AQA Physics GCSE

Student Checklist

P8 Forces in balance

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

Lesson	Aiming for 4		Aiming for 6		Aiming for 8	
P8.1 Vectors and Scalars	I can state that scalars have size (magnitude) without direction.	☐	I can draw a scale diagram to represent a single vector.	☐	I can interpret a scale diagram to determine the magnitude and direction of a vector.	☐
	I can state that vectors have both size (magnitude) and direction.	☐	I can categorise a wide range of quantities as either a vector or a scalar.	☐	I can translate between vector descriptions and vector diagrams and vice versa using a range of appropriate scales.	☐
	I can list some common scalars and vectors.	☐	I can compare a scalar and a similar vector and explain how these quantities are different.	☐	I can use a scale diagram to add two or more vectors.	☐
P8.2 Forces between objects	I can use arrows to represent the directions of forces.	☐	I can use scale diagrams to represent the sizes of forces acting on an object.	☐	I can use appropriate SI prefixes and standard form to describe a wide range of forces.	☐
	I can give examples of contact and non-contact forces.	☐	I can describe the action of pairs of forces in a limited range of scenarios.	☐	I can explain the pairs of forces acting in a wide range of unfamiliar scenarios, including the nature (contact or non-contact), direction, and magnitude of the forces.	☐
	I can compare the sizes of forces using the unit newton (N).	☐	I can investigate the effect of different lubricants on the size of frictional forces.	☐	I can evaluate force measurement techniques in terms of precision and accuracy.	☐
P8.3 Resultant forces	I can label a diagram showing several forces acting on an object.	☐	I can draw a scaled diagram of the forces acting in a range of situations using arrows to represent the forces.	☐	I can draw a scaled free-body force diagram showing forces as vectors and find the resultant force vector.	☐
	I can calculate a resultant force from two parallel forces acting in opposite directions.	☐	I can calculate resultant force produced by several forces acting on an object in coplanar directions.	☐	I can calculate resultant forces from several forces acting in coplanar directions using a range of SI prefixes.	☐
	I can state that a non-zero resultant force will cause a change in motion and a zero resultant force will not.	☐	I can describe the effect of zero and non-zero resultant forces on the motion of moving and stationary objects.	☐	I can create a detailed plan to investigate the factors that affect the acceleration of objects acted on by non-zero resultant force.	☐

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P8.4 Centre of mass	I can identify the approximate centre of mass of a range of simple shapes.	☐	I can describe an experimental technique to determine the centre of mass of an object.	☐	I can evaluate an experimental technique to determine the centre of mass of an object, identifying the likely	☐
	I can state that a suspended object will come to rest so that the centre of mass lies below the point of suspension.	☐	I can explain why a suspended object comes to rest with the centre of mass directly below the point of suspension in terms of balanced forces.	☐	I can apply understanding of the particle model and moments to explain why objects have a point at which the mass seems to act.	☐
	I can use lines of symmetry to identify the location of the centre of mass.	☐	I can compare the stability of objects to the position of their centre of mass of an object, identifying the likely sources of error leading to inaccuracy.	☐	I can plan a detailed investigation into the stability of three-dimensional objects.	☐
P8.5 The parallelogram of forces			I can find the resultant of two forces at an acute angle by drawing a scale diagram.	☐	I can find the resultant of two forces at an obtuse angle by drawing a scale diagram.	☐
			I can describe a system in equilibrium in which non-parallel forces are acting.	☐	I can investigate non-parallel forces acting on a system in equilibrium to verify the parallelogram of forces.	☐
			I can calculate the component of a force using scale diagrams and ratios.	☐	I can analyse a wide range of systems of non-parallel forces using a parallelogram technique.	☐
P8.6 Resolution of forces			I can resolve a single force into wo perpendicular components.	☐	I can resolve a pair of forces into the overall perpendicular components.	☐
			I can determine if an object is in equilibrium by considering the horizontal and vertical forces.	☐	I can determine if an object is in equilibrium by considering the horizontal and vertical components of	☐
			I can investigate the effect of increasing the weight of an object on a slope on the component of the weight acting along the	☐	I can plan a detailed investigation into the effect of increasing the gradient of a slope on the component of the	☐