

**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><b>Physics/ Year 8F/ Forces and Space</b></p> <ol style="list-style-type: none"> <li>1. A place near the Sun</li> <li>2. Moonshine</li> <li>3. The seasons</li> <li>4. The solar system</li> <li>5. Stars and galaxies</li> <li>6. Gravity in space</li> <li>7. Simple machines</li> <li>8. Moments</li> <li>9. Speed and motion</li> <li>10. Distance-time graphs</li> <li>11. Pressure</li> <li>12. Under pressure</li> </ol>	<p><b>What is the Universe and how does our Solar System fit into it?</b>  <b>How do forces affect the motion of objects?</b></p>	<p>PSp1: gravity force, weight = mass x gravitational field strength (g), on earth <math>g=10 \text{ N/kg}</math>, 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 <math>\div</math> 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><b>Assessment tasks</b></p>	<p><b>As FCJ educators, we will focus on the FCJ values by:</b></p>	<p><b>We will ensure students skills in reading, writing, communication and mathematics are enhanced by:</b></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&amp;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><b>R – from text, books etc.</b>  <b>W – in books for notes and practicals etc.</b>  <b>C – class Q&amp;A and discussions</b>  <b>M-equations, graph work, averages etc</b></p>

	fair and gentle manner	
<b>We are supporting progression from KS2 in this unit by:</b>	<b>We are supporting progression to KS4 in this unit by:</b>	<b>Misconceptions and how they will be addressed</b>
<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>