AQA Physics GCSE

Student Checklist

P10 Forces and motion

Name .... Class .... Date ....

Lesson	Aiming for 4		Aiming for 6		Aiming for 8	
P10.1 Force and acceleration	I can state the factors that will affect the acceleration of an object acted on by a resultant force.	☐	I can describe the effect of changing the mass or the force acting on an object on the acceleration of that object.	☐	I can define the inertial mass of an object in terms of force and acceleration.	☐
	I can calculate the force required to cause a specified acceleration on a given mass.	☐	I can perform calculations involving the rearrangement of the $F = ma$ equation.	☐	I can calculate the acceleration of an object acted on by several forces.	☐
	I can investigate a factor that affects the acceleration of a mass.	☐	I can combine separate experimental conclusions to form an overall conclusion.	☐	I can evaluate an experiment by identifying sources of error and determining uncertainty in the resulting data.	☐
P10.2 Weight and terminal velocity	I can state the difference between the mass of an object and its weight.	☐	I can calculate the weight of objects using their mass and the gravitational field strength.	☐	I can apply the mathematical relationship between mass, weight, and gravitational field strength in a range of situations.	☐
	I can describe the forces acting on an object falling through a fluid.	☐	I can apply the concept of balanced forces to explain why an object falling through a fluid will reach a terminal velocity.	☐	I can explain the motion of an object falling through a fluid by considering the forces acting through all phases of motions.	☐
	I can investigate the motion of an object when it falls.	☐	I can investigate the relationship between the mass of an object and the terminal velocity.	☐	I can evaluate the repeatability of an experiment by considering the spread of the results.	☐
P10.3 Forces and braking	I can state factors which affect the stopping distance of a car.	☐	I can categorise factors which affect thinking distance, braking distance and both.	☐	I can calculate acceleration, mass, and braking force of vehicles.	☐
	I can calculate the thinking distance for a car from the initial speed and reaction time.	☐	I can calculate the braking distance of a car.	☐	I can calculate total stopping distance, initial speed, reaction time, and acceleration.	☐
	I can estimate the relative effects of changing factors which affect the stopping distance of cars.	☐	I can describe the relationship between speed and both thinking and braking distance.	☐	I can explain the relative effects of changes of speed on thinking and stopping distance.	☐

Name.. Class.. Date..

Lesson	Aiming for 4	Aiming for 6	Aiming for 8
P10.4 Momentum		I can apply the equation p = mv to find the momentum, velocity or mass of an object. ☐	I can fully describe the motion of objects after an explosion accounting for any frictional effects. ☐
		I can describe how the principle of conservation of momentum can be used to find the velocities of objects. ☐	I can apply principle of conservation of momentum to a range of calculations involving the velocities of objects. ☐
		I can investigate the behaviour of objects during explosions to verify the conservation of momentum. ☐	I can evaluate the data produced from an investigation and compare this to a theoretical framework. ☐
P10.5 Forces and elasticity	I can state Hooke's law. ☐	I can explain the limitations of Hooke's law including the limit of proportionally. ☐	I can find the spring constant of a spring using a graphical technique. ☐
	I can calculate the extension of a material using its length and original length. ☐	I can calculate the force required to cause a given extension in a spring using the spring constant. ☐	I can Hooke's law equation in a wide of situations. ☐
	I can compare materials in terms of elastic and non-elastic behaviour. ☐	I can compare the behaviour of different materials under loads in terms of proportional and non-proportional behaviour. ☐	I can evaluate an investigation into the extension of materials in terms of the precision of the data. ☐