Definitions and Concepts for WJEC (Eduqas) Physics GCSE

Topic 10: Space Physics

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*Definitions in **bold** are for higher tier only*

Definitions marked by '' are for separate sciences only*

Artificial Satellites: Man-made satellites that have been sent into space for purposes such as satellite imaging and communications.

Asteroids: Clumps of metal and rock. They are mainly found in the asteroid belt, located between Mars and Jupiter.

Big Bang Theory: The currently accepted model for the origin of the universe. It suggests that the universe has expanded from an initially very small, hot and dense point.

Circular Orbits: **The circular path that a satellite or planet may travel in. Since their direction is continually changing, their velocity is always changing. Gravity provides the required force for these orbits.**

CMBR: Cosmic microwave background radiation. This is electromagnetic radiation that is found in small quantities all around us. It is suggested to have come from the high energy radiation emitted by the Big Bang.

Comets: Objects consisting of rock, dust and ice that travel in the universe at high speeds. When they approach the sun they vaporise and produce a trail.

Doppler Effect: The change in a wave's observed wavelength and frequency when there is relative motion between its source and an observer.

Galaxy: A system containing billions of stars.

Gaseous Planets: Planets that have a gaseous composition, often involving hydrogen and helium. In our solar system the gaseous planets are Neptune, Jupiter, Uranus and Saturn.

Main Sequence Star: The stable state of all stars. The gravitational forces pulling the star together, and the pressure pushing outwards, are balanced.

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Milky Way Galaxy: The galaxy in which our solar system is located.

Natural Satellites: The moons that orbit planets.

Nebula: A cloud of dust and gas.

Orbital Radius: **The radius of a body's orbit. For a stable orbit, a change in its orbital radius is required for the body to undergo a speed change.**

Orbital Speed: A measure of how fast an object orbits. It is directly proportional to the orbital radius and inversely proportional to the orbital period.

Orbital Period: The time it takes for an object in orbit to complete one full cycle.

Planet: A body that has a sufficiently large mass and that orbits a star. Our solar system contains eight planets, all of which orbit the sun.

Protostar: The first stage all stars go through after forming from a nebula. In this stage the star becomes hot enough for hydrogen nuclei to fuse.

Red Giant Star: When their hydrogen is used up and larger nuclei are produced by fusion, stars of a similar magnitude to the Sun will expand to form a red giant.

Red-Shift: The observed increase in the wavelength of the light emitted by distant galaxies. The more distant the galaxy, the faster it is moving and so the bigger the observed increase in wavelength.

Star Life Cycle: The stages that a star passes through in its lifetime, dependent on the size of the star relative to the sun.

Sun: A star formed from a cloud of dust and gas being pulled together by gravitational attraction. Fusion reactions occur in the sun.

Supernova: The explosion of a massive star, that distributes the elements created by the fusion reactions in the star, throughout the universe.

Terrestrial Planets: Planets that mainly consist of rocks and metals. In our solar system the terrestrial planets are Earth, Mars, Venus and Mercury. They are the planets found closest to the sun.

Universe: A large system of billions of galaxies.

Weight: The force of matter due to gravity. It is equal to the product of mass and gravitational field strength, and so varies depending on your location in the universe.

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White Dwarf: When the fusion reactions in stars of a similar magnitude to the sun come to an end, the star will contract under gravity and cool down to form a white dwarf.