# Year 13 Mechanics Curriculum Summary

## – Y13 Mechanics

| When? | Topic | Knowledge | Unit Assessments |
|---|---|---|---|
| HALF TERM 1 | **Moments** | • Calculate the turning effect of a force applied to a rigid body <br> • Calculate the resultant moment of a set of forces acting on a rigid body <br> • Solve problems involving uniform rods in equilibrium <br> • Solve problems involving non-uniform rods <br> • Solve problems involving rods on the point of tilting | • Turning effect <br> • Resultant moment <br> • Uniform rods in equilibrium <br> • Non uniform rods <br> • Rods on the point of tilting |
| HALF TERM 3 | **Forces and friction** | • Resolve forces into components <br> • Use the triangle law to find a resultant force <br> • Solve problems involving smooth or rough inclined planes <br> • Understand friction and the coefficient of friction <br> • Use $F \leq \mu R$ | • Resolve forces <br> • triangle law <br> • smooth or rough inclined planes <br> • friction and the coefficient of friction <br> • Use $F \leq \mu R$ |
| HALF TERM 5 | **Projectiles** | • Model motion under gravity for an object projected horizontally <br> • Resolve velocity into components <br> • Solve problems involving particles projected at an angle <br> • Derive the formulae for time of flight, range and greatest height, the equation of the path of a projectile | • Model motion under gravity <br> • Resolve velocity into components <br> • particles projected at an angle <br> • Derive the formulae for time of flight, range and greatest height, the equation of the path of a projectile |

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| HALF TERM 6 | **Applications of forces** | • Find an unknown force when a system is in equilibrium<br>• Solve statics problems involving weight, tension and pulleys<br>• Understand and solve problems involving limiting equilibrium<br>• Solve problems involving motion on rough or smooth planes<br>• Solve problems involving connected particles that require the resolution of forces | • unknown forces<br>• statics problems<br>• limiting equilibrium<br>• rough or smooth planes |