

# Review P2.1 Forces and their effects

<i>Can you...?</i>	😊	😐	☹️
<b>P2.1.1 Resultant forces</b>			
Describe equal and opposite pairs of forces			
Describe and calculate resultant forces			
Predict how resultant forces (zero or not zero) will affect the motion of stationary and moving objects			
<b>P2.1.2 Forces and motion</b>			
Calculate acceleration ( $a$ ) using force ( $F$ ) and mass ( $m$ ), or calculate force using mass and acceleration			
Remember what the gradient of a distance-time graph represents			
<b>(HT) Calculate speed of an object from gradient of a distance-time graph</b>			
Define 'velocity'			
Calculate acceleration ( $a$ ) from final velocity ( $v$ ), initial velocity ( $u$ ) and time taken ( $t$ )			
Remember what the gradient of a velocity-time graph represents			
<b>(HT) Calculate the acceleration of an object from the gradient of a velocity-time graph</b>			
<b>P2.1.3 Forces and braking</b>			
Describe the forces acting on a car travelling at a steady speed			
Explain the relationship between the speed of a vehicle and the braking force needed to stop it in a certain distance			
Describe the stopping distance as the sum of the thinking distance and the braking distance			
Evaluate the effects of alcohol and drugs on stopping distances			
Explain how work is done by friction to reduce the kinetic energy of the vehicle and heat up the brakes			
<b>P2.1.4 Forces and terminal velocity</b>			
Describe the relationship between the speed of an object (in a fluid) affects the frictional force (drag) acting on it			
Describe how the forces change on falling objects, and why a parachute reduces a skydiver's terminal velocity			
Draw and interpret velocity-time graphs for falling objects, and consider the forces acting on them			
Calculate the weight ( $W$ ) of an object using mass ( $m$ ) and gravitational field strength ( $g$ )			
<b>P2.1.5 Forces and elasticity</b>			
Describe how forces applied to elastic objects like springs will result in the objects stretching and storing elastic potential energy			
Describe how elastic potential energy is stored when work is done on objects that return to their original shapes			
Calculate the force ( $F$ ) acting on a spring from the spring constant ( $k$ ) and its extension ( $e$ )			