



# AC1: Key Outcomes – Year 8

## Curriculum: Science

**Excellence.  
No Excuses.**

Section	Knowledge Code:	Outcomes:	How students will demonstrate success:
<b>1</b>	S8.1.1 Forces and force diagrams	<ul style="list-style-type: none"> <li>Students will be able to identify a range of forces and label them on force diagrams</li> </ul>	<ul style="list-style-type: none"> <li>Draw simple force diagrams from information given.</li> </ul>
<b>2</b>	S8.1.2 Force diagrams, resultant forces and motion	<ul style="list-style-type: none"> <li>Students will be able to use force diagrams to analyse the motion of objects</li> </ul>	<ul style="list-style-type: none"> <li>Use force diagrams and the information given to decide whether the forces acting on an object are balanced or unbalanced</li> <li>Use force diagrams to calculate the resultant force</li> <li>Explain how the forces acting on an object will affect its motion</li> <li>Recall Newton's 1<sup>st</sup> and 2<sup>nd</sup> laws of motion and link them to a range of situations</li> </ul>
<b>3</b>	S8.1.3 Mass vs weight	<ul style="list-style-type: none"> <li>Students will be able to describe the difference between mass and weight</li> </ul>	<ul style="list-style-type: none"> <li>Know the units and definitions of mass and weight</li> </ul>
<b>4</b>	S8.1.4 Weight = mass x gravity force	<ul style="list-style-type: none"> <li>Students will be able to recall and use the equation <math>W=mg</math></li> </ul>	<ul style="list-style-type: none"> <li>Recall and use the equation <math>W=mg</math> to solve problems (H to involve rearranging)</li> </ul>
<b>5</b>	S8.1.5 Gravity	<ul style="list-style-type: none"> <li>Students will be able to explain that the force of gravity acts between any two objects with mass</li> </ul>	<ul style="list-style-type: none"> <li>Understand that gravity acts between any two masses. Larger masses have a larger gravity force</li> </ul>
<b>6</b>	S8.1.6 Average and instantaneous speed	<ul style="list-style-type: none"> <li>Students will be able to understand the difference between average and instantaneous speed</li> </ul>	<ul style="list-style-type: none"> <li>Explain why average speed and instantaneous speed for a journey are often different.</li> </ul>
<b>7</b>	S8.1.7 Relative motion	<ul style="list-style-type: none"> <li>Students will be able to understand the idea of relative motion</li> </ul>	<ul style="list-style-type: none"> <li>Describe the relative motion between 2 moving objects when they move towards and away from each other</li> </ul>
<b>8</b>	S8.1.8 Speed = distance / time	<ul style="list-style-type: none"> <li>Students will be able to recall and use the equation <math>s=d/t</math></li> </ul>	<ul style="list-style-type: none"> <li>Recall and use the equation <math>s=d/t</math> to solve problems (H to involve rearranging)</li> </ul>
<b>9</b>	S8.1.9 Distance time graphs	<ul style="list-style-type: none"> <li>Students will be able to analyse a journey using a distance-time graph</li> </ul>	<ul style="list-style-type: none"> <li>Recognise low speed, high speed, constant speed, stationary motion on a d-t graph</li> <li>Calculate speed (including average speed) from a d-t graph</li> </ul>
<b>10</b>	S8.1.10 Speed – time graphs	<ul style="list-style-type: none"> <li>Students will be able to analyse a journey using a speed-time graph</li> </ul>	<ul style="list-style-type: none"> <li>Students will be able to recognise acceleration, deceleration and constant speed from a s-t graph (H to include acceleration calculation)</li> </ul>
<b>11</b>	S8.1.11 Turning Forces (moments)	<ul style="list-style-type: none"> <li>Students will be able to understand situations where turning forces (moments) act on an object</li> </ul>	<ul style="list-style-type: none"> <li>Recognise situations where turning forces (moments) exist</li> <li>Explain how the turning force can be increased</li> <li>Calculate the moment of a force (moment = <math>Fd</math>)</li> </ul>
<b>12</b>	S8.1.12 Turning force calculations	<ul style="list-style-type: none"> <li>Students will be able to solve problems involving turning forces</li> </ul>	<ul style="list-style-type: none"> <li>(H= Calculating missing values for a balanced system)</li> </ul>
<b>13</b>	S8.1.13 Hooke's Law	<ul style="list-style-type: none"> <li>Students will be able to understand the relationship between force applied and spring extension</li> </ul>	<ul style="list-style-type: none"> <li>Recall Hooke's Law</li> <li>Interpret a Force – extension (F-e) graph for a spring</li> <li>Explain the significance of a constant or changing gradient on a F-e graph</li> </ul>
<b>14</b>	S8.1.14 Multi-stage problems	<ul style="list-style-type: none"> <li>Students will be able to solve problems involving more than one stage</li> </ul>	<ul style="list-style-type: none"> <li>Analyse questions and make links across the topic to solve problems</li> <li>Solve problems using more than one stage</li> </ul>