

## Year 7 Overview 2023-24 - Physics

Units Studied & Learning Outcomes		Key Concepts & Assessment						
<b>Overview of Unit/No. lessons</b> Forces and motion/12 lessons  <u>Lesson Sequence of Content:</u> Lesson 1-Introduction to forces Lesson 2-Measuring forces Lesson 3-Balanced and unbalanced forces Lesson 4-Resultant force Lesson 5-Hooke's Law Lesson 6-Friction Lesson 7-Air resistance Lesson 8-Upthrust Lesson 9-Measuring and calculating Speed Lesson 10-Distance-time graph Lesson 11-Application and Quick Quiz Lesson 12-Long answer question								
<table border="1"> <thead> <tr> <th>Prior (Y6)</th><th>Current (Y7)</th><th>Next</th></tr> </thead> <tbody> <tr> <td>Basic magnets</td><td>Understand effects of forces</td><td>           Year 8 – magnetism             Year 9 – contact &amp; non-contact forces; Hooke's law             Year 10 – scalars/vectors, Newton's Laws, terminal velocity, V-T graphs             Year 11 - Momentum (H)            Inertia &amp; inertial mass (H)            SUVAT            Moments, levers, gears            Pressure in fluids             Year 12 - Scalars, vectors, resolving forces; Moments; Projectile motion; Momentum and impulses         </td></tr> </tbody> </table>	Prior (Y6)	Current (Y7)	Next	Basic magnets	Understand effects of forces	Year 8 – magnetism  Year 9 – contact & non-contact forces; Hooke's law  Year 10 – scalars/vectors, Newton's Laws, terminal velocity, V-T graphs  Year 11 - Momentum (H) Inertia & inertial mass (H) SUVAT Moments, levers, gears Pressure in fluids  Year 12 - Scalars, vectors, resolving forces; Moments; Projectile motion; Momentum and impulses		
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<ul style="list-style-type: none"> <li><b>GW:</b> associate forces with effects</li> <li><b>BI:</b> use speed equation to describe motion</li> <li><b>EW:</b> Link changes in motion with forces and explain effects of friction – both good and bad.</li> <li></li> </ul>								

<b>Overview of Unit/No. lessons</b> Particles and Energy: 15 lessons  <u>Lesson Sequence of Content:</u> Lesson 1-States of Matter and Particles Lesson 2-Changes of State	

Lesson 3-Brownian motion and diffusion in liquids and gases  
 Lesson 4-Types of energy and conservation of energy  
 Lesson 5-Energy transfers in different processes  
 Lesson 6-Analysis of burning fuels HSW  
 Lesson 7-Food as a fuel  
 Lesson 8-Direction of energy transfer  
 Lesson 9-Conduction  
 Lesson 10-Convection  
 Lesson 11-Radiation  
 Lesson 12-Insulation  
 Lesson 13-Heat vs Temperature  
 Lesson 14-Application and Quick Quiz  
 Lesson 15-Long answer question

Prior	Current (Y7)	Next
N/A	Understand particle theory and energy transfer	<p>Year 8 – pressure in fluids</p> <p>Year 9 – kinetic theory and specific heat capacity</p> <p>Year 10 – kinetic theory, changes of state and latent heat.</p> <p>Year 11 - Pressure in a gas linked to kinetic theory; <math>pV = \text{constant}</math>; Work to increase pressure/temperature of a gas (H)</p> <p>Year 12 – sub-atomic theory</p>

- **GW:** describe solids/liquids/gases using particle theory
- **BI:** Discuss the changes to particles between states
- **EW:** Explain transfer of thermal energy using particle theory

#### Overview of Unit/No. lessons

Space: 9 lessons

**Lesson Sequence of Content:**

Lesson 1- Identify planets in the solar system

Lesson 2-Day & night

Lesson 3-Seasons

Lesson 4-Phases of the moon

Lesson 5-Eclipses – solar & lunar

Lesson 6-Satellites - natural & artificial

Lesson 7-Force, weight and mass on different planets

Lesson 8-Quick quiz assessment and Application

Lesson 9-Long answer question

Prior (Y6)	Current (Y7)	Next
Personal observation of moon, stars, sun	Understand basics of weight, space and seasons Links to P1: non-contact forces	Year 8 – light waves and speed of light  Year 10 – solar system, orbital motion, life of a star, red shift  Year 12 – optional unit: Astrophysics.

- **GW:** describe the difference between mass and weight
- **BI:** Discuss gravity as a non-contact force, noting its different values on different planets and the resulting difference in weight.
- **EW:** Explain the changes in seasons depending on the earth's tilt and position with respect to the sun.