



Topic Name	Term	Skills Developed	Next link in curriculum	Other Notes/Links to Prior Learning
Adenosine triphosphate (ATP) and energy transfer	Autumn	<ul style="list-style-type: none"> <li>ATP as 'energy currency</li> <li>Principle of energetically coupled reactions.</li> <li>Breakdown of ATP to ADP (Adenosine Diphosphate) + P (phosphate).</li> <li>Resynthesis of ATP from ADP + P.</li> </ul>	<ul style="list-style-type: none"> <li>Tracker test, End of year examination.</li> <li>Used in the EAPI assessment.</li> </ul>	<p>Cross-curricular links – biology.</p> <p>Extension of any prior learning from biology.</p> <p>New topics related to sport and exercise physiology</p>
Energy system and ATP resynthesis	Autumn	<ul style="list-style-type: none"> <li>Energy systems:</li> <li>ATP-PC (Phosphocreatine) system</li> <li>Glycolytic system &amp; Aerobic system.</li> <li>For each system: type of reaction (aerobic or anaerobic), chemical or food fuel used, specific site of the reaction, controlling enzyme, ATP yield, specific stages.</li> </ul>	<ul style="list-style-type: none"> <li>Tracker test, End of year examination.</li> <li>Used in the EAPI assessment.</li> </ul>	<p>Cross-curricular links – biology.</p> <p>Extension of any prior learning from biology.</p> <p>New topics related to sport and exercise physiology</p>
ATP resynthesis during exercise of differing intensities and durations	Autumn	<ul style="list-style-type: none"> <li>The energy continuum.</li> <li>Predominant energy system used during exercise.</li> <li>Interpretation of figures relating to the contribution of the three energy systems to exercise of different intensities and durations.</li> </ul>	<ul style="list-style-type: none"> <li>Tracker test, End of year examination.</li> <li>Used in the EAPI assessment.</li> </ul>	<p>Cross-curricular links – biology.</p> <p>Extension of any prior learning from biology.</p> <p>New topics related to sport and exercise physiology</p>
Recovery process	Autumn	<ul style="list-style-type: none"> <li>How the body returns to its pre-exercise state - Excess Post exercise Oxygen Consumption (EPOC).</li> <li>Fast components of EPOC, the processes that occur and the duration: replenishment of blood and muscle oxygen stores.</li> <li>Re-synthesis of ATP and PC.</li> </ul>	<ul style="list-style-type: none"> <li>Links with ATP and the Energy Systems.</li> <li>Used in the EAPI assessment.</li> <li>Tracker test, End of year examination.</li> </ul>	<p>Cross-curricular links – biology.</p> <p>Recovery and cool down discussed in practical lessons and in the GCSE PE syllabus</p>



		<ul style="list-style-type: none"> <li>• Slow components of EPOC, the processes that occur and the duration.</li> </ul>		
Exercise at altitude	Autumn	<ul style="list-style-type: none"> <li>• Effect of altitude on the cardiovascular and respiratory systems.</li> <li>• Acclimatisation, including the importance of timing arrival, at altitude (above 2400m).</li> </ul>	<ul style="list-style-type: none"> <li>• Links with the cardiovascular and respiratory systems.</li> <li>• Used in the EAPI assessment.</li> <li>• Tracker test, End of year examination.</li> </ul>	<p>Cross-curricular links –Geography.</p> <p>New topic for students</p>
Exercise in the heat	Autumn	<ul style="list-style-type: none"> <li>• Effect of heat on the cardiovascular and respiratory systems.</li> <li>• Temperature regulation.</li> <li>• Cardiovascular drift.</li> </ul>	<ul style="list-style-type: none"> <li>• Links with the cardiovascular and respiratory systems.</li> <li>• Used in the EAPI assessment.</li> <li>• Tracker test, End of year examination.</li> </ul>	<p>New topic for students</p>
Acute and chronic injuries	Spring	<ul style="list-style-type: none"> <li>• Acute injuries resulting from a sudden stress to the body: hard tissue injuries, soft tissue injuries, concussion.</li> <li>• Chronic injuries resulting from continuous stress to the body: soft tissue injuries, hard tissue injuries.</li> </ul>	<ul style="list-style-type: none"> <li>• Tracker test, End of year examination.</li> <li>• Used in the EAPI assessment.</li> </ul>	<p>Extension from work covered in OCR GCSE theory.</p> <p>Some sports injuries covered in GCSE PE theory course</p>
Injury prevention	Spring	<ul style="list-style-type: none"> <li>• Intrinsic risk factors: individual variables, training effects.</li> <li>• Extrinsic risk factors: poor technique/training, incorrect equipment/clothing, inappropriate intensity, duration or frequency of activity</li> <li>• Debate surrounding effective warm up and cool down.</li> </ul>	<ul style="list-style-type: none"> <li>• Tracker test, End of year examination.</li> <li>• Used in the EAPI assessment.</li> </ul>	<p>Extension from work covered in OCR GCSE theory.</p> <p>Some injury prevention covered in GCSE PE theory course</p>



Responding to injuries and medical conditions in a sporting context	Spring	<ul style="list-style-type: none"> <li>Assessing sporting injuries using 'SALTAPS'.</li> <li>Acute management of soft tissue injuries using 'PRICE'.</li> <li>Recognising concussion: IRB's 'Recognise and Remove' 6 R's.</li> </ul>	<ul style="list-style-type: none"> <li>Tracker test, End of year examination.</li> <li>Used in the EAPI assessment.</li> </ul>	Extension from work covered in OCR GCSE theory.
Rehabilitation of injury	Spring	<ul style="list-style-type: none"> <li>Treatment of common sporting injuries: fractures, dislocation, sprain, torn cartilage, exercise-induced muscle damage</li> <li>Treatments: stretching, massage, cold and contrast therapies, anti-inflammatory drugs, physiotherapy, surgery.</li> </ul>	<ul style="list-style-type: none"> <li>Tracker test, End of year examination.</li> <li>Used in the EAPI assessment.</li> </ul>	Extension from work covered in OCR GCSE theory.
Linear motion	Spring	<ul style="list-style-type: none"> <li>Definition of linear motion.</li> <li>Creation of linear motion by the application of a direct force through the centre of mass.</li> <li>Definitions, calculations and units of measurement for each of the following quantities of linear motion: distance displacement speed velocity acceleration/deceleration Plot and interpret graphs of linear motion: distance/time graphs, speed/time graphs, velocity/time graphs.</li> </ul>	<ul style="list-style-type: none"> <li>Tracker test, End of year examination.</li> <li>Used in the EAPI assessment.</li> <li>Links with the biomechanics covered in Year 12.</li> </ul>	<p>Cross-curricular links –Physics.</p> <p>Some new topics relating and extending previous knowledge to sport/biomechanics/movement analysis.</p>



Angular Motion	Spring	<ul style="list-style-type: none"> <li>• Definition of angular motion.</li> <li>• Creation of angular motion through the application of an eccentric force about one (or more) of the three axes of rotation.</li> <li>• Definitions, calculations and units of measurement for each quantity of angular motion: moment of inertia, angular velocity, angular momentum.</li> <li>• Factors affecting the size of the moment of inertia of a rotating body.</li> <li>• The relationship between moment of inertia and angular velocity.</li> <li>• The conservation of angular momentum during flight in relation to the angular analogue of Newton’s first law of motion.</li> <li>• Interpret graphs of angular velocity, moment of inertia and angular momentum.</li> </ul>	<ul style="list-style-type: none"> <li>• Tracker test, End of year examination.</li> <li>• Used in the EAPI assessment.</li> <li>• Links with the biomechanics covered in Year 12.</li> </ul>	<p>Cross-curricular links –Physics.</p> <p>Basic knowledge on types of rotation developed in the GCSE PE syllabus.</p> <p>Prior learning from GCSE Physics syllabus</p> <p>Some new topics for students</p>
Fluid mechanics	Summer	<ul style="list-style-type: none"> <li>• Factors that impact the magnitude of air resistance (on land) or drag (in water) on a body or object:             <ul style="list-style-type: none"> <li>➢ Velocity</li> <li>➢ Mass</li> <li>➢ Frontal cross-sectional area</li> <li>➢ Streamlining and shape</li> <li>➢ Surface characteristics.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Tracker test, End of year examination.</li> <li>• Used in the EAPI assessment.</li> </ul>	<p>Possible prior learning from the GCSE Physics syllabus</p> <p>New topics relating to sport/biomechanics and physical activity/movement.</p>



Projectile motion	Summer	<ul style="list-style-type: none"><li>• Factors affecting the horizontal distance travelled by a projectile:<ul style="list-style-type: none"><li>➤ Height of release</li><li>➤ speed of release</li><li>➤ angle of release</li><li>➤ free body diagrams showing the forces acting on a projectile once in flight:<ul style="list-style-type: none"><li>➤ weight</li><li>➤ air resistance</li></ul></li></ul></li><li>• Resolution of forces acting on a projectile in flight using the parallelogram of forces.</li><li>• Patterns of flight paths as a consequence of the relative size of air resistance and weight.</li><li>• Parabolic (symmetrical) flight path – shot put.</li><li>• Non-parabolic (asymmetric) flight path – badminton shuttle.</li><li>• The addition of lift to a projectile through the application of Bernoulli's principle:<ul style="list-style-type: none"><li>➤ angle of attack to create an upwards lift force on a projectile:<ul style="list-style-type: none"><li>– discus – javelin – ski jumper</li></ul></li><li>➤ design of equipment to create a downwards lift force: F1 racing cars &amp; track cycling.</li></ul></li><li>• Use of spin in sport to create a Magnus force, causing deviations to expected flight paths.</li></ul>	<ul style="list-style-type: none"><li>• Tracker test, End of year examination.</li><li>• Used in the EAPI assessment.</li></ul>	<p>Possible prior learning from the GCSE Physics syllabus</p> <p>New topics relating to sport/biomechanics and physical activity/movement.</p> <p>Discussion of spin tennis practical lessons.</p> <p>Discussion of speed and angle of release in throwing events in athletics practical lessons.</p>
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