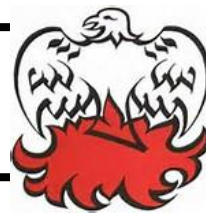
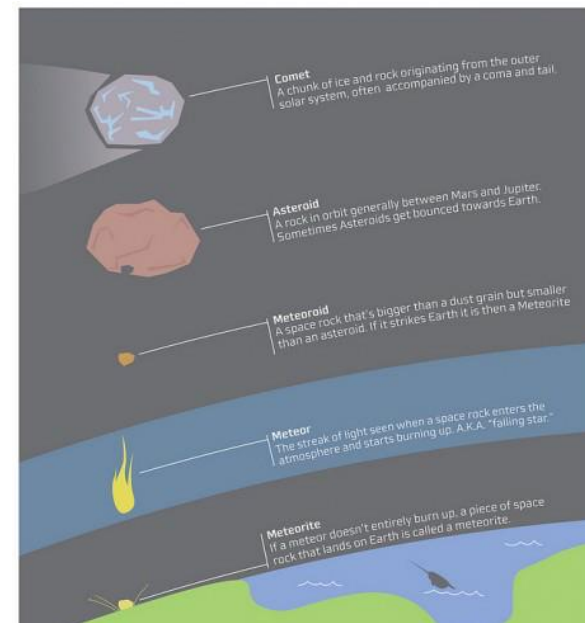


TKS KNOWLEDGE ORGANISER

Yr8 P4 - Astronomy



	Key word:	Meaning:
1	Geocentric	Model of Solar system with Earth at the centre
2	Heliocentric	Model of Solar system with the Sun at the centre
3	Comet	A mass of dust, ice and rock from deep space.
4	Asteroid	A mass of rock often found between Mars and Jupiter
5	Meteoroid	A mass of rock pulled into a planet by gravitational forces.
6	Maria	Dark grey areas of the Moon / seas of the Moon
7	Terrae	Light grey areas of the Moon / Highlands of the Moon
8	Waning	Illumination of the Moon is decreasing
9	Waxing	Illumination of the Moon is increasing
10	Weight	A measurement of force. Not the same as mass
11	Protostar	The first stage in a stars life cycle
12	Red Shift	When a galaxy moves away from us, the light is shifted to the red end of the spectrum.
13	The Big Bang Theory	A theory on how the Universe began
14	CMBR	Radiation left over from the Big Bang



Asteroids

The Solar System contains smaller objects called asteroids - these orbit the Sun.

ORBIT = highly elliptical (oval or egg-shaped)

COMPOSITION = rocks and metals

Comets

The Solar System also contains small objects called comets.

ORBIT = elliptical (orbit close to the Sun)

COMPOSITION = rocks, dust and ice

When they approach the Sun, it begins to vaporise and produces a distinct tail.



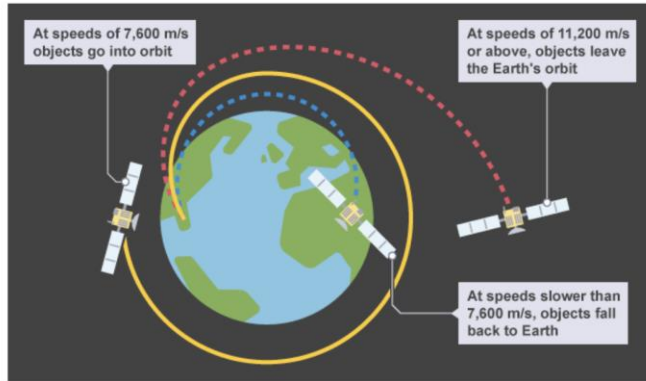
My Very Energetic Mother Just Swam Under a Narwhal.

Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune

Our planets can be divided into two categories terrestrial planets such as Mars and Earth and Gas Giants such as Jupiter and Neptune.

Dwarf planets are smaller than planets and may have a different orbit. Examples are Pluto and Eris

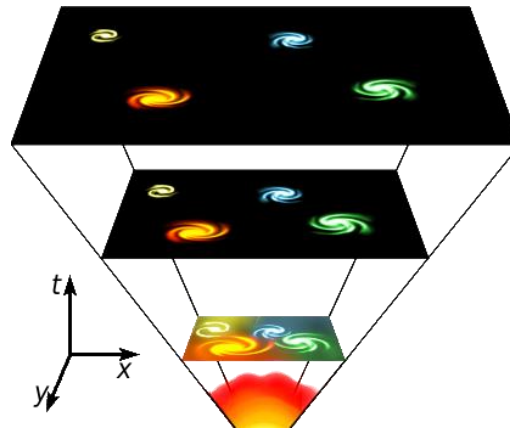
For an object to remain in a steady, circular orbit it must be travelling at the right speed. The diagram shows a satellite orbiting the Earth.



Orbits and constant speed

When an **object moves in a circle at a constant speed**, its **direction constantly changes**. A change in direction causes a **change in velocity** (vector).

A change in velocity = acceleration, so an object moving in a circle is accelerating even though its speed may be constant.



Weight is calculated using the following equation:

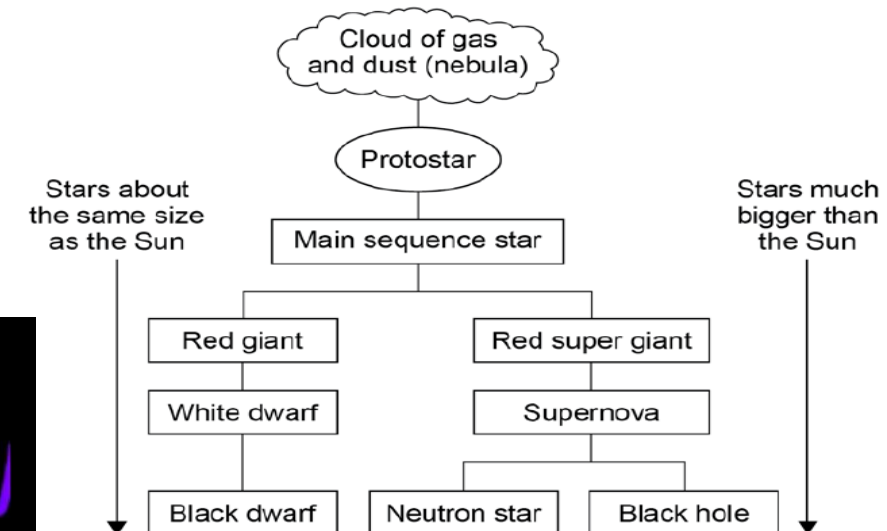
$$\text{Weight} = \text{Mass} \times \text{Acceleration of Gravity}$$

Weight = N (Newtons) Mass = Kg (Kilograms)
Acceleration of gravity = m/s^2 (metres per second)

LIFE CYCLE OF A STAR

All stars form from clouds of dust and gas called nebula. Gravity pulls the dust and gas inwards.

A star is formed when it is hot enough for nuclear reactions to start. This releases energy and keeps the star hot. The nuclear reaction which occurs is the fusion of hydrogen into helium. During the main sequence period of its life cycle, a star is stable because the forces in it are balanced. The outward pressure from the hot gases is balanced by the force of gravity



BIG BANG THEORY

Big bang theory suggests the universe began in a small region that was extremely hot and dense. It then began to expand and still is. It is supported by two key pieces of evidence - Red Shift and Cosmic Microwave Background Radiation (CMBR).

RED SHIFT:

Red-shift is the increase in wavelength of radiation due to an object moving away from the observer. The galaxies furthest away from us have the greatest red-shift because they are moving faster. Red-shift suggests the galaxies are all moving away from each other so the universe is expanding.

CMBR:

High resolution images of the CMBR taken from the WMAP satellite showed while there are clumps, it is mostly uniform in all directions. It is believed to be energy left over from the Big Bang Theory.

