

## Box 1: Keywords

| Word                | Definition                                                                         |
|---------------------|------------------------------------------------------------------------------------|
| asteroid            | Lumps of rock orbiting the Sun left over from when the Solar System formed.        |
| axis                | The imaginary line that the Earth spins around.                                    |
| comet               | Dust particles frozen in ice that orbit the Sun.                                   |
| ellipse             | A squashed circle or oval shape.                                                   |
| galaxy              | A number of stars and the solar systems around them grouped together.              |
| meteor              | A piece of rock or dust that makes a streak of light in the night sky.             |
| Milky Way           | The galaxy containing our Sun and Solar System.                                    |
| Satellite           | A natural (e.g. moon) or an artificial (e.g. ISS) object in orbit around a planet. |
| Solar System        | The Sun and the planets and other bodies in orbit around it.                       |
| star                | A body in space that gives out its own light.                                      |
| total solar eclipse | An eclipse where all of the Sun is covered by the Moon.                            |
| umbra               | The shadow on Earth where the Sun is completely blocked by the Moon.               |
| year                | The length of time it takes for a planet to orbit the Sun.                         |

## Box 2: Key skills

Mathematical calculations; Interpreting and explaining models

## Box 3: The night sky

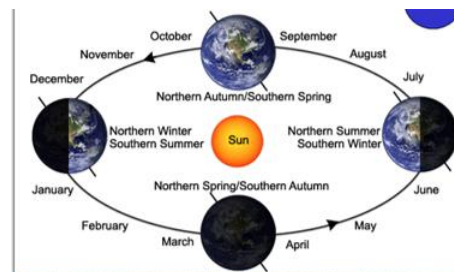
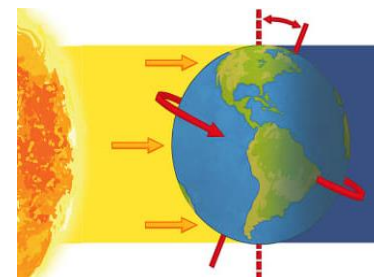
Most of the bright dots that we see in the night sky are stars in our own galaxy, the Milky Way.

Other things that appear in the night sky are artificial satellites (e.g. ISS); natural satellites (moons); other galaxies; comets or meteors. The next nearest galaxy to us is Andromeda.



## Box 4: The Earth; Day and Night and Seasons

Day and night occur because the earth rotates on its axis once every 24 hours. For part of the day, the place on earth where we live faces the sun: daytime and when the earth rotates we turn away from the sun and are in shadow: night time



Seasons occur because the earth's axis is tilted and this affects the distance of the earth's surface from the sun at a particular time of the year

## Box 5: The Solar System

Nearest to the sun is the planet Mercury and, together with Venus, Earth and Mars, it is known as an inner planet; all are made of rocks.

Next comes the asteroid belt which occupies the space between the inner and outer planets.

The outer planets of Jupiter, Saturn, Uranus and Neptune are gas giants. They are made of gases such as helium and hydrogen; are larger than the inner planets and are very cold.

Many of the planets have moons – Saturn has more than 80, Earth has only one.

Pluto is furthest from the sun and is classified as a dwarf planet.

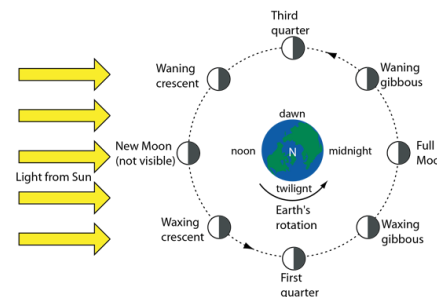


## Box 6: The origin of the Solar System

Scientists think that the solar system was formed around **4.7 billion** years ago, probably starting as a loose cloud of **gas and dust** and then **gravity** pulled parts of the cloud together into clumps.

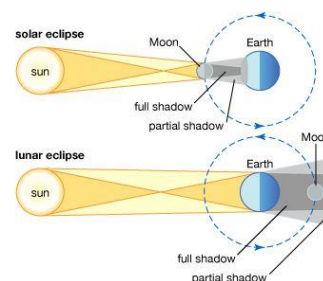
The largest clump was squeezed together so tightly that it got very hot and eventually became the **Sun**. Over millions of years the other clumps became the **planets**. The Sun's strong gravity eventually pulled the planets into their **orbits**. Over time, some of the leftover clumps became asteroids and comets.

## Box 6: The Phases of the Moon



The moon reflects light. The sun only lights up one side of the moon, the other side is dark. As the moon orbits the Earth different parts of it are lit, which is why it seems to change shape.

## Box 7: Eclipses



A solar eclipse occurs when the moon passes between the Sun and the Earth causing a shadow (umbra) to fall on certain parts of the Earth.

A lunar eclipse occurs when the Moon passes through the Earth's shadow.

## Box 7: Pathway

**Previous knowledge:** KS2 Earth and Space; Seasonal changes

**Future links:** KS4 Space [Triple Science only]

**Careers:** Astronomers; Satellite designers; Astronauts; GPS device manufacturers; Artists

## Box 8: Cross curricular links