CP2 Motion and Forces

CP2a Resultant forces

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

CP2b Newton's First Law

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

CP2c Mass and weight

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

CP2d Newton's Second Law

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

CP2e Newton's Third Law

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

CP2f Momentum

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

CP2g Stopping distances

Step	Learning outcome	Had a look	Nearly there	Nailed it!
5th	Describe how human reaction times are measured.	☐	☐	☐
5th	Recall typical human reaction times.	☐	☐	☐
5th	Describe the link between stopping distance, thinking distance and braking distance.	☐	☐	☐
5th	Recall the factors that affect stopping distances.	☐	☐	☐
6th	Describe how different factors affect stopping distances.	☐	☐	☐
6th	Describe the factors that affect a driver's reaction time, including drugs and distractions.	☐	☐	☐

CP2h Crash hazards

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