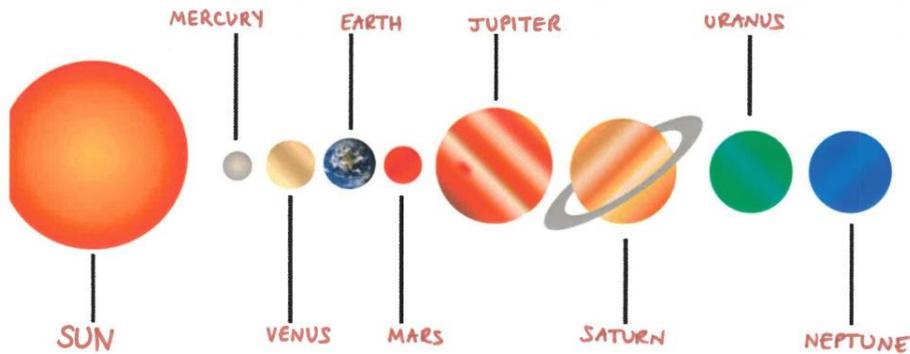


Sparrowhawks Knowledge Organiser

Earth, Space and Light

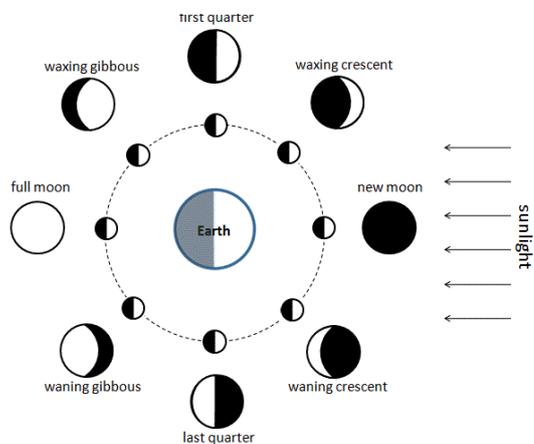
2019 marks the 50th anniversary of the moon landing. We will look at developments in human understanding of space and asking our own questions about the universe. In exploring light, we are linking with art to make shadow puppets, as well as carrying out our own shadow investigations.

The sun is a star at the centre of our **SOLAR SYSTEM** and it has 8 planets :



The planets move round the sun in an **ORBIT**. The further the planet is from the sun, the colder conditions are on that planet and the longer the orbit takes. Planet Earth takes approximately **365 days** to complete one orbit of the sun – **ONE YEAR**. The Earth spins on a tilted **AXIS**, rotating every **24 hours** – **ONE DAY**.

The side of the Earth that is facing the sun is in daylight. The shaded side of the Earth is darker. Because the Earth rotates on an axis, some areas of the planet will have longer daylight hours than others, and because the Earth orbits the sun, daylight hours will change during the year, giving us **SEASONS**.



The moon is a **CELESTIAL BODY** (not a planet) which orbits the Earth. Other planets have their own moons. Earth has just one, Jupiter has 4 large moons and numerous smaller ones. Our moon appears to change shape during its 28-day orbit, but this is caused by the Earth casting a shadow on the surface of the moon.

ASTRONOMERS have been studying the night sky for many years, developing their ideas about the solar system as new technologies have become available. A long time ago we used to believe that Earth was at the centre of the orbits, and that the stars and planets moved around Earth.

Scientists such as Ptolemy, Alhazen and Copernicus have all made great discoveries leading us towards our current understanding of the cosmos.

LIGHT travels in straight lines. When we 'see' an object, light from a **LIGHT SOURCE** is reflected off that particular object into the eye. Shadows can occur when an object blocks the path of light. During the day, the Earth rotates, giving the effect of the sun 'moving' across the sky. The change in angle of the light source affects the shape of shadows, which is why shadows on Earth change shape during the day.

The saying "The sun rises in the East and sets in the West" is misleading because it is not the sun that moves, but the Earth which rotates, revealing the sun.