

## The Night Sky

### Constellations

- Stars that appear to be in a pattern
- Many contain planets and the stars in each constellation vary in size, brightness and distance from the earth
- There are 88 constellations in total and they appear in both the southern and northern hemispheres

### The position of stars

- The constellations appear to move in a clockwise direction around the pole star (Polaris)
- This is actually Earth moving in the opposite direction under Polaris

### The nearest star

- The nearest star is the Proxima Centauri and is 90 trillion km from earth

### Light years

- A light year is the distance that light travels in a year, it is equal to 9,460,700,000,000km

### Retrograde Motion

- It is when Earth travels faster than other planets (e.g. Mars, Saturn) and over takes it, then the planet appears to be moving backwards

### Planets

- Venus, Mars, Jupiter and Saturn are easy to see with the aid of telescopes
- Neptune and Pluto are far too dim to be seen without the aid of more powerful telescopes

### Differences between planets and stars

- Stars produce their own energy unlike planets, they produce energy in the forms of light and heat. The process of how they produce energy is called nuclear fission. Stars are mainly composed of hydrogen although heavier elements are seen
- Planets compared to stars are not as dense. It does not produce energy using nuclear fission and it is many times smaller in both mass and size
- The positions of stars and planets differ, stars are found in the centre and the planets are found orbiting around the stars due to gravity

### Comets

- Comets can only be seen every few years as their orbits are far away from the sun, when they come close back to the sun we see them
- Comets have tails as they are made from ice and rock, as they pass the sun the ice melts leaving a bright tail behind

### Moons

- Moons are objects which orbit planets

### Asteroids

- Asteroids are belts of rocks. They can be found orbiting between Mars and Jupiter

### Meteorites

- Meteorites are lumps of rocks, which crash down to earth after getting knocked out of their steady orbit in the asteroid belt
- Usually when they collide with Earth, they burn up in the atmosphere making them appear as shooting stars
- If they are really big sometimes they reach the surface of Earth. This is rare but can cause a lot of damage