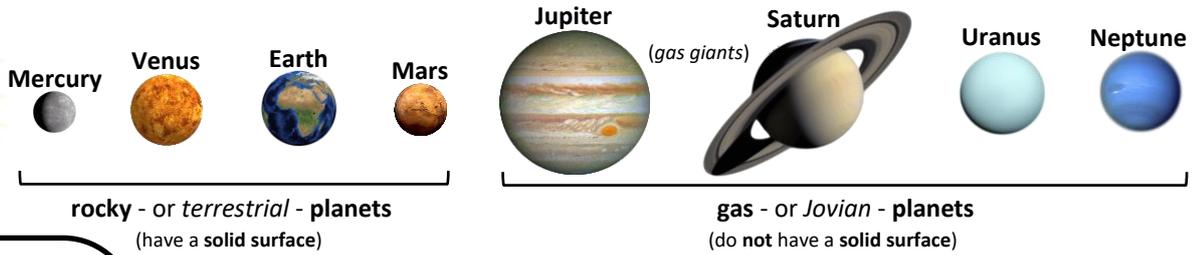


Earth and Space

The **Solar System** is made up of **eight planets** that **orbit the Sun**



The Sun
The **star** at the **centre** of the **Solar System**



The Earth's Rotation



The **Earth spins** once on its **axis** (an *imaginary* line going from the **North** to **South Pole**) every **24 hours** (1 day)

Night and Day

Because of the **Earth's rotation**, only **half** of the **Earth** is **facing the Sun** at any time

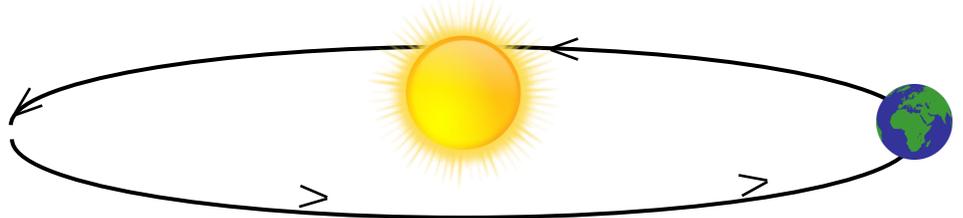


day  night 

It is **day** for the half of the **Earth** **facing the Sun** and **night** for the half **facing away** from the **Sun**. It is this **rotation** that makes the **Sun** seem like it is **moving across** the sky; **rising in east** and **setting in the west**. It also explains the **time difference** between different countries

The Earth's Orbit

The **Earth's orbit** is the **pathway** along which the **Earth** travels around the **Sun**



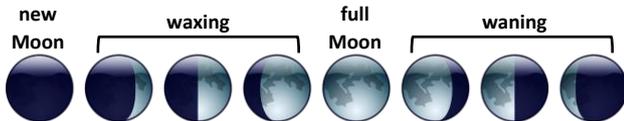
It takes **365 days** (1 year) for the **Earth** to make **one complete orbit**.

All the **other planets** in the **Solar System** **orbit the Sun** too. They take **different lengths of time** to make an **orbit** depending on **how near** to the **Sun** they are.

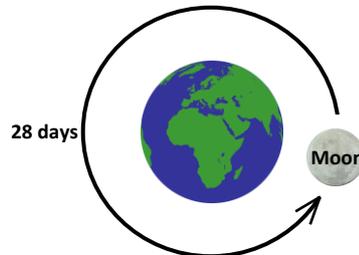
(it takes **Neptune 60,200 days** to **orbit the Sun**; **Mercury...only 88 days**)

The Moon

The **Moon** is a lot **smaller** than the **Earth**. It **orbits** (travels around) the **Earth**, **once every 28 days**



The **Moon** appears to change shape in the night sky. However, this is because it **reflects** different amounts of **light** from the **Sun** as it orbits the **Earth**

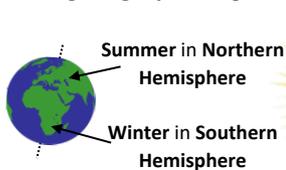


The **Moon** is a **natural satellite** of the **Earth**. *Some* of the other planets have **numerous Moons**.

One of **Jupiter's Moons** (**Ganymede**) and one of **Saturn's** (**Titan**) are **bigger** than **Mercury**

Seasons

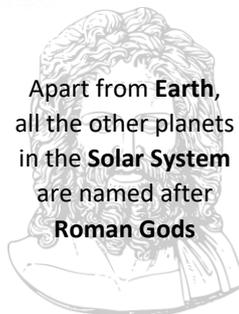
The **Earth** is **slightly tilted** on its **axis**. As the **Earth orbits** the **Sun**, the **amount of sunlight** each place on the planet gets each day **changes slightly** creating the seasons.



In the **winter**, days are **shorter** and **colder**.
In the **summer**, days are **longer** and **warmer**

It used to be believed that the **Earth** was the **centre** of the **Solar System** and that the **Sun**, stars and planets **orbited the Earth** (*geocentric model*)

The idea that the **Sun** was at the **centre** of the **Solar System** (*heliocentric model*) was not adopted until the **17th century**, mainly due to the work of **scientists** such as **Copernicus**, **Galileo** and **Kepler**



Apart from **Earth**, all the other planets in the **Solar System** are named after **Roman Gods**

The **shape** of the **Earth**, **Sun**, **Moon** and the other **planets** is roughly **spherical**

Flat Earth?

Many **ancient cultures** believed that the **Earth** was **flat** and that it was possible to sail off the edge!



Aristotle, a **Greek scientist**, argued that **Earth** was **not flat** because of the **shadow** the **Earth** cast on the **Moon** during a **lunar eclipse**



Evidence of the **Earth's spherical shape** includes:

- it is possible to **sail or fly** around the **Earth**
- different **time zones** around the planet
- **photographs** taken from **outer space**
- ...and many more

For **thousands** of years, humans have been using the **Sun** to tell the **time**. Some believe **Stonehenge** is an ancient **astronomical clock**