National 5 Physics
Space
Key Definitions

Word/Term	Definition
Celestial Body	A natural object in the sky.
Planet	An object that does not undergo nuclear fusion but orbits a star.
Dwarf Planet	An object that orbits a star and is similar to a planet but is not large enough to clear its orbital path of debris.
Exoplanet	A planet outside of our solar system that orbits a star.
Moon	A natural object that orbits a planet.
Asteroid	Objects orbiting the sun that do not fulfil planetary criteria.
Star	A large ball of hot gases that is undergoing nuclear fusion and emitting electromagnetic radiation.
Sun	The star at the centre of our solar system.
Solar System	A central star orbited by planets.
Galaxy	A cluster of gravitationally bound stars, gas and dust clouds.
Universe	Consists of many galaxies separated by empty space.
Geostationary Satellite	A satellite that has a period of 24 hours and orbits the Earth's equator at an altitude of 36 000 km. It remains above the same point on the Earth's surface.
Gravity Turn	A spacecraft takes a slight turn when it reaches a certain altitude after a vertical launch. This minimises the effect of the gravitational pull of the body on the spacecraft, allowing it to reach a certain horizontal speed for its desired orbit.
Orbital Period	The time taken to go around the Sun in one full revolution.
Orbital Radius	The distance between an object and the centre of the body it is orbiting.
Kepler's 3rd Law	As the orbital radius increases, the orbital period also increases.
Gravity Assist	Using the gravitational pull of a celestial body to gain or lose orbital velocity.
Hohmann Transfer	The movement of a spacecraft from one circular orbit to another by gaining or losing orbital velocity.
Docking	The joining together of spacecraft modules in orbit. It requires a very precise Hohmann transfer from one orbit to the target orbit.
Ion Drive	Ion thrusters accelerate ions in an electric field to generate thrust rather than burning fuel. They only require a small amount of fuel to do this.

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Re-entry	When a spacecraft re-enters the Earth's atmosphere.
Vacuum	A region containing no particles and therefore no atmosphere.
Light Year	The distance that light travels in one year. 1 light year = 9.46×10^{15} m.
Age of the Universe	Time between now and the Big Bang - thought to be around 13.8 billion years.
Red-shift	The light coming from distant galaxies is 'redder' (of a higher wavelength) than what it should be. This tells us that these galaxies are moving away from us, which provides evidence that the universe is still expanding.
Big Bang Theory	An effort to explain what happened at the very beginning of our universe. It suggests that the universe was formed by a rapid expansion from a very hot single point of matter, and continues to expand and cool to this day.
Cosmic Microwave Background Radiation (CMBR)	Radiation at a temperature of 2.7 K that is detected everywhere in space. It is thought that this radiation was once much hotter and was emitted at the time of the Big Bang, but has been cooling ever since. It provides evidence for the Big Bang Theory.
Hubble's Law	The observation that galaxies appear to be moving away from us at speeds proportional to their distance. It suggests that the universe was once compacted, providing evidence for the Big Bang Theory.
Telescope	An optical instrument used to observe distant objects by collecting lots of light via a large objective lens or mirror.
Radio Telescope	A telescope with a large curved dish that picks up weak radio waves from space. The waves cross over at the receiver and combine to give a strong signal.
Continuous Spectrum	The spectrum of different colours produced (ROYGBIV) when white light is split with a triangular glass prism.
Line Spectra	Stars produce their own unique line spectra depending on the elements they contain. These spectra can be either absorption or emission spectra. By comparing the line spectra of different elements with the line spectra of stars, the elements present within stars can be identified.
Line Absorption Spectrum	Consists of a complete (continuous) spectrum with certain colours missing. These appear as black lines in the spectrum.
Line Emission Spectrum	Consists of lines of light that are distinct colours rather than a continuous spectrum.