

LIGHTS IN THE SKY



LIGHT POLLUTION

If you live in the countryside, you can just step out your door to look at the stars. But if, like many people, you live in a town or city, you might have never seen the stars properly.

That's because of all the lights that come on at night in houses, factories, offices, shops and streets. This light makes the sky a muddy orange colour and

hides the stars. Astronomers, who study the night sky all the time, call this 'light pollution'.

That is why you need to find somewhere really dark, where lights won't spoil the view. Once you get there you will need to wait for a while for your eyes to adjust to the night sky. After half an hour you will see more stars than you ever imagined!

WHAT WILL YOU SEE?

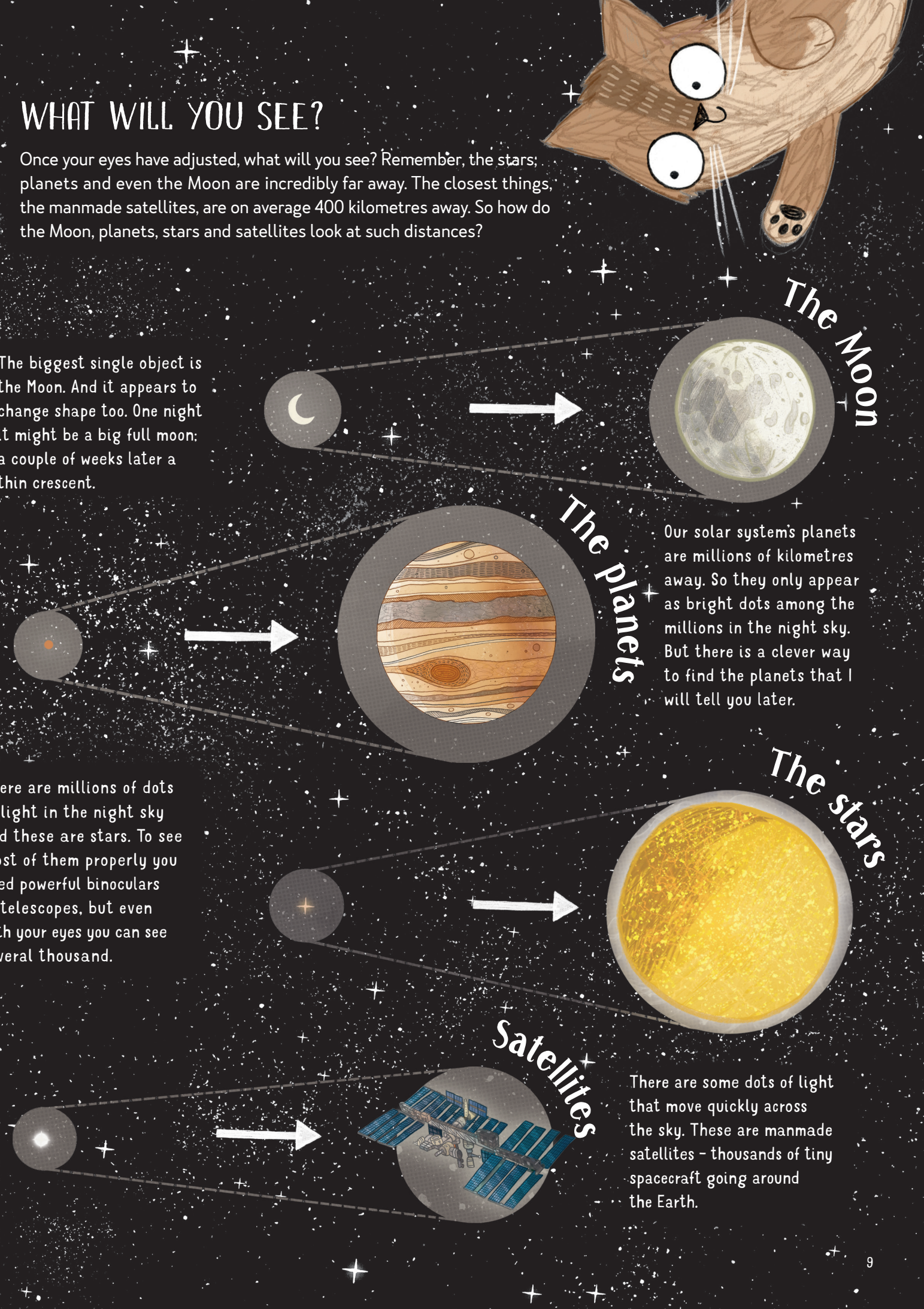
Once your eyes have adjusted, what will you see? Remember, the stars, planets and even the Moon are incredibly far away. The closest things, the manmade satellites, are on average 400 kilometres away. So how do the Moon, planets, stars and satellites look at such distances?

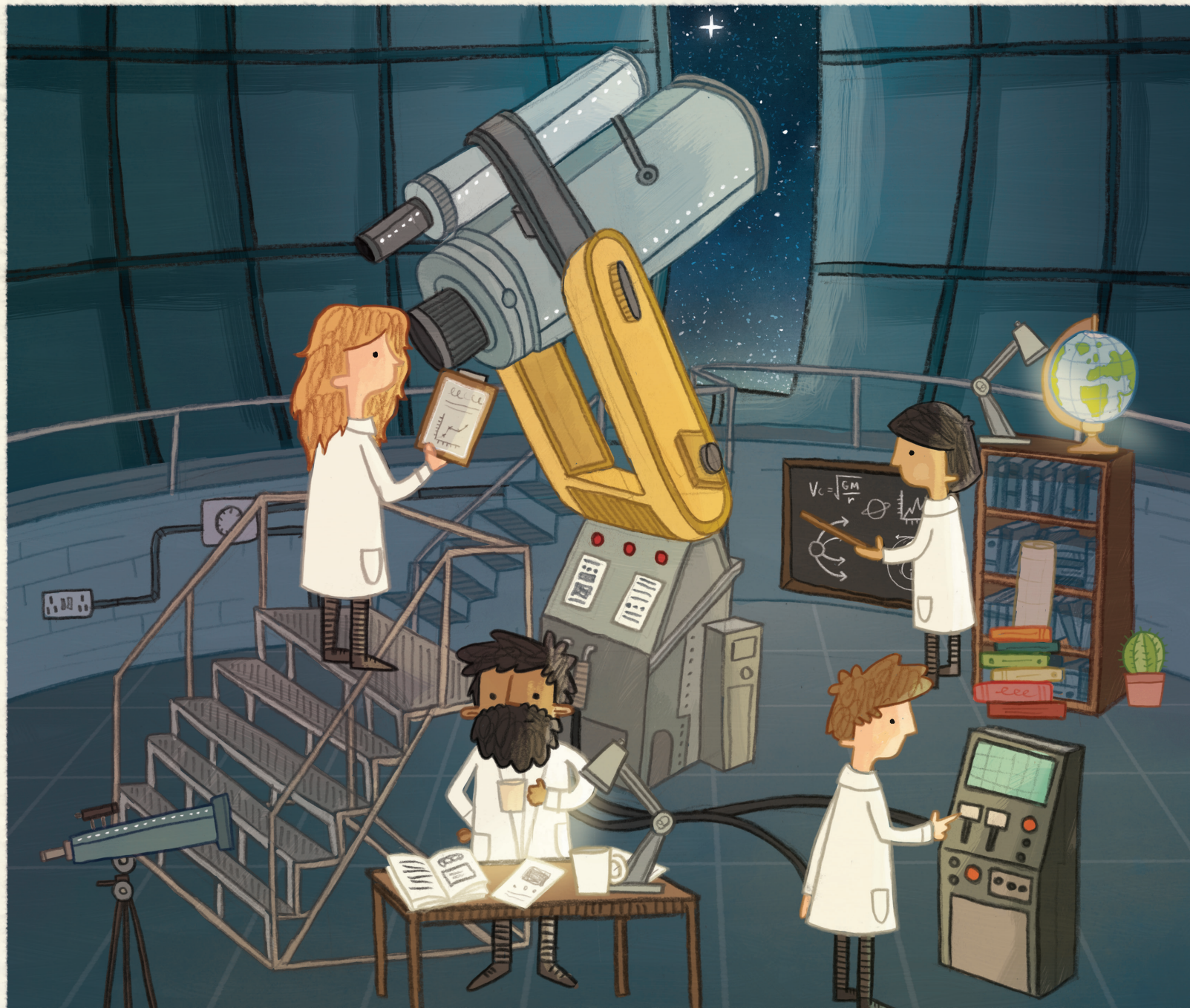
The biggest single object is the Moon. And it appears to change shape too. One night it might be a big full moon: a couple of weeks later a thin crescent.

There are millions of dots of light in the night sky and these are stars. To see most of them properly you need powerful binoculars or telescopes, but even with your eyes you can see several thousand.

Our solar system's planets are millions of kilometres away. So they only appear as bright dots among the millions in the night sky. But there is a clever way to find the planets that I will tell you later.

There are some dots of light that move quickly across the sky. These are manmade satellites - thousands of tiny spacecraft going around the Earth.





WHY LOOK AT THE SKY?



Why do people watch the sky at night? Astronomers watch the sky with big telescopes to explore our solar system, galaxy and universe. Cats like me or people like you also watch the sky to explore what we can see beyond our planet Earth. Sometimes I watch it because it is simply amazing to watch the universe spinning round.

PEOPLE HAVE ALWAYS WATCHED THE SKY



The position of the Moon and the appearance of certain stars or groups of stars (known as constellations) often happen at the same time every year. So since ancient times, farmers have watched the night sky to know when to plant and when to harvest their crops.

In the past, unusual sights in the sky, like a strangely coloured Moon, comets or shooting stars, were believed to signal something good or bad happening. In fact, ancient astronomers were expected to interpret whether such sightings were good or bad. (And they got into a lot of trouble if they were wrong!)



Just as stars appear at certain times, they also appear in the same place in the sky. So sailors have also always used the stars to help guide them, especially when they were sailing out of sight of land.



What's in a name?

Many of the names that the stars have date back thousands of years, mostly from ancient Greece. For the ancient Greeks, the sky was a place inhabited by gods, great heroes and fantastic creatures. So if the shape of a constellation made them think of one of these heavenly beings, they named it after it.

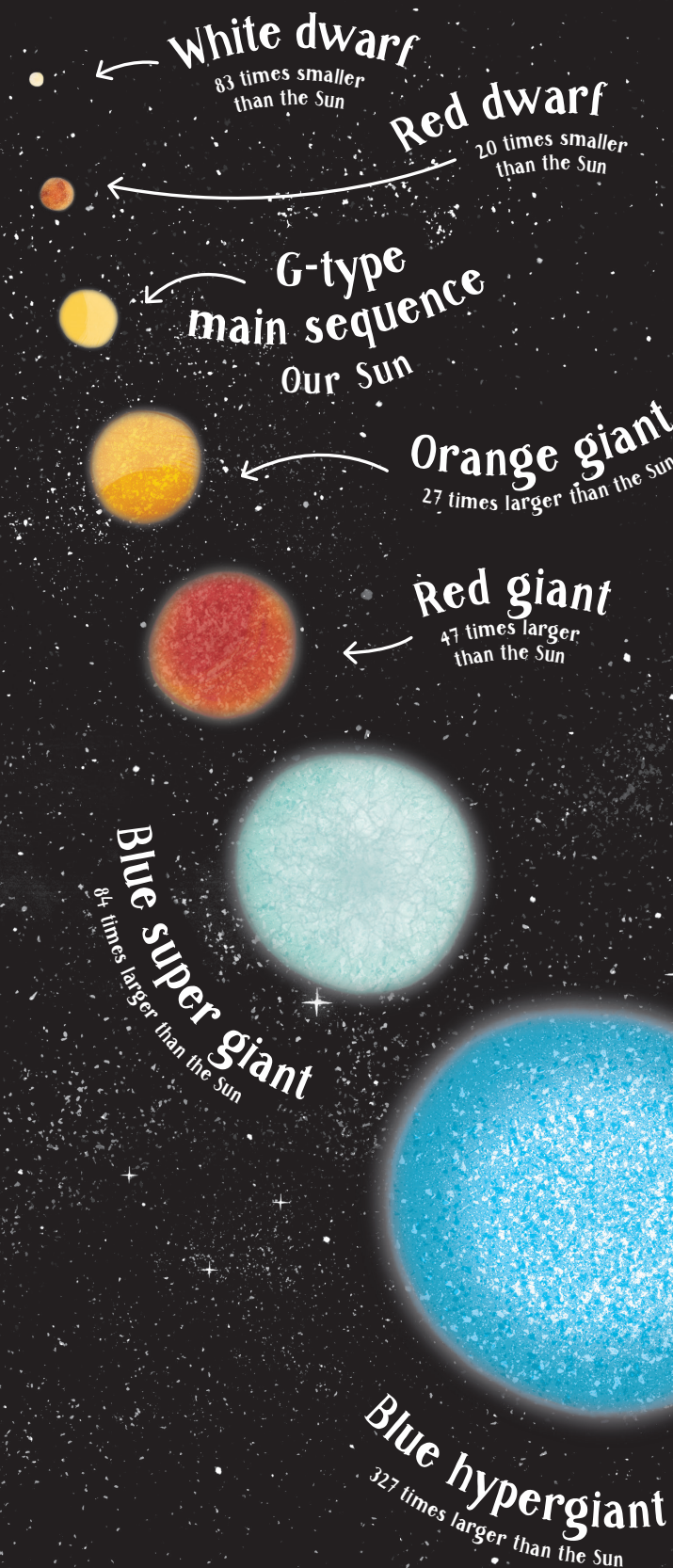
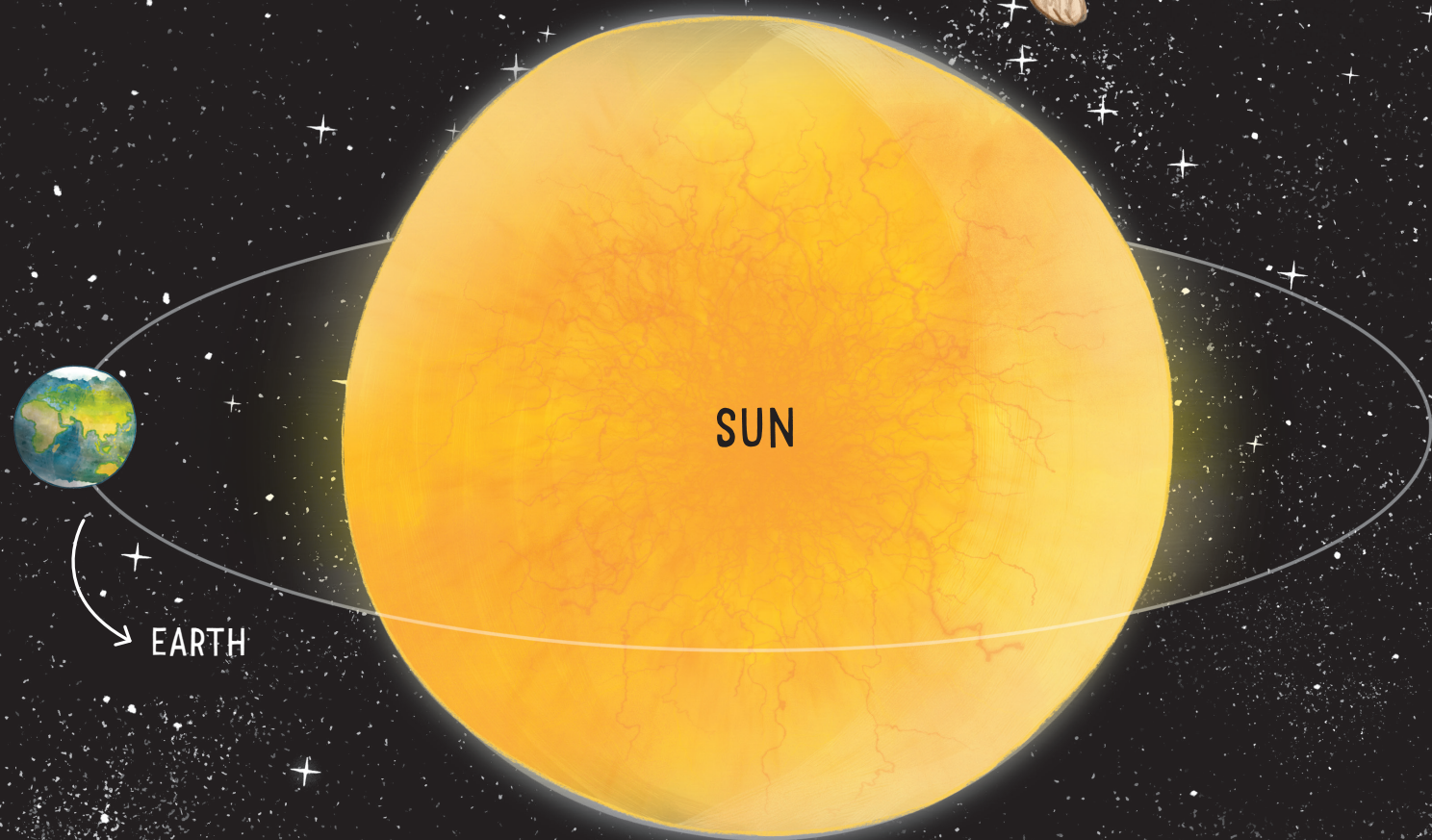
The names of all the stars and constellations might seem pretty strange to us now, but for the ancient Greeks all of these names would have been as familiar as the names of A-list celebrities are to us.

WHAT ARE STARS?

All stars are hot balls of gas. And did you know that the best time to see a star is on a sunny day?

This is because our Sun is, in fact, a star! The Sun is the closest star to Earth, which is why it looks bigger and brighter than all the lights in the sky. The Sun is enormous – if the Earth was the size of a pea, the Sun would be the size of a beach ball. It is also incredibly hot (about 15,000,000°C in the middle), which is why it blazes so brightly, and can burn you even though it's 140 million kilometres away.

During the day the Sun is bright white, but at sunset it turns orange, and then red. It is the atmosphere between the Sun and us that makes it appear to change colour.



STAR COLOURS

Although all stars are hot balls of gas, not all stars are exactly the same – some are bigger, some are smaller; some are hotter, some are cooler.

If you placed our Sun next to some of those other tiny dots in the sky, you would discover that our Sun is not the largest sun in the universe, or even our Galaxy.

In the night sky you will see red, orange, blue and white stars. This is because these stars have different temperatures. The hottest are the white and blue ones, and the coolest are orange and red. Think of a piece of metal heating up in a fire. It starts off a dull red, then changes to orange, then white, and eventually glows blue. Stars are just the same.

Here are some of the types of stars in the sky and their relative sizes.

