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AN ECLIPSE

Occasionally the Moon passes directly between the Sun and Earth, covering our view of the Sun almost exactly for a few minutes. The sky darkens and the Sun's glowing atmosphere, the corona, becomes visible. Partial eclipses, when only part of the Sun is covered over, are visible from most of the Earth's surface. Total eclipses, when the Sun is completely hidden, can be seen from only a narrow region.

THE SUN

THE SUN is just one of hundreds of billions of stars in our galaxy. Like all stars, it is a giant spinning ball of very hot gas made up of hydrogen and helium. At its core, temperatures are about 15 million°C, hot enough for hydrogen to turn into helium. This nuclear reaction produces massive amounts of energy, which keeps the Sun shining.

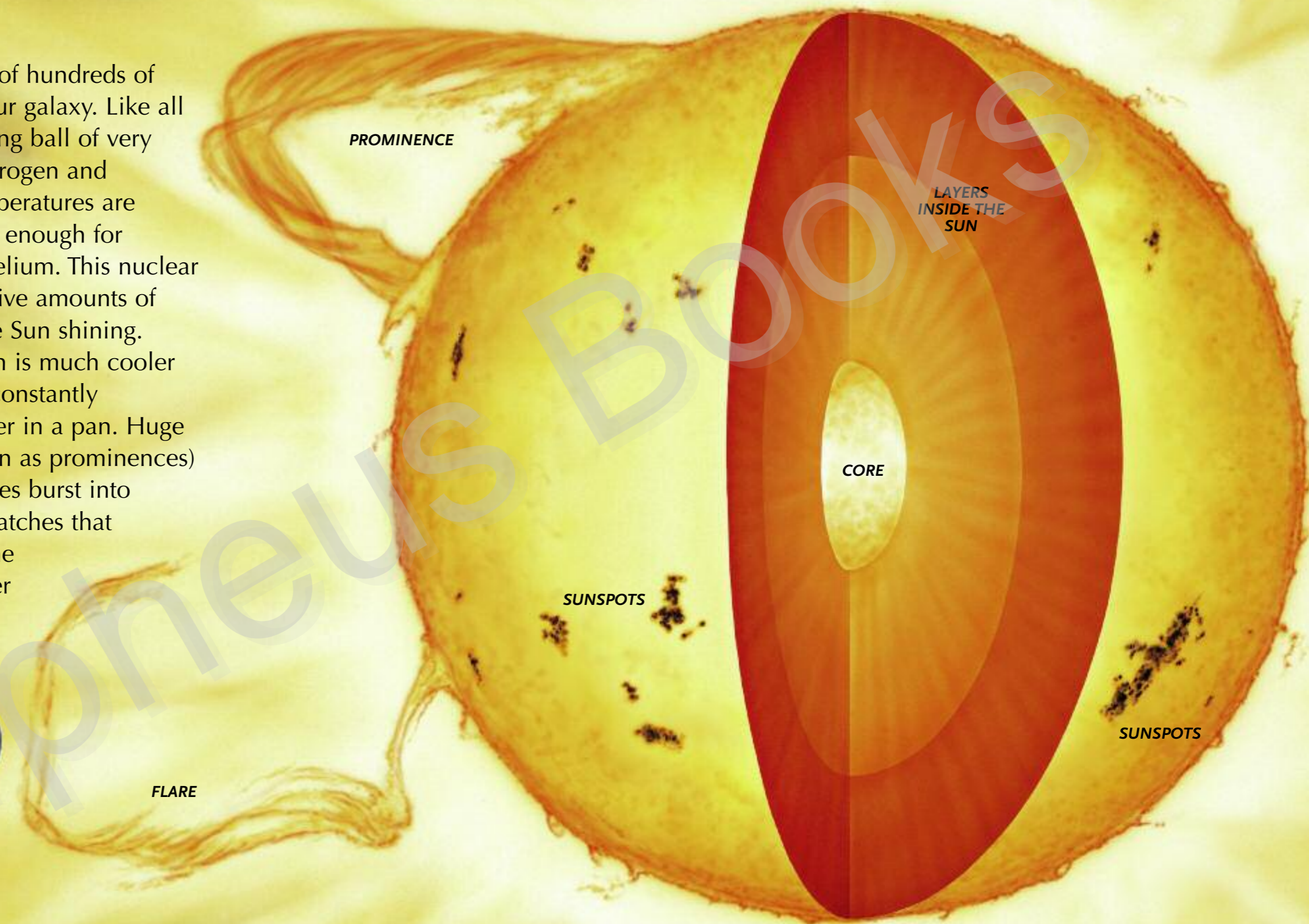
The surface of the Sun is much cooler than the core, but it is constantly bubbling away like water in a pan. Huge flares and arches (known as prominences) of glowing gas sometimes burst into space. Sunspots, dark patches that sometimes appear on the surface, are much cooler areas.

EARTH
(TO SCALE)



JUPITER
(TO SCALE)

FLARE



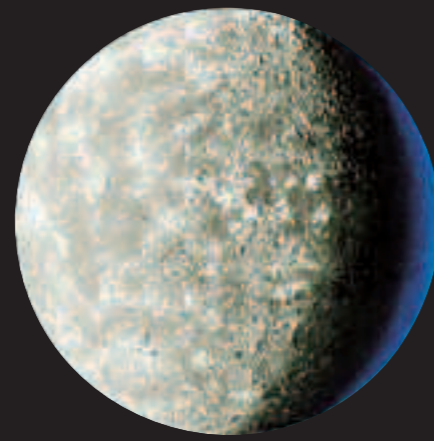
THE PLANETS

A **PLANET** is a large object in orbit around a star. It can be made of rock, metal, liquid, gas, or a combination of all of these. Planets do not produce light, but reflect the light of their parent star.



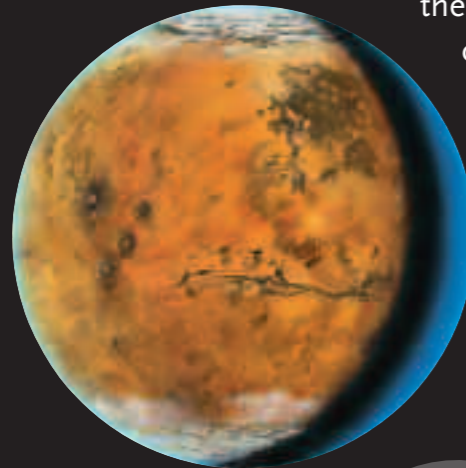
EARTH

Our home planet Earth (*above*) has exactly the right temperature to support life. There is also liquid water and an atmosphere (a blanket of gas) that blocks the Sun's harmful rays but keeps in much of the warmth. Earth is made up of several layers: a thin, hard crust, a thick, semi-solid mantle and a hot ball of solid iron at its core.



MERCURY

Mercury (*above*) is the closest planet to the Sun. During the day temperatures soar above 400°C but at night temperatures plunge to minus 180°C. It takes just 88 Earth days for Mercury to orbit the Sun. Mercury has no atmosphere so there are no clouds above its surface.



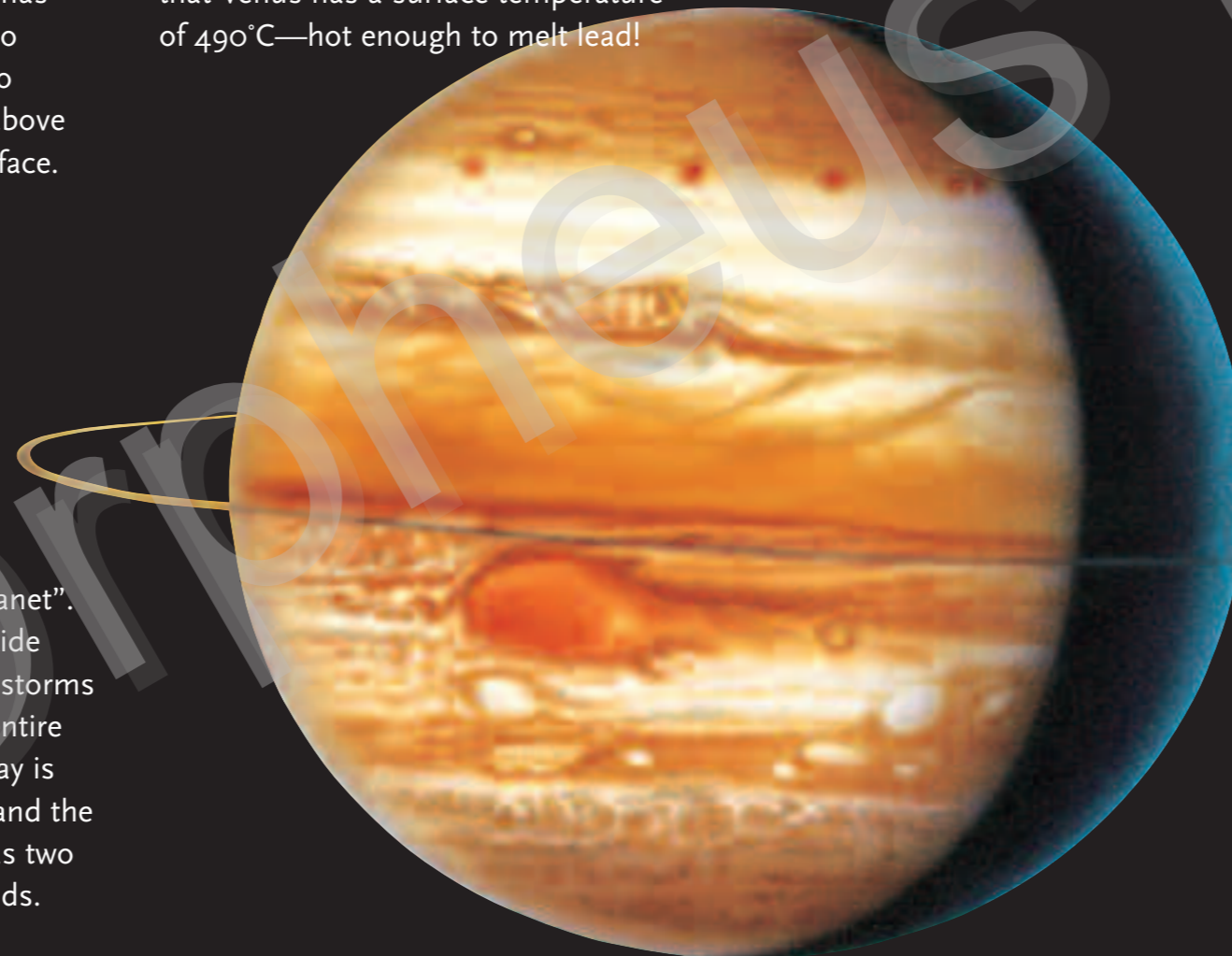
MARS

Mars (*above*) is known as "the Red Planet". Its reddish colour comes from iron oxide dust (known to us as rust). Immense storms occasionally blow up, blanketing the entire planet with this red dust. A Martian day is only a little longer than an Earth day, and the planet also has four seasons. Mars has two tiny moons, probably captured asteroids.



VENUS

Venus (*above*) is the hottest and most forbidding planet in the Solar System. It is shrouded in a dense cloud of deadly sulphuric acid. This thick blanket stops sunlight getting in, but traps radiation. This means that Venus has a surface temperature of 490°C—hot enough to melt lead!

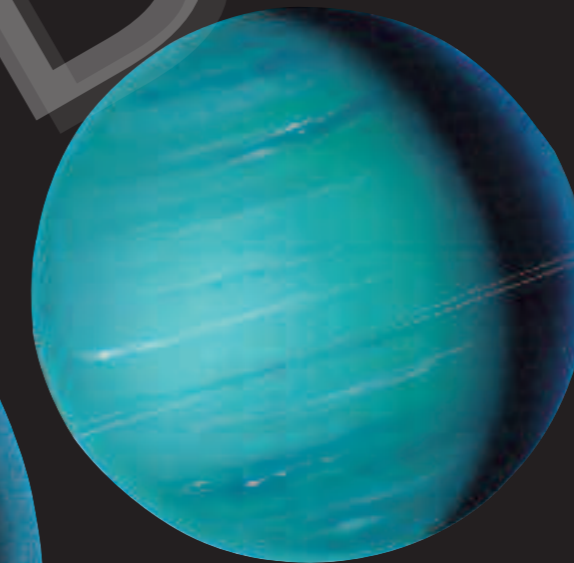
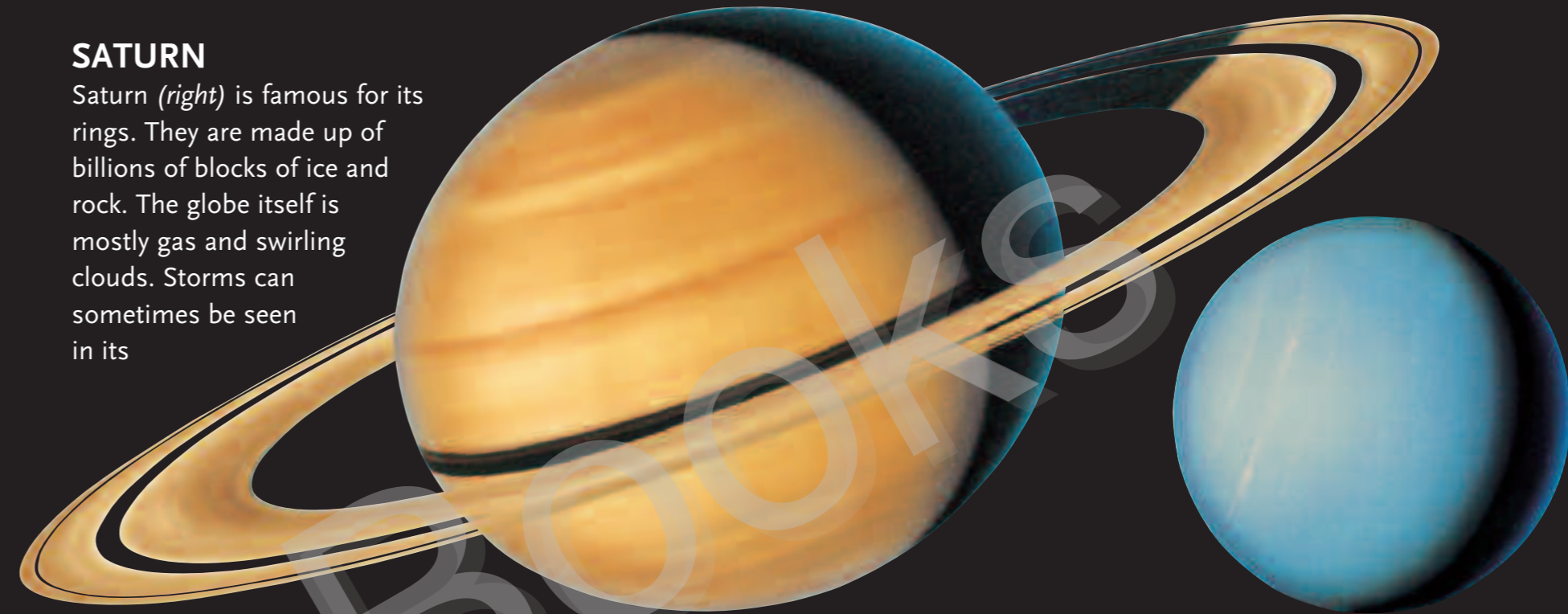


JUPITER

Jupiter (*left*) is bigger than all of the other planets combined. Apart from its a solid rock core, Jupiter is almost entirely made up of hydrogen and helium. The red, gold and white swirls are clouds in its atmosphere. The famous Great Red Spot is a giant storm that has been raging for at least 300 years.

SATURN

Saturn (*right*) is famous for its rings. They are made up of billions of blocks of ice and rock. The globe itself is mostly gas and swirling clouds. Storms can sometimes be seen in its



NEPTUNE

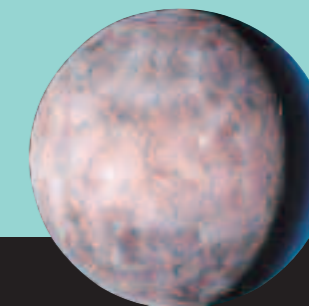
Neptune (*left*) is similar to Uranus in size and colour. Sometimes its blue globe is streaked by white, wispy clouds. Winds whip round at up to 2000 km/h. Sometimes dark spots caused by storms can be seen.

URANUS

Uranus (*above*) is the only planet to orbit the Sun almost on its side. One orbit takes 84 Earth years. This means that both poles face 42 years of continuous daylight, followed by 42 years of continuous night!

PLUTO, A DWARF PLANET

Discovered in 1930, Pluto was long considered to be the ninth planet in our Solar System. However, astronomers have recently found other objects larger than Pluto in the farther reaches of the Solar System. So Pluto has now been reclassified as a "dwarf planet".



THE SOLAR SYSTEM

THIS is a diagram of our Solar System. At the centre lies the Sun, our local star. Circling round it are eight planets, including Earth, and the dwarf planet Pluto. Their paths, or orbits, are shown in different colours. The Solar System also includes moons, asteroids, comets and large amounts of gas and dust.

All the planets orbit the Sun in an anti-clockwise direction. The Sun's massive size gives it a gravitational pull sufficient to keep the planets and other objects in orbit around it. The Sun's influence extends far beyond Pluto, the most distant object shown here.

DISTANCE FROM THE SUN

The diagram below shows the relative distances of the planets from the Sun.

Mercury
Venus
Earth
Mars

Asteroids

Jupiter

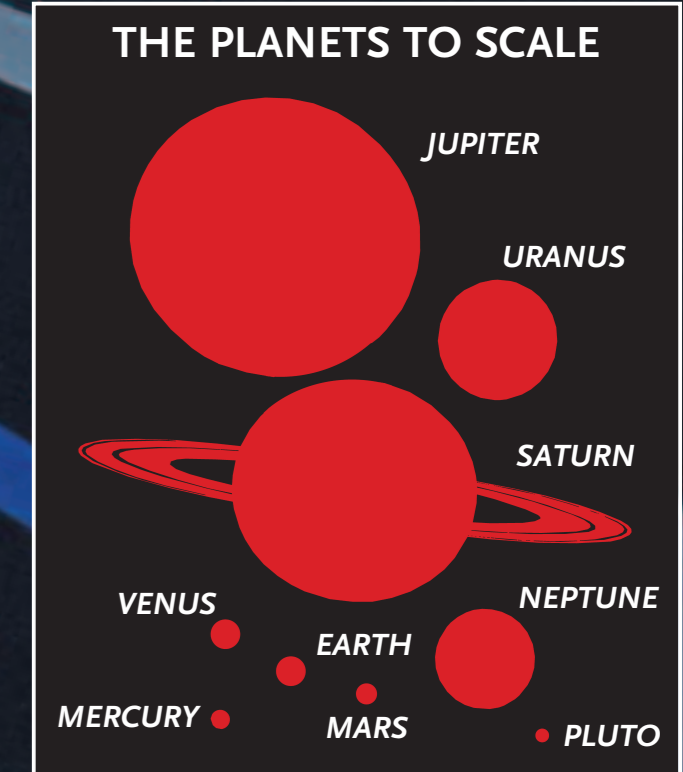
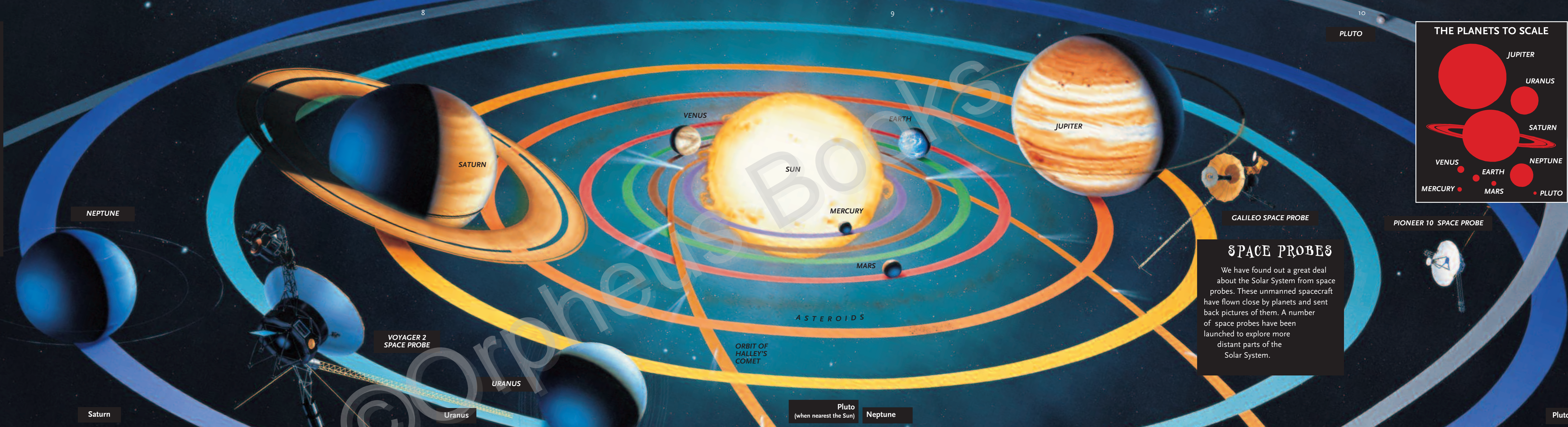
Saturn

Uranus

Pluto
(when nearest the Sun)

Neptune

Pluto



SPACE PROBES

We have found out a great deal about the Solar System from space probes. These unmanned spacecraft have flown close by planets and sent back pictures of them. A number of space probes have been launched to explore more distant parts of the Solar System.