











SP2 Motion and Forces







SP2a Resultant forces

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 7 th	Explain the difference between scalar and vector quantities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Use arrows to represent the direction and magnitude of forces.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Define a resultant force.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Calculate resultant forces.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Explain whether forces on an object are balanced or unbalanced.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>








SP2b Newton's First Law

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 5 th	Describe the effect of balanced forces on moving and stationary objects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Describe the effect of a non-zero resultant force on moving and stationary objects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	H Describe circular motion at constant speed as a changing velocity and hence as an acceleration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	H Describe the force needed to keep an object moving in a circular path.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	H Give some examples of objects moving in circular paths and the type of centripetal force involved.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>







SP2c Mass and weight

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 4 th	Describe the difference between mass and weight.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 4 th	List the factors that determine the weight of an object.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 4 th	Recall the equation for calculating weight.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Use the equation relating weight, mass and gravitational field strength.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 4 th	Describe how weight is measured.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Describe how the weight of an object is affected by gravitational field strength.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>






SP2d Newton's Second Law

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 th	Describe what an acceleration is.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	List the factors that affect the acceleration of an object.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Recall the equation that relates the factors affecting acceleration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Use the equation relating force, mass and acceleration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 th	Change the subject of the equation relating force, mass and acceleration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	 Explain what inertial mass means.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>






SP2e Newton's Third Law

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 7 th	Describe what Newton's Third Law says.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Recall the meaning of 'equilibrium situation'.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Identify action–reaction pairs in familiar situations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Distinguish between action–reaction pairs and balanced forces.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	 Describe how objects affect each other when they collide.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>






SP2f Momentum

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 7 th	Describe the factors that affect the momentum of an object.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 th	Calculate the momentum of moving objects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Describe examples of momentum in collisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 th	Use the idea of conservation of momentum to calculate velocities of objects after collisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 10 th	Calculate the force needed to produce a change in momentum in a given time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>









SP2g Stopping distances

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 5 th	Describe how human reaction times are measured.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Recall typical human reaction times.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Describe the link between stopping distance, thinking distance and braking distance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Recall the factors that affect stopping distances.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Describe how different factors affect stopping distances.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SP2h Braking distances and energy

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 9 th	Estimate the braking distance of a road vehicle given its mass, speed and braking force.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Explain what 'work done' means.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Calculate the work done when a force moves through a distance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Describe the factors that affect the kinetic energy of a moving object.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 th	Calculate the kinetic energy of a moving object.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SP2i Crash hazards

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 10 th	Calculate the force needed to produce a change in momentum in a given time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Explain the meaning of a 'large deceleration'.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Describe the dangers caused by large decelerations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Explain why large decelerations cause dangers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	 Recall some typical forces involved in road collisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 th	 Use knowledge of changes in momentum to estimate the forces involved in road collisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>