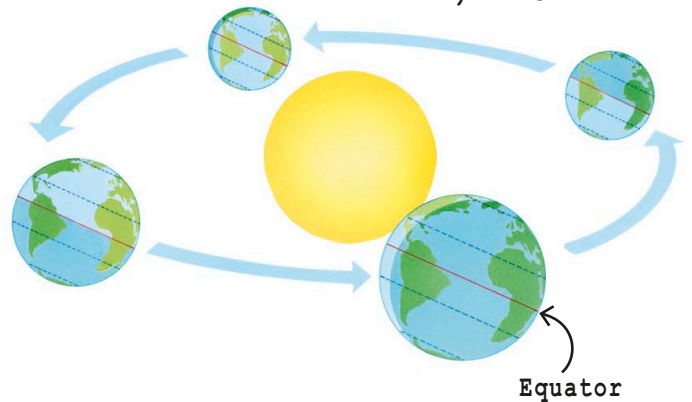
When the side of the Earth you live on faces the sun, it's daytime.

Where does the sun go at night?

The Earth is always spinning. As it does, the sun shines on different parts of the planet. This is why we have days and nights.

The equator is an imaginary line around the middle of the Earth. Think of it like the Earth is wearing an invisible belt!

The Earth takes a whole year to orbit (move around) the sun once.



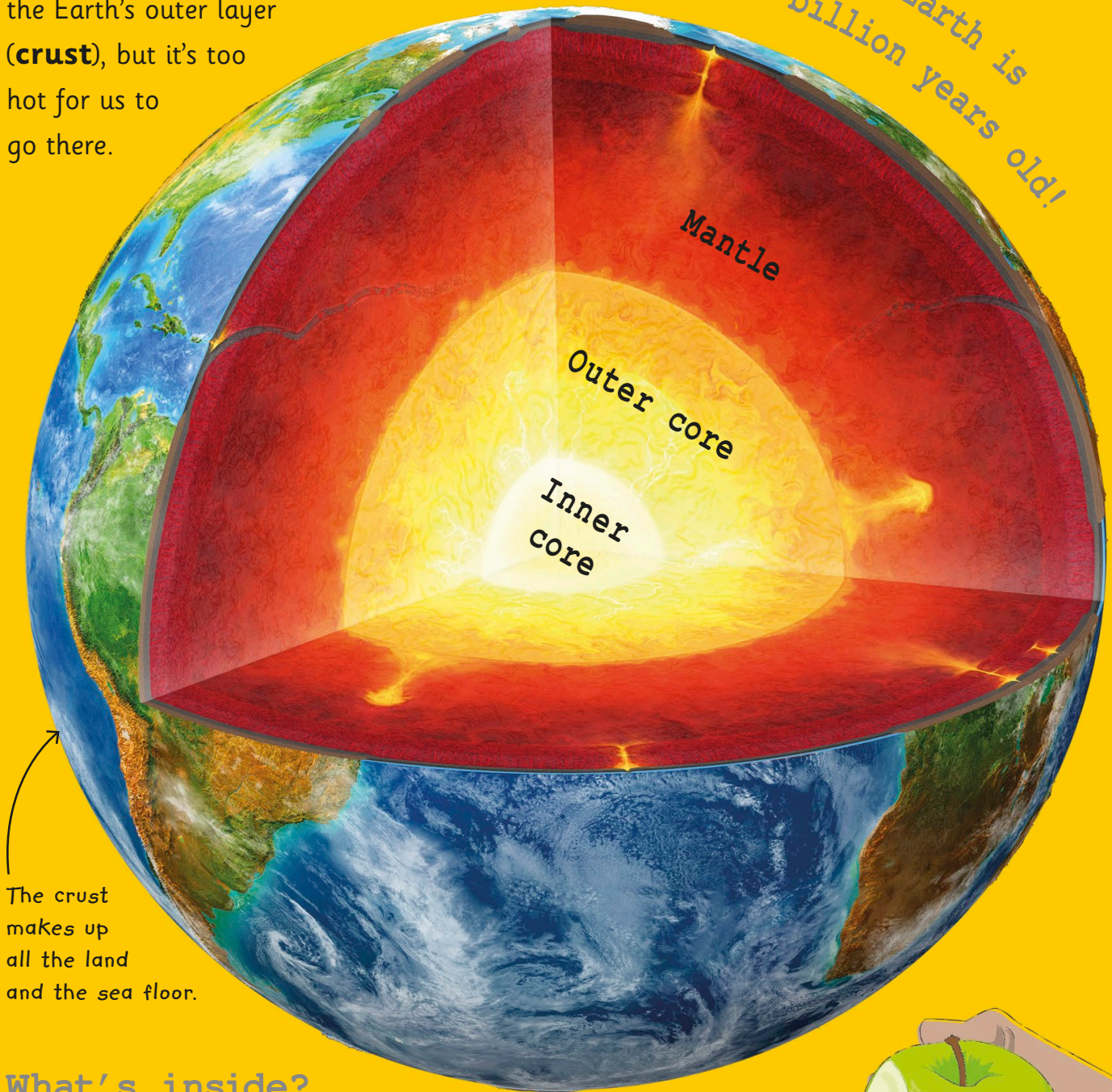
When the side of the Earth you live on turns away from the sun, it's nighttime.



## Inside the Earth

There are **three layers** under the Earth's outer layer (**crust**), but it's too hot for us to go there.

The Earth is 4.5 billion years old!



The crust makes up all the land and the sea floor.

## What's inside?

The **mantle** is almost solid rock, the **outer core** is liquid metals and minerals, and the **inner core** is solid metals and minerals.

If the Earth were an apple, the crust would only be as thick as the skin.





# Which way is space?

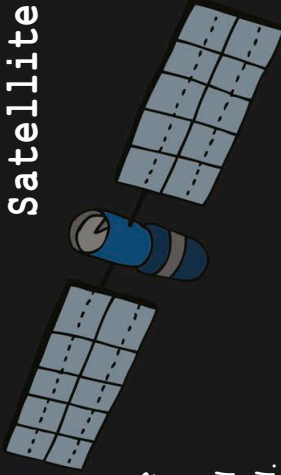
If you could drive a car straight up, it would only take about an hour to reach space. On the way you'd pass through five layers of air called the **atmosphere**.



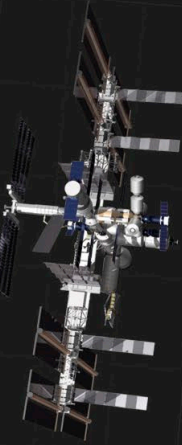
Exosphere

The top layer of the atmosphere doesn't end suddenly. It **fades** gradually farther into space.

Satellite



Satellites orbit the Earth all the way up here. They send signals to the world.



International  
Space Station

The Space Station is so big you can sometimes see it from the ground.

Scientists say **space** starts here. This layer goes up really, REALLY high above the Earth.

You can see the colorful aurora light show from places near the North or South Poles.

Auroras







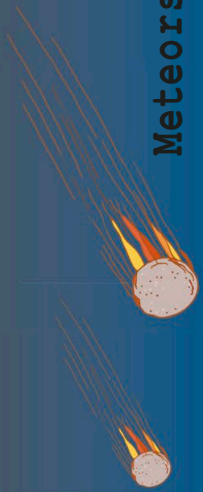
Mesosphere

Stratosphere

Troposphere

Brrr! The air up here is **freezing** cold.  
The top of the mesosphere is the coldest place in the world.

### Meteors



### Nacreous clouds

These beautiful clouds are very rare.



This area is home to the **ozone layer**, which helps protect us from the sun's rays.

Jet planes fly above the clouds to avoid bumps caused by wind.



### Airplane

Rüppell's vulture can fly higher than any other bird.



This is the lowest part of the atmosphere. All **weather** happens in this bottom layer.

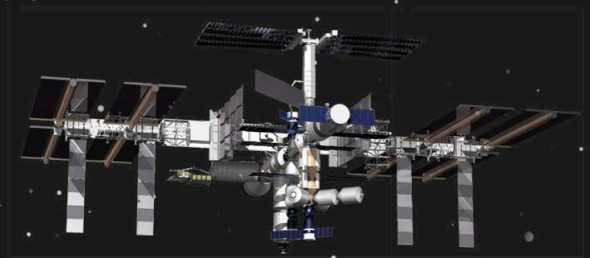


### Hot air balloon



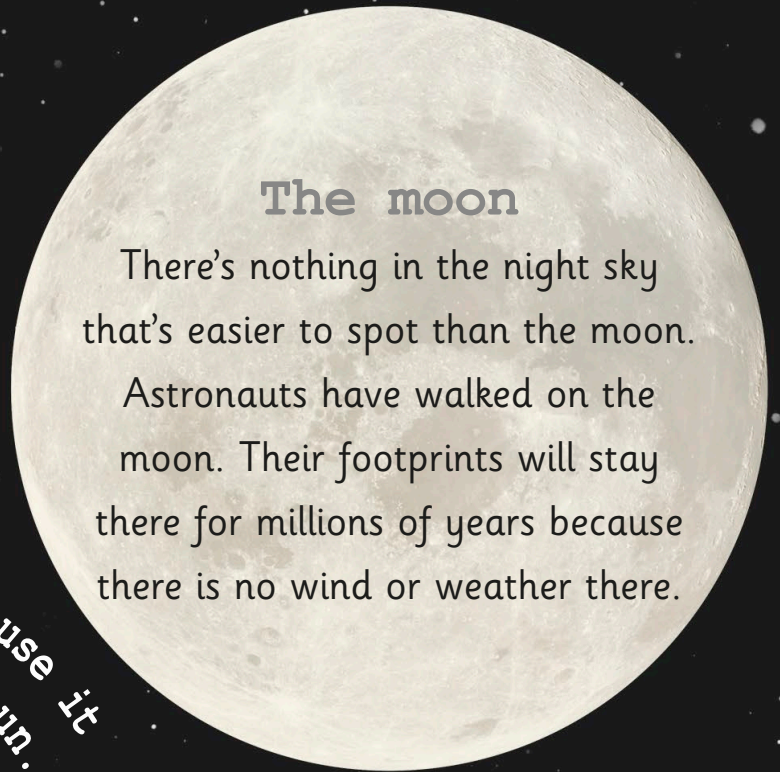


# The sky at night



Astronauts can stay at the International Space Station while they are in space.

If you look up on a clear evening, the sky can be full of twinkling lights. But not all of these are stars.



## The moon

There's nothing in the night sky that's easier to spot than the moon. Astronauts have walked on the moon. Their footprints will stay there for millions of years because there is no wind or weather there.

The moon is only visible because it reflects light from the sun.

### Phases of the moon

Have you ever wondered why the moon seems to change shape? It's because the sun's light hits the moon at **different angles** as it moves around Earth. There are 8 main phases.



New moon



Waxing crescent



First quarter



Waxing gibbous



Full moon



Waning gibbous



Last quarter



Waning crescent

Aircraft



Satellite



Meteor



Comet



Star



Planet



Moon

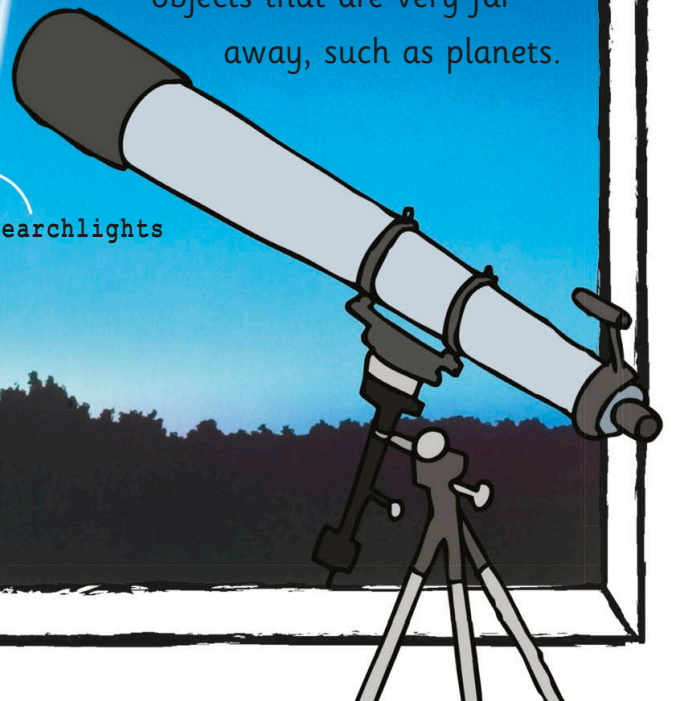
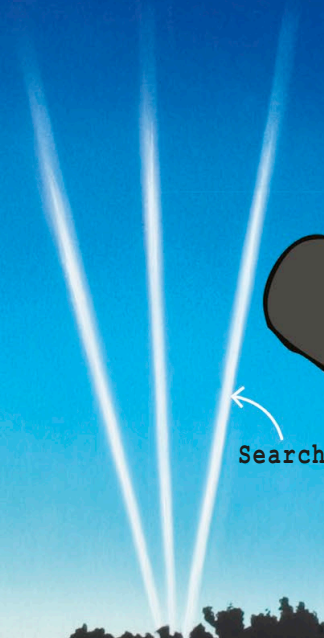


Here the moon is in the second phase (waxing crescent).

## Eye to the sky

Telescopes help us to see objects that are very far away, such as planets.

Searchlights



# Under the waves



From the surface to the sea floor, the oceans are packed with life. We separate the ocean into four **zones**.

Let's go diving and learn about each one.

Lots of fish and other sea creatures are very colorful.

Look at the colors! Most sea creatures live near the surface because they need **light** and **warmth** from the sun.



Sea horse



Jellyfish



**Sunlit zone**

**Twilight zone**

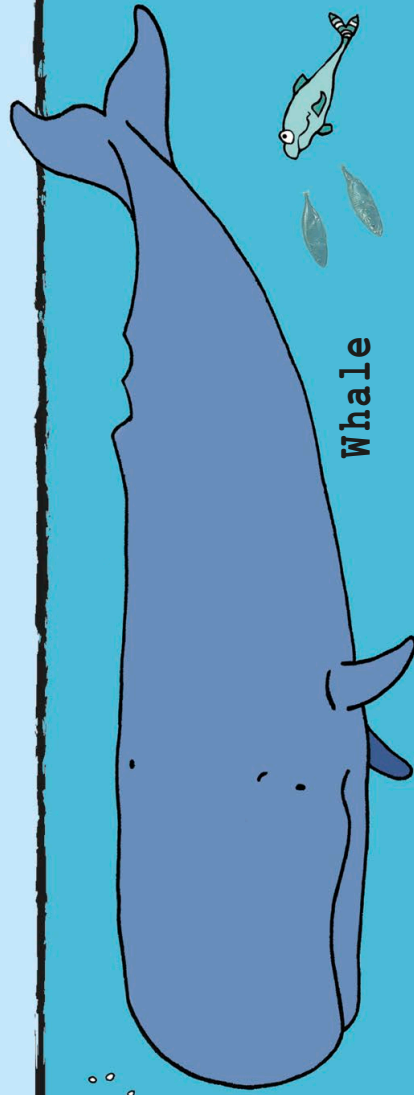
Brrr! Deeper down

it gets **colder** and

**darker**. Plants don't

grow here because there

isn't enough sunlight.



Whale

Giant sperm whales dive deep for food, then swim all the way up to the surface to breathe!