

KS3 Unit Overview – Big Picture

Subject/Year group/Unit Title	Big picture questions	Pupils will focus particularly on the following statements from the programme of study:
<p>Physics/ Year 8F/ Forces and Space</p> <ol style="list-style-type: none"> 1. A place near the Sun 2. Moonshine 3. The seasons 4. The solar system 5. Stars and galaxies 6. Gravity in space 7. Simple machines 8. Moments 9. Speed and motion 10. Distance-time graphs 11. Pressure 12. Under pressure 	<p>What is the Universe and how does our Solar System fit into it? How do forces affect the motion of objects?</p>	<p>PSp1: gravity force, weight = mass x gravitational field strength (g), on earth g=10 N/kg, different on other planets and stars; gravity forces between Earth and Moon, and between Earth and Sun (qualitative only) PSp2: our Sun as a star, other stars in our galaxy, other galaxies PSp3: the seasons and the Earth's tilt, day length at different times of year, in different hemispheres PSp4: the light year as a unit of astronomical distance. PEnCh1: simple machines give bigger force but at the expense of smaller movement (and vice versa): product of force and displacement unchanged PMD1: speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time) PMD2: the representation of a journey on a distance-time graph PMD3: relative motion: trains and cars passing one another PMF3: moment as the turning effect of a force PMP1: atmospheric pressure, decreases with increase of height as weight of air above decreases with height PMP2: pressure in liquids, increasing with depth; upthrust effects, floating and sinking PMP3: pressure measured by ratio of force over area – acting normal to any surface.</p>
<p>Assessment tasks</p>	<p>As FCJ educators, we will focus on the FCJ values by:</p>	<p>We will ensure students skills in reading, writing, communication and mathematics are enhanced by:</p>
<p>Essential homework 1 - Gravity and space Essential homework 2 - Moments and speed Essential practical 1 -Moment beam investigation Essential practical 2 - Speed of trolley down ramp Assessment of classwork/homework End of unit test</p>	<p>Excellence – set highest possible standards for all learners Companionship – teamwork when completing practical investigations, respect during class discussions Dignity – class discussions and Q&A, ensuring everyone is listened to and their views heard Justice - Hope – highlight progress in science and innovation to inspire learners Gentleness – classroom management in a firm but</p>	<p>R – from text, books etc. W – in books for notes and practicals etc. C – class Q&A and discussions M-equations, graph work, averages etc</p>

	fair and gentle manner	
We are supporting progression from KS2 in this unit by:	We are supporting progression to KS4 in this unit by:	Misconceptions and how they will be addressed
<p>Developing explanations of gravity and how it keeps the Moon in orbit around the Earth and the planets in orbit around the Sun.</p> <p>Developing explanations of how the relative motion of the Moon, Earth and Sun causes day and night, eclipses and seasons.</p> <p>Developing understanding of motion and simple machines.</p> <p>Developing understanding of the properties of fluids.</p>	<p>P6.1 Density</p> <p>P6.6 Gas pressure and temperature</p> <p>P6.7 Gas pressure and volume</p> <p>P8.7 Moments and equilibrium</p> <p>P9.1 Speed and distance-time graphs</p> <p>p16.3 Planets, satellites and orbits</p>	<p>'The Sun moves around the Earth.'</p> <p>'The Sun is bigger than other stars.'</p> <p>'The Earth is warmer in summer because it is closer to the Sun.'</p> <p>These misconceptions will be addressed by 3-dimensional demonstrations/video clips etc.</p> <p>'No gravity on the Moon' will be addressed using video clips/calculations.</p>