

STARS AND THE SOLAR SYSTEM

- **Introduction**
- **The Moon and Its Phases**
- **Surface Of Moon**



Stars and the solar system





Moon is visible due to reflected sunlight

Only part of the moon and the earth is visible.





Why does the moon sometimes appear full ??



Why does it appear half ??



Half Moon

New Moon



The Phases of the Moon

Lunar Calendar

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29					

On the fifth day of the month the moon is half visible. This day is known as the 'new moon'. The next day the moon appears again and goes larger every day. It is known as crescent moon.

After fifteen days once again we get a full view of the moon. The bright part of the moon appears to become larger.

The various shapes of the bright part of the moon as seen during a month are called phases of the moon.

We never see the backside of the moon from the earth

The moon completes one rotation on its axis.

The tip represents the front side of the moon.



As it completes one revolution around the earth.



What do you observe as the moon revolves around the earth ?



Hence we only see the front side of the moon.

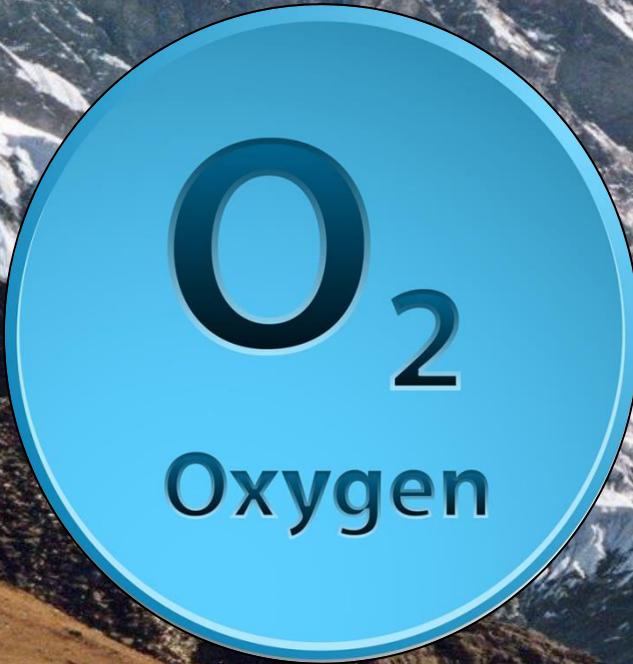


The moon does not have an atmosphere.

Life on moon

There are also large numbers of high mountains as on earth.

It also does not have water.



O₂

Oxygen



STARS AND THE SOLAR SYSTEM

- **The Stars**
- **Constellations**



Such large distances are expressed in another unit called as **Light year**

The next nearest star is **Alpha Centauri**

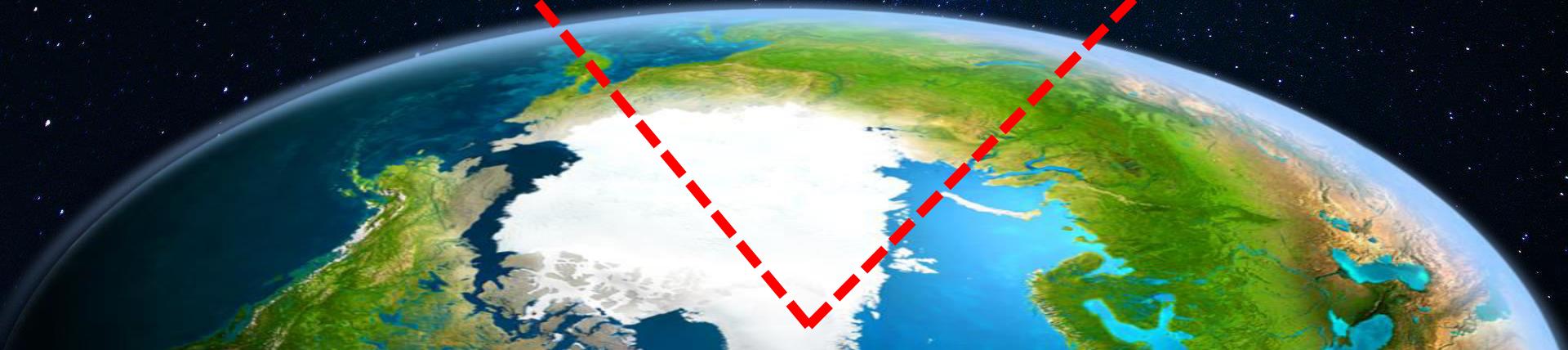
Earth is about **8 Light minutes** light in 1 year.

1 L



8 light minutes

4.3 Light years

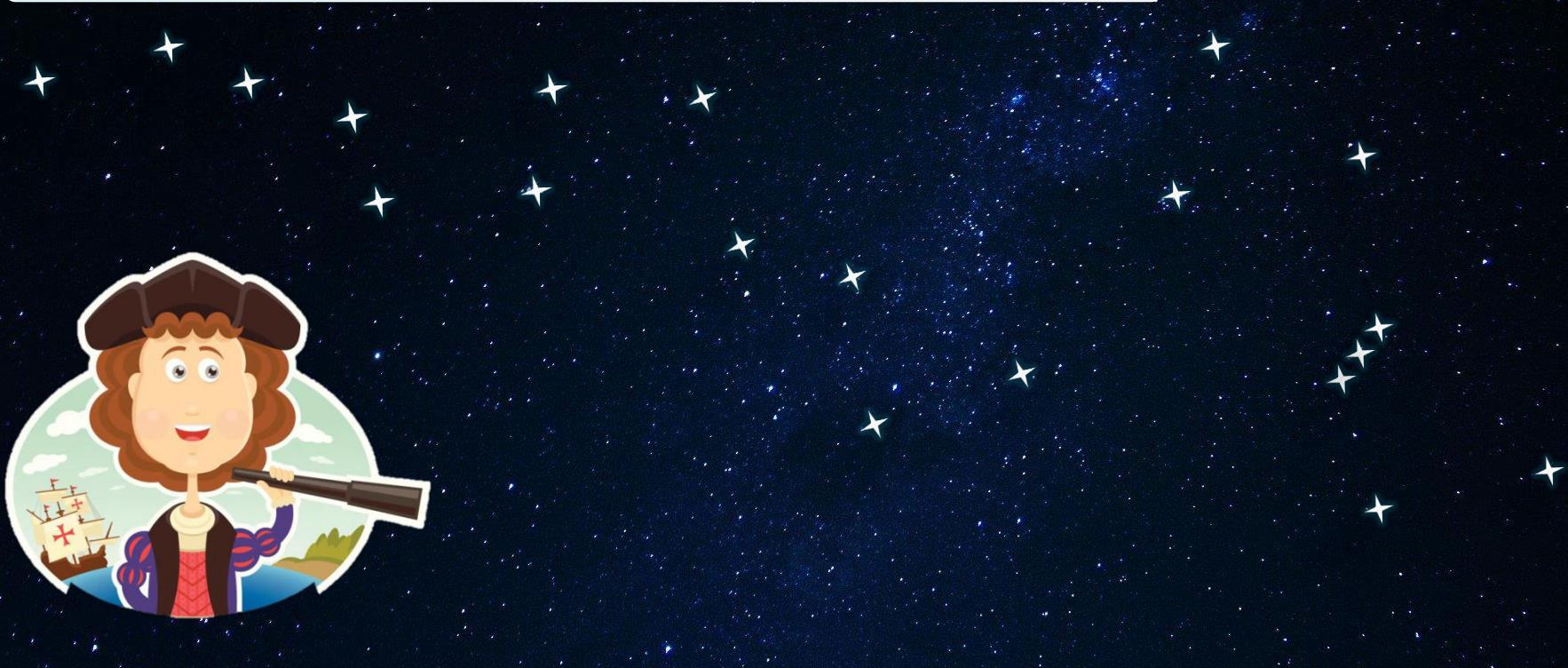


Constellations

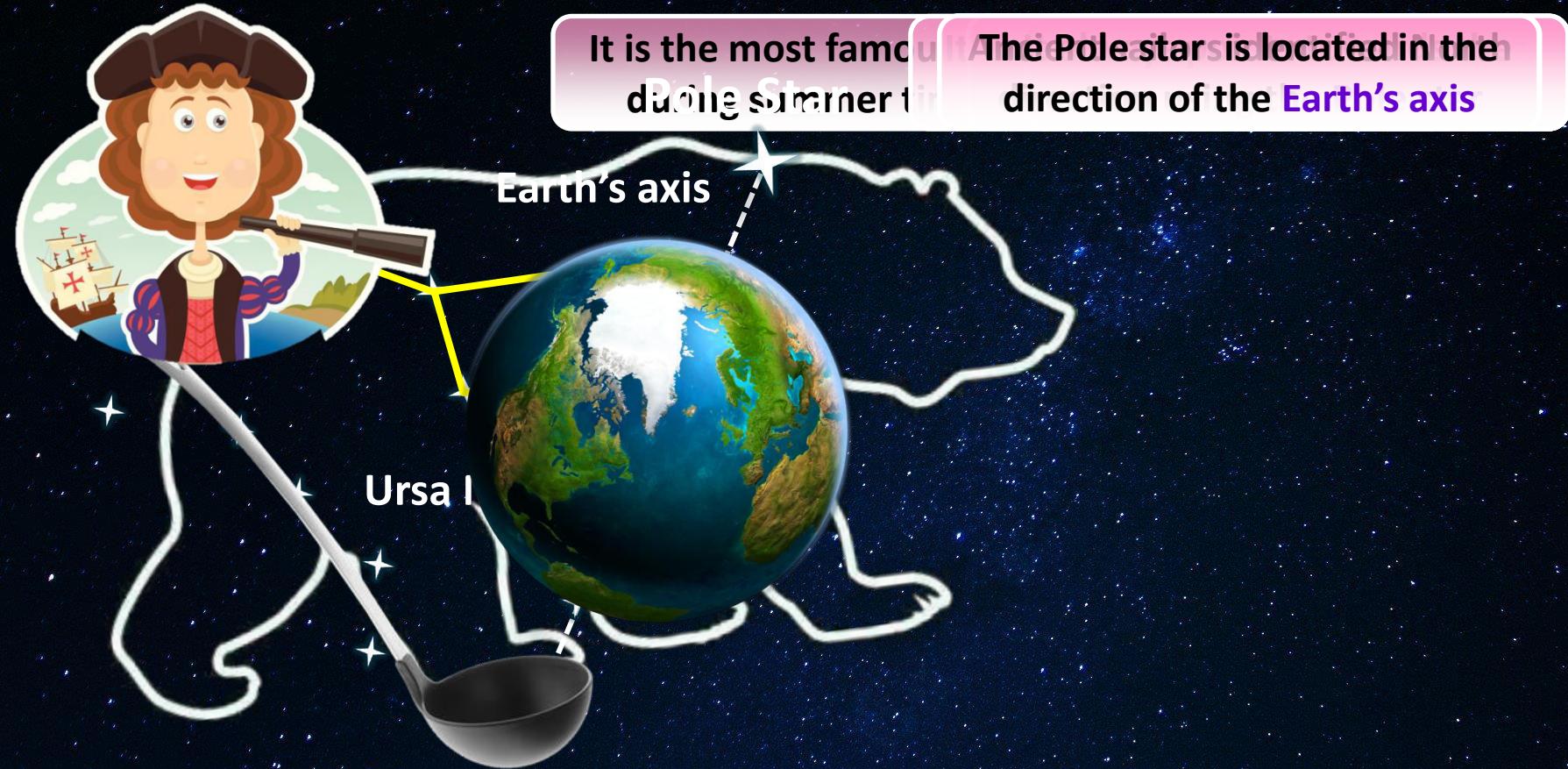
The stars forming a group that has a recognisable shape in the sky.

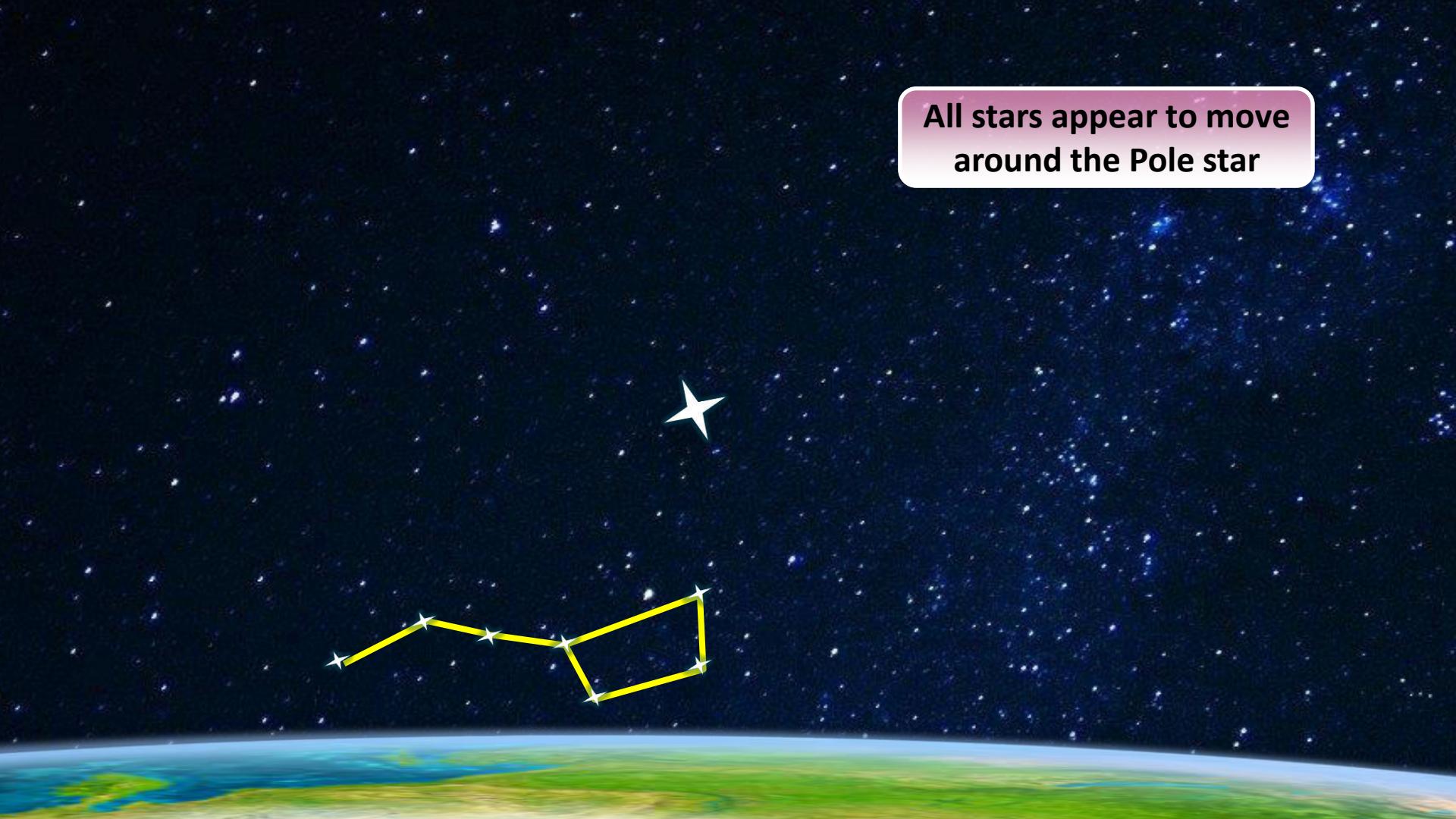
recognisable shape is called a **constellation**.

They identified groups of stars that resemble objects on earth.



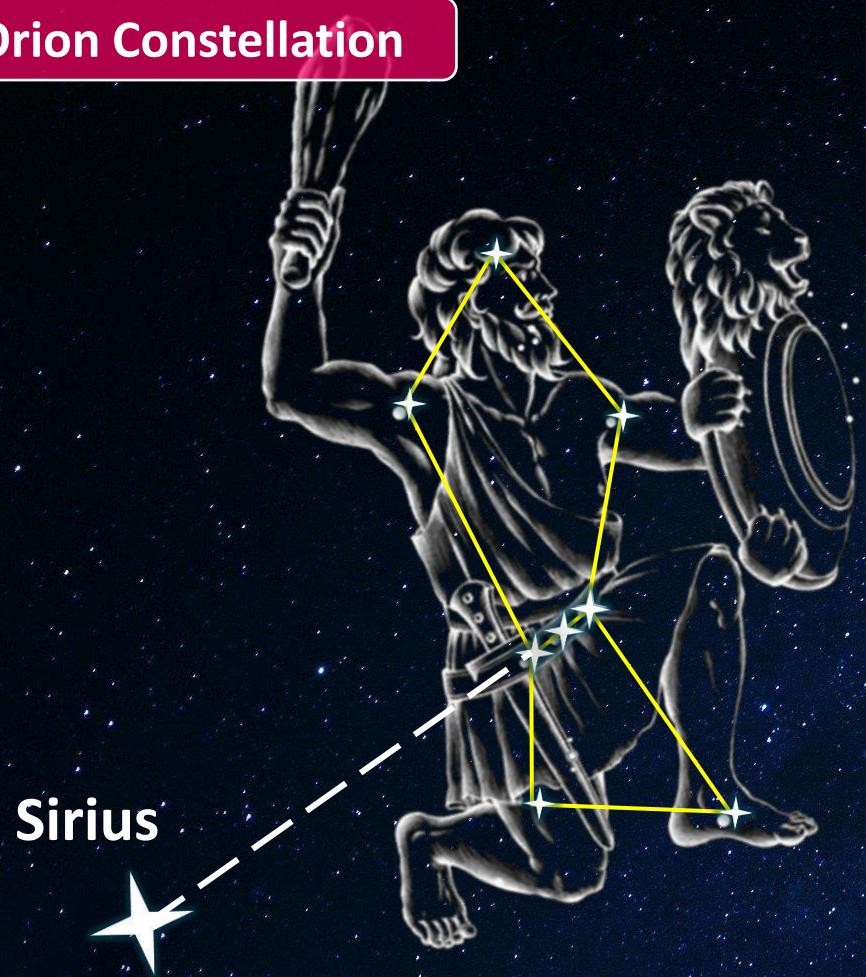
Ursa Major Constellation





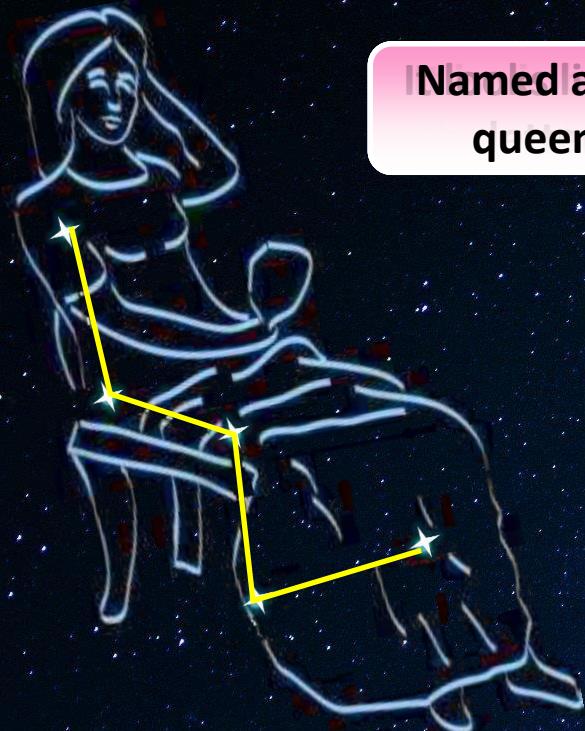
All stars appear to move
around the Pole star

Orion Constellation



Sirius is the brightest star in the sky.

Cassiopeia Constellation



Named after the Greek queen Cassiopeia.

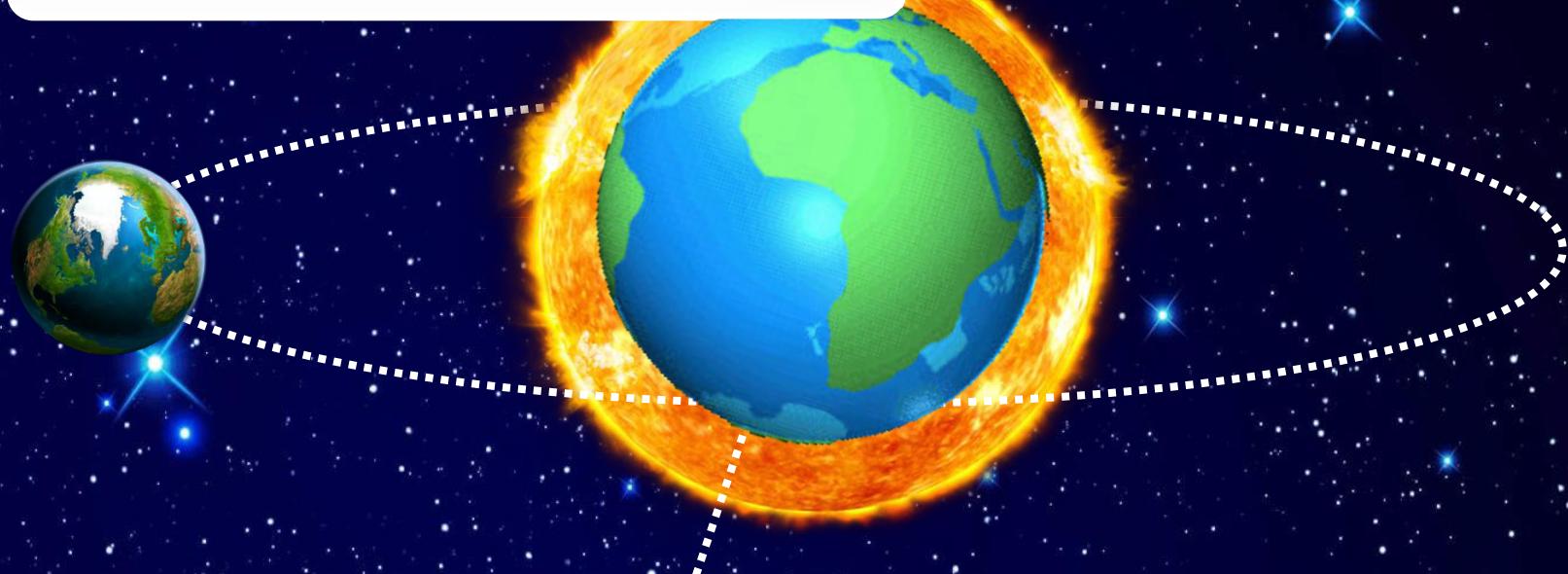
STARS AND THE SOLAR SYSTEM

- **The Solar System**
- **Revolution and Rotation**
- **Planets**

The planet also rotates on its own axis.
The Sun

The time taken to complete one rotation is
is called its Period of Rotation

Earth's axis



Planets



Inner planets

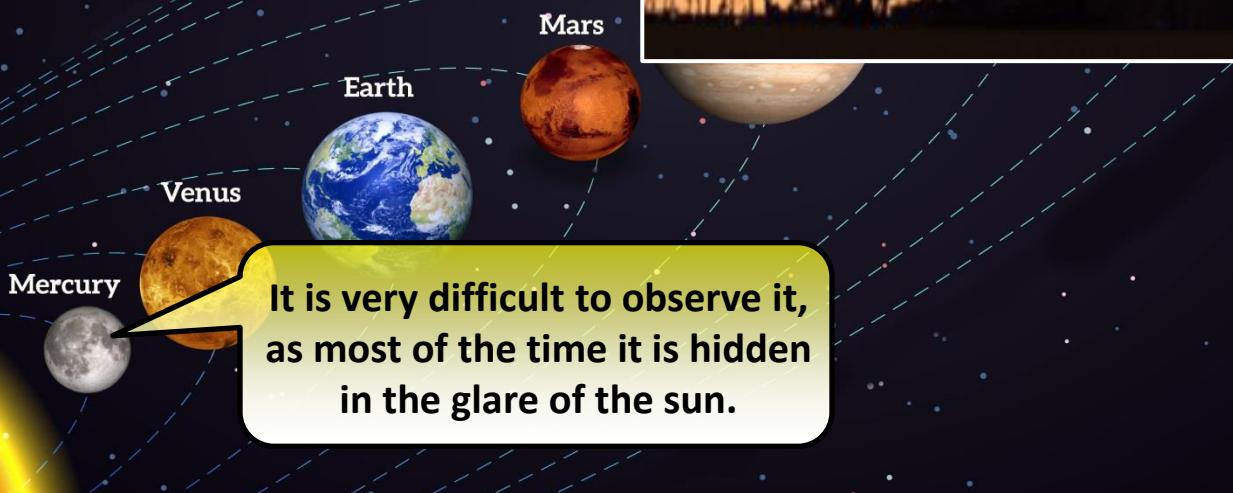
They have very few moons

Outer planets

They have large number of moons

Mercury

(Budh)

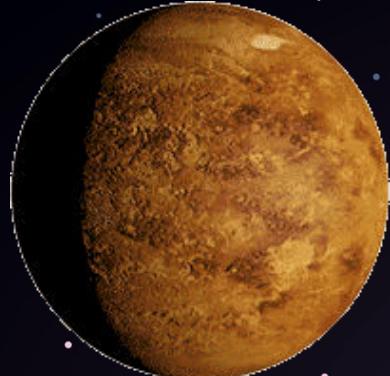


It can be visible at places where after buildings do not stand the horizon.



Venus

(Shukra)



Sometimes it appears in the western sky just after sunset.

Therefor it is often called a morning or an evening star, although it is not a star.

Venus rotates from
East to West

Earth rotates from
West to East

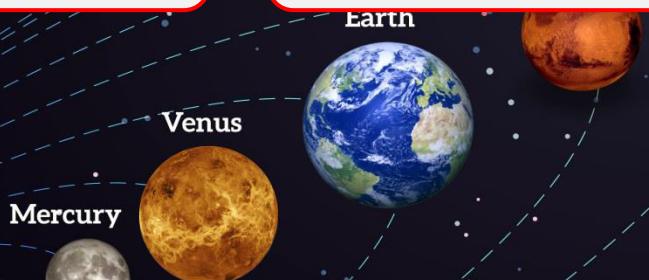
Jupiter



West

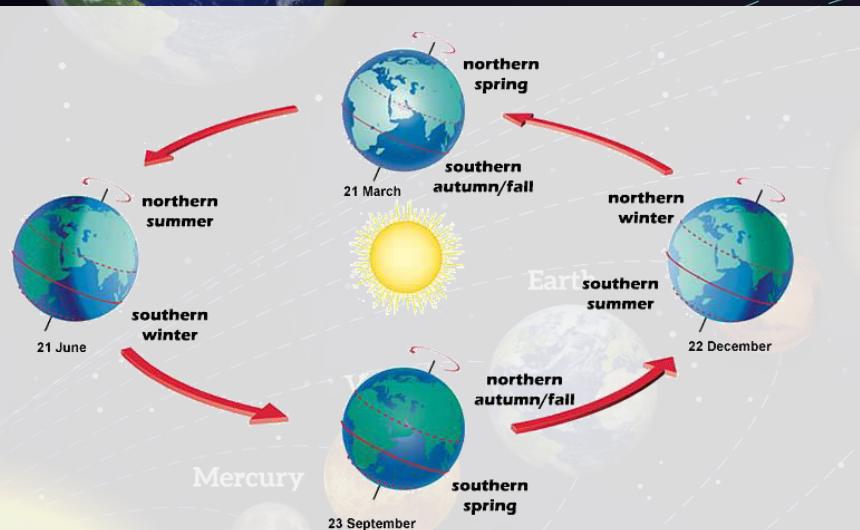
Venus

Mercury



earth

(prithvi)



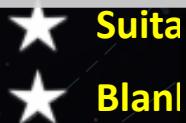
Change in seasons takes place due to the position of the Earth in its orbit around the sun and the tilting of its own axis of rotation

The Earth is the only one planet in the solar system on which life is known to exist.

From space, the Earth appears blue green due to the reflection of light from water and landmass on its surface.

The axis of rotation of the Earth is not perpendicular to the plane of its orbit.

Presence of water
Earth has only one moon



Mars (mangal)

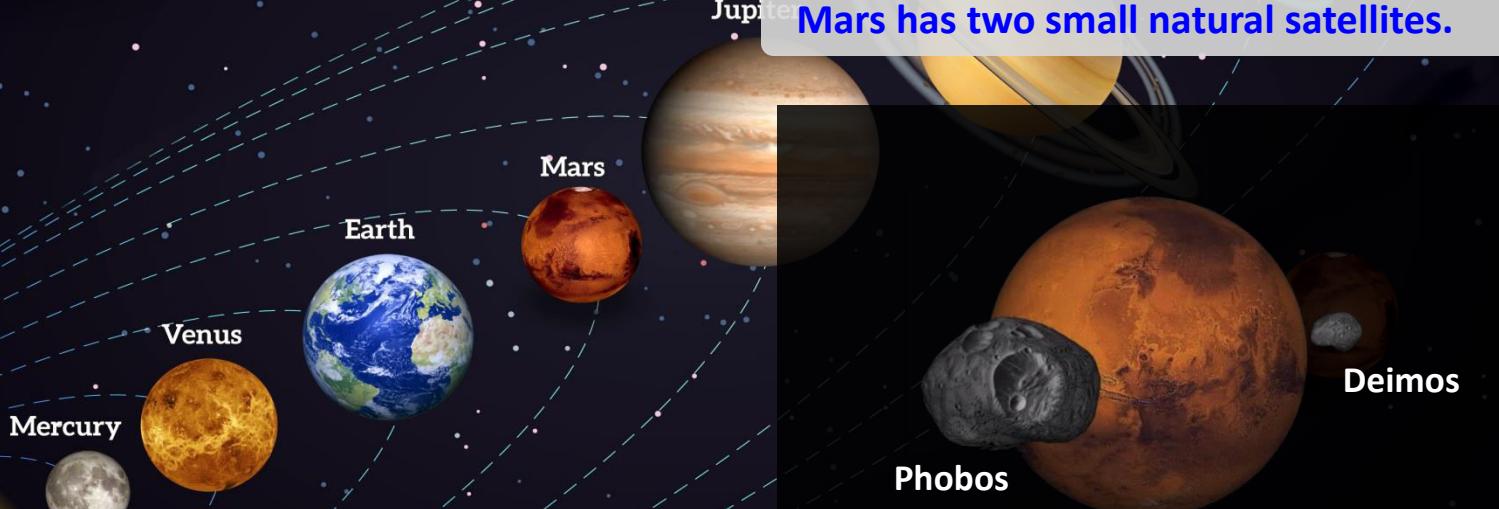


The next planet, the first outside the orbit of the Earth is Mars.

Uranus

It appears slightly reddish and, therefore, it is also called the red planet.

Mars has two small natural satellites.



STARS AND THE SOLAR SYSTEM

- **Planets**

Jupiter

(Brihaspati)

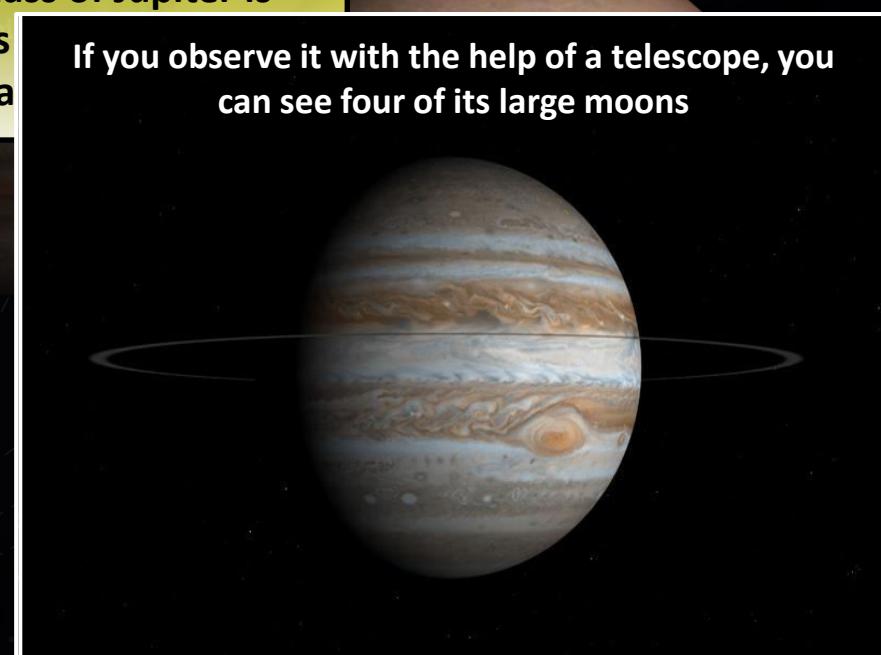
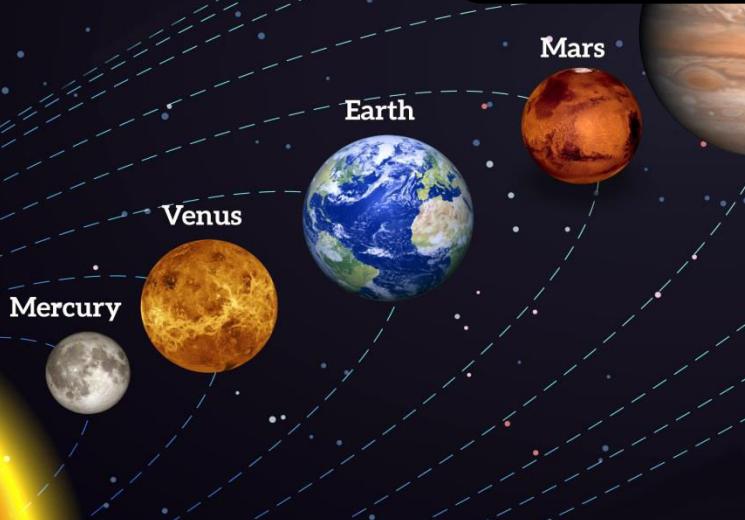


Jupiter is the largest planet of the solar system.

Jupiter has a large number of satellites.

However, the mass of Jupiter is
about 318 times
It rotates very ra

If you observe it with the help of a telescope, you
can see four of its large moons



Saturn

(Shani)



Saturn is the second largest planet in our solar system.

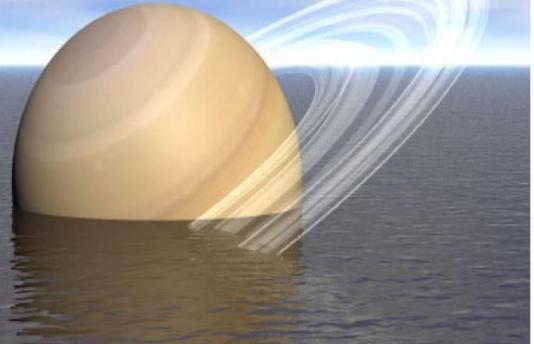
Uranus

Beyond Jupiter is Saturn which appears yellowish in colour.

Jupiter

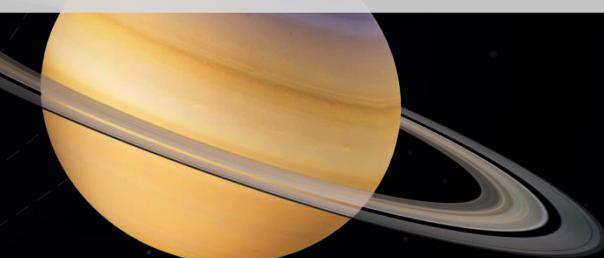
What makes Saturn unique in the solar system

Its density is less than that of water.



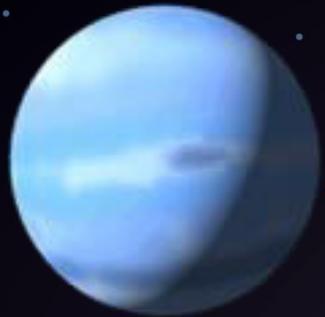
These things are not visible with the naked eye.

Saturn also has a large number of satellites.

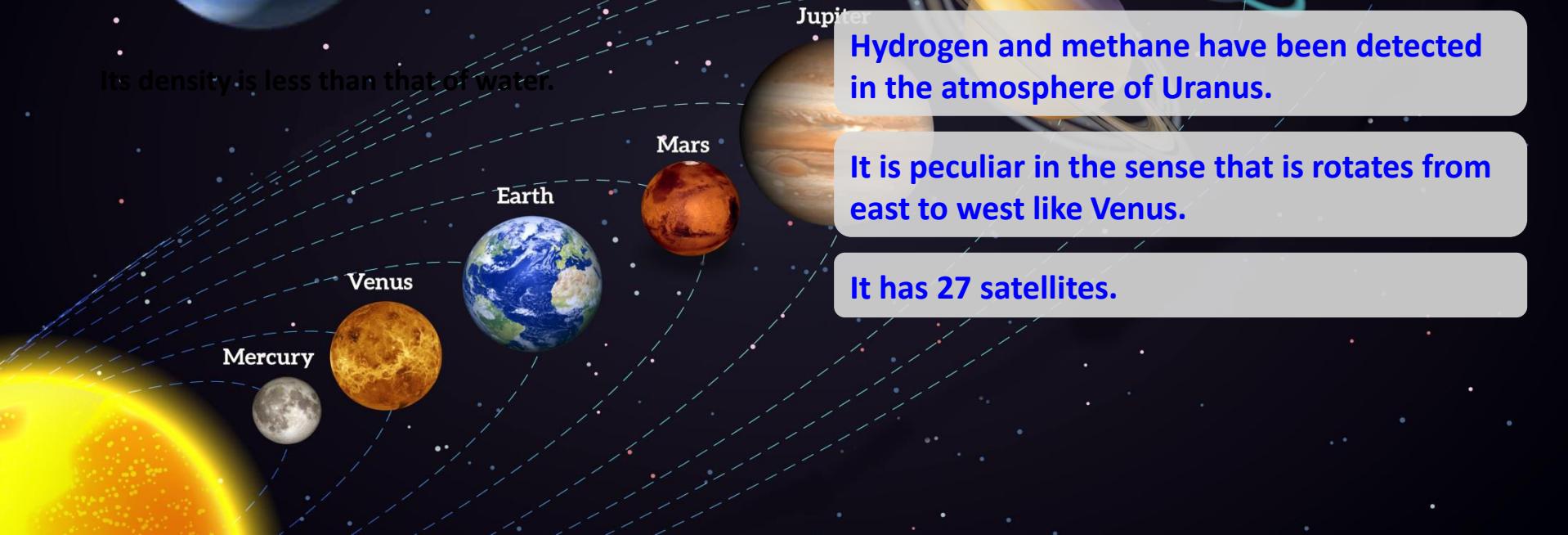


You can observe them with a small telescope.

Uranus



Its density is less than that of water.



Uranus appears as a small disc although its diameter is almost four times that of the earth

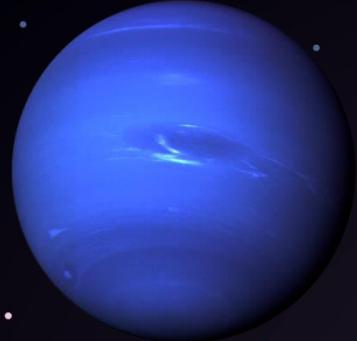
Hydrogen and methane have been detected in the atmosphere of Uranus.

Hydrogen and methane have been detected in the atmosphere of Uranus.

It is peculiar in the sense that it rotates from east to west like Venus.

It has 27 satellites.

Neptune

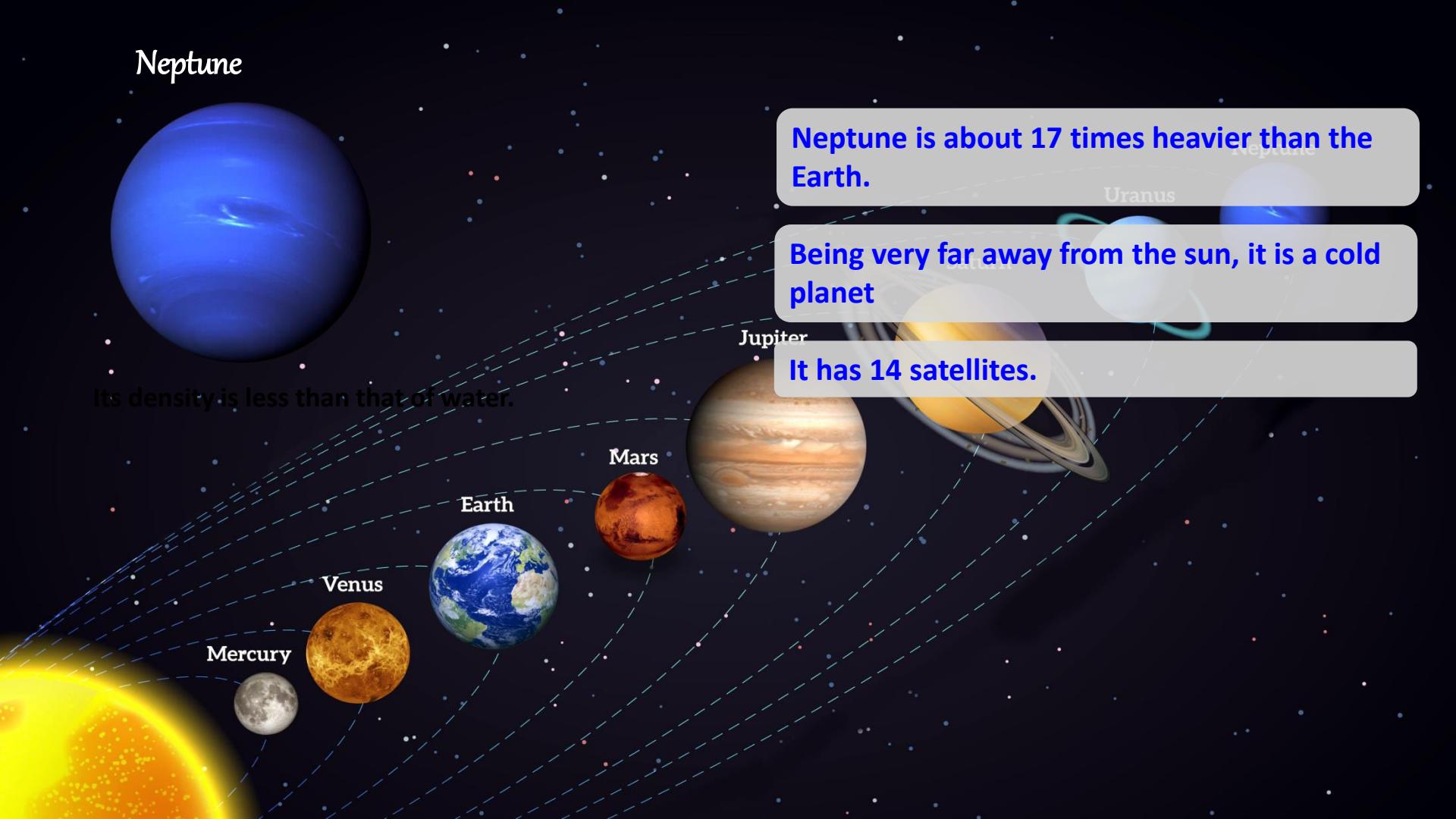


Its density is less than that of water.

Neptune is about 17 times heavier than the Earth.

Being very far away from the sun, it is a cold planet

It has 14 satellites.



Pluto



Its density is less than that of water.

FUN FACT!



As stated earlier, Pluto is a dwarf planet as its orbit overlaps the orbit of Neptune.

Its distance is maximum from the sun and hence, it is the coldest and the darkest.

Jupiter

Its size is small which is about 0.002 times the mass of earth.

It is not visible through the naked eye. It has five satellites. It takes 248 earth years to orbit Sun.



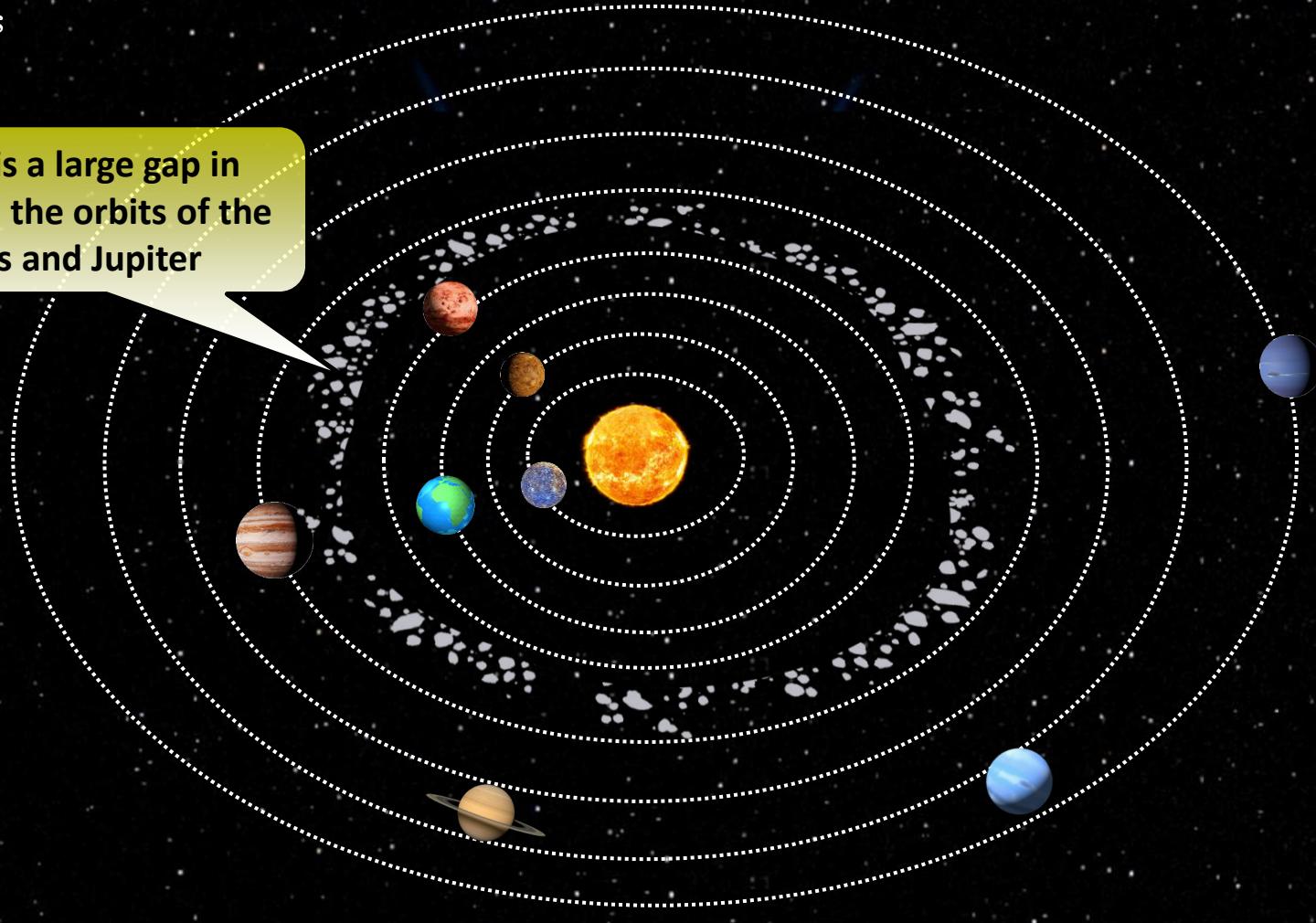
As of now there is a controversy whether Pluto is dwarf planet or not.

STARS AND THE SOLAR SYSTEM

- Asteroids
- Comets
- Meteors and Meteorites
- Artificial Satellite

Asteroids

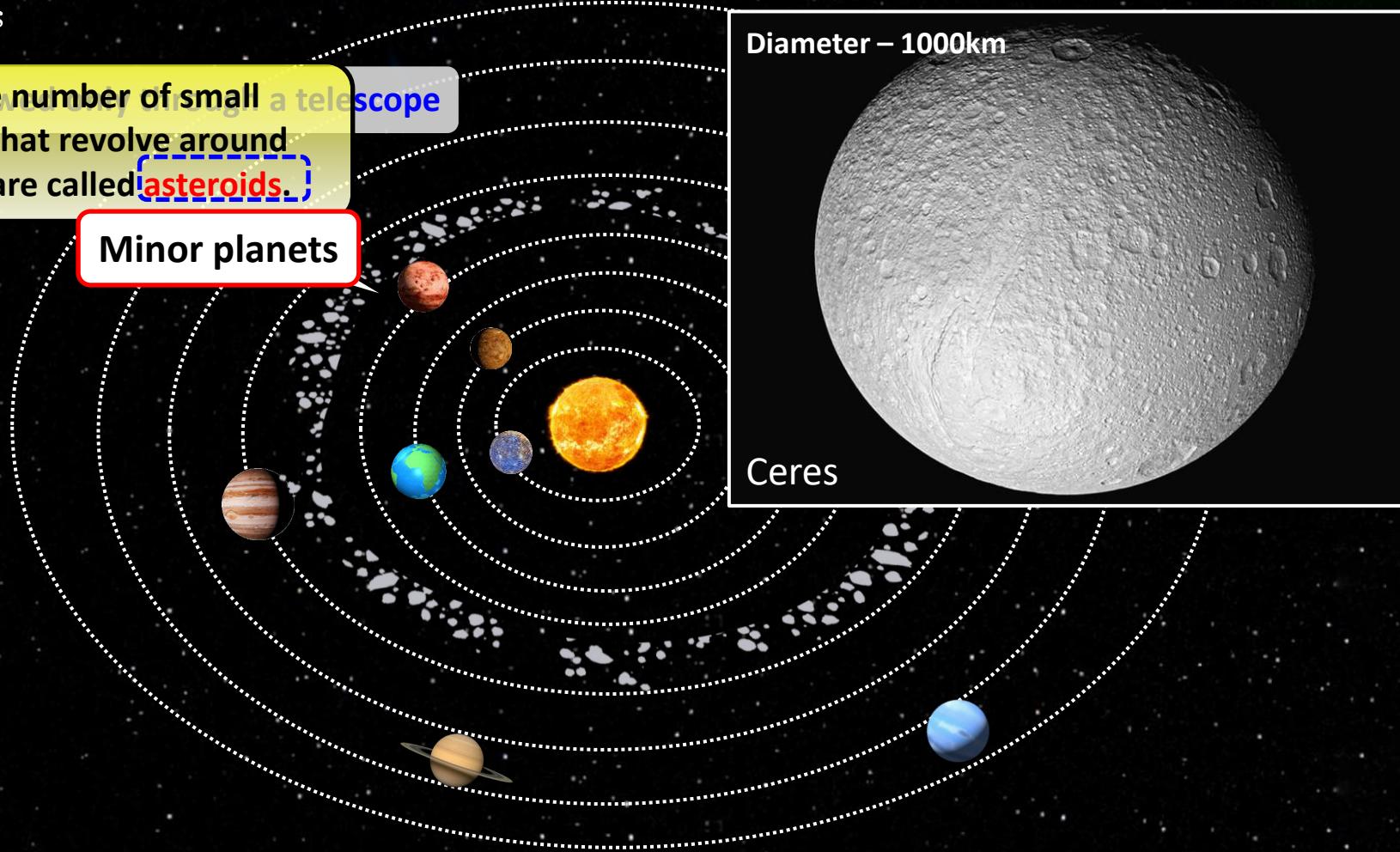
There is a large gap in
between the orbits of the
Mars and Jupiter



Asteroids

Can A large number of small objects that revolve around the Sun are called **asteroids**.

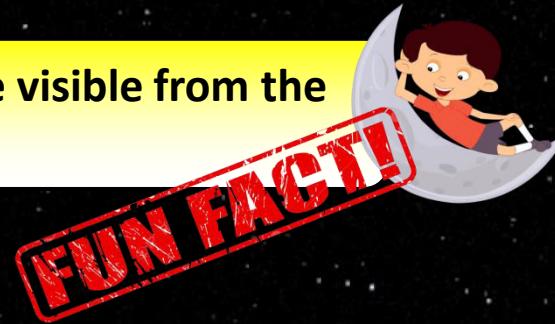
Minor planets



Comets

The heavenly bodies which revolve around the Sun in highly elliptical orbits are called as Comets.

They are very small sized celestial bodies and become visible from the earth only when they come close to the sun.



Comets

- ❖ Halley's comet is the most famous among all the comets and was first recorded over 2000 years ago. It orbits the sun every 76 years.

The tail disappears again when the comet moves away from the sun.



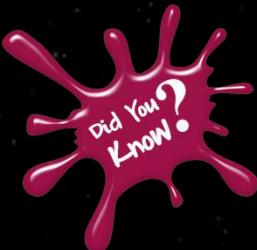
Halley's comet was last seen in early 1986.



Orbits

The tail of a comet is always directed away from the sun.

Meteors and Meteorites



Meteors are commonly called as SHOOTING STARS although they are not stars

Meteor

Meteors are very small stone-like object that are revolving around the sun.

Meteor existence becomes known only when some of them enter the atmosphere of the Earth.

The path of the meteor appears as a 'Streak of Light' in the night sky.



They form a CRATER

The Arizona Meteorite Crater was formed by a meteorite that fell thousands of years ago.



Meteorites help scientists in investigating the nature of the material from which the solar system was formed.

Satellites are launched into space with the help of rockets

Uses of Artificial satellites :

1. Weather forecasting

2. Transmission of Radio and Television signals

3. Telecommunication and remote sensing



