

Space

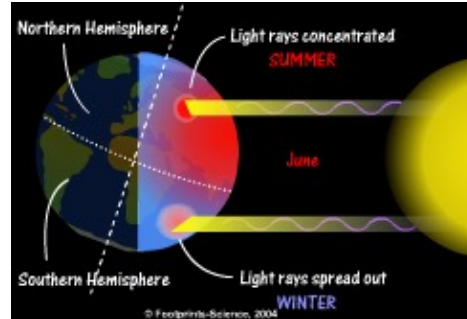
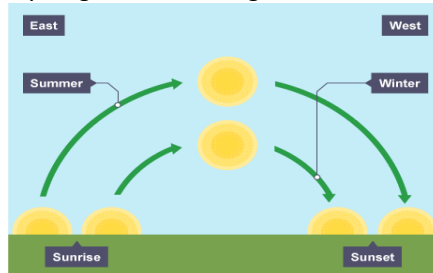
1: The Earth

What is a day? A day is **24 hours** long. This is because it takes 24 hours for the Earth to spin once on its axis. The half of the Earth facing the Sun is in daylight. The half facing away from the Sun has no sunlight and so becomes night-time.

What is a year? A year is how long it takes to travel once around the Sun. This takes 365 days.

What are the seasons?

The Earth's axis is tilted as it travels around the Sun, so some parts of the Earth receive more sunlight each day than others. This changes during the year because the Earth moves about the Sun, which gives rise to the seasons. The UK is in the top half (**northern hemisphere**) of the Earth. When the northern hemisphere is tilted towards the Sun it is summer and when tilted away it is winter. In Spring, the temperature and day length become longer. In Autumn, they are shorter.

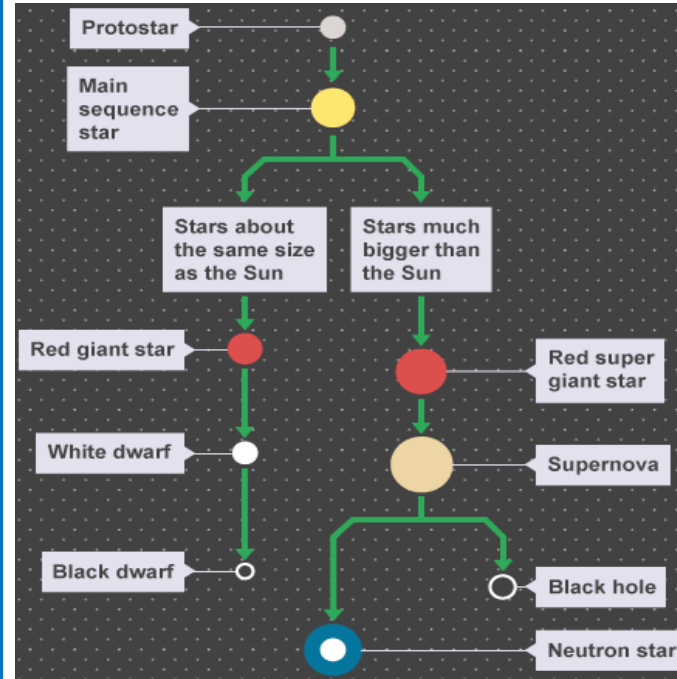


The Sun appears to move from east to west. This is because the Earth turns from west to east. The Sun appears to rise in the east, set in the west and be due south at midday.

3: The formation and life cycle of stars

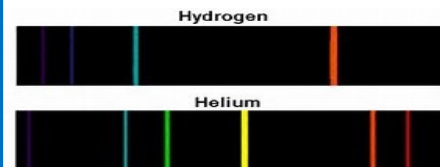
Our Sun is a star, however it is just one of billions. All stars begin the same way, formed from clouds of gas and dust called **nebula**, however how they die depends on their size. The diagram shows the life cycles of stars that are:

- about the same size as the Sun
- far greater than the Sun in size.



How can we tell what stars are made of?

Each element absorbs light at specific wavelengths unique to that atom. When astronomers look at an object's spectrum, they can determine its composition based on these wavelengths. The most common method astronomers use to determine the composition of stars, planets, and other objects is spectroscopy.



The emission spectra for hydrogen and helium are emitted from main sequence stars.

2: The Solar System

The solar system consists of the Sun, with planets and smaller objects such as asteroids and comets in orbit around it.

There are eight planets in the Solar System. Starting with Mercury, which is the closest to the Sun.



This sentence is a way to remember the correct order: My Very Easy Method Just Speeds Up Naming (Planets).

The distances between objects in space are huge. This means that the numbers used to describe distances in space become very difficult to understand and to write down. To get around this problem, scientists use the **light year** the unit of astronomical distance. It is the distance travelled by light in one year. So, for example: the distance from the Sun to next closest star is about 4.24 light years. It takes light from our Sun about 8 minutes to reach the Earth, so it is 8 light minutes away.