

Must Remember

- You can see satellites, the International Space Station, the Moon, comets, meteors, planets, stars, and galaxies in the night sky.
- The distances to objects in the night sky can be measured in light-time (light-seconds, light-minutes, light hours, and light-years).
- The natural objects that you see are made of mixtures of gas, dust, rock, and ice.
- The Universe consists of millions of galaxies. Each galaxy contains billions of stars. Each star may have planets, asteroids, and comets in orbit around them. Each may have moons in orbit around them.
- There are four rocky planets (Mercury, Venus, Earth, and Mars), and asteroid belt, and four outer planets (Jupiter, Saturn, Uranus, and Neptune), made of gas.



- Planets further from the Sun are colder. Venus is hotter than Mercury, even though it is further from the Sun. This is because Mercury does not have an atmosphere to trap energy.
- The Earth spins on its axis once a day. This is why we have day and night, and why the Sun and stars appear to move across the sky.
- The Earth orbits the Sun in one year. The axis of the Earth is tilted, and this explain the height of the Sun at noon, day length, temperature, and constellations that you see change during the year.
- You see phases of the Moon because the Moon is orbiting the Earth. Half of the Moon is always lit by the Sun.
- A solar eclipse happens when the Moon is between the Sun and the Earth. A lunar eclipse happens then the Earth is between the Sun and the Moon.

Further Study

[BBC Bitesize – Astronomy and space science](#)

Nice to know that...

- A galaxy is a collection of billions of stars. The Earth is in the Milky Way galaxy.
- Planets are large objects that orbit stars, and do not produce light.
- Asteroids are rocky objects smaller than planets, that also orbit stars.
- Satellites are objects that orbit planets. This includes natural satellites (moons) and artificial satellites (the International Space Station).
- Meteors are bits of rock which burn up in the Earth's atmosphere. They are called meteorites once they hit the ground.
- Solar eclipses are caused when the Moon blocks light hitting part of the Earth. The umbra is the region of total darkness (like night), and the penumbra is where light is partially blocked.
- Lunar eclipses are caused when the Earth stops light hitting the Moon.

Key Terms

galaxy:

a number of stars and the solar system around them grouped together

Milky Way:

the galaxy containing our Sun and Solar System

Solar System:

the Sun and the planets and other bodies in orbit around it

Universe:

everything that exists



Maritime Futures – Constellations

Celestial navigation relies heavily on the position and movement of the constellations. Constellations are groupings of stars that create recognizable patterns in the sky. As Earth orbits around the sun, these star patterns shift in the sky, making different constellations visible during different seasons. Sailors measured the height of the stars in the sky to track their progress. Sailors also used their knowledge of the constellations to navigate. Because constellations change seasonally, mariners had to know which constellations were visible in the sky at different times of the year in each hemisphere.