

Question	Answers	Extra information	Mark	AO / Specification reference
01.1	gravitational potential		1	AO1 6.1.1.1
01.2	joule, J		1	AO1 6.1.1.2
01.3	kinetic		1	AO1 6.1.1.1
02.1	energy in a chemical store is transferred to a kinetic store		1	AO1 6.1.1.1
02.2	power = $\frac{\text{energy transferred}}{\text{time}}$		1	AO1 6.1.1.4
02.3	$\frac{312000}{60}$ = 52000		1 1	AO2
02.4	W		1	AO1 6.1.1.4
03.1	kinetic energy = $0.5 \times \text{mass} \times (\text{speed})^2$		1	AO1 6.1.1.2
03.2	kg is a standard unit		1	AO2 6.1.1.2

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03.3	30 cm there is the greatest energy in the gravitational potential energy store		1 1	AO3 6.1.1.2
04.1	(their) mass/weight		1	AO1
04.2	doubled doubled is		1 1 1	AO2 6.1.1.2
04.3	chemical	also accept kinetic	1	AO2 6.1.1.1
05.1	created destroyed	accept in either order	1	AO1 6.1.2.1
05.2	there is no net change to the total energy		1	AO1 6.1.2.1
05.3	is not energy is transferred out of the system because it no longer has kinetic/potential energy/mechanical energy	accept energy is wasted/dissipated accept change to either kinetic or potential energy	1 1 1	AO1 AO2 6.1.2.1
06.1	gravitational potential kinetic thermal		1 1 1	AO1 6.1.1.1

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06.2	elastic store		1	AO2 6.1.1.2
06.3	less energy to be returned to the gravitational store		1	AO2 6.1.2.1
07.1	gravitational potential energy = mass × gravitational field strength × height		1	AO1 6.1.1.2
07.2	40 × 10 × 9.8 = 3920 (J)		1 1	AO2 6.1.1.2
07.3	0.5 × 40 × 12 <sup>2</sup> = 2880 (J)		1 1	AO2
07.4	3920 – 2880 = 1040		1	AO2
08.1	gravitational potential energy = mass × gravitational field strength × height		1	AO1 6.1.1.2
08.2	mass = 0.05 kg	accept 5×10 <sup>-2</sup> kg	1	AO2 6.1.1.2
08.3	energy = 0.05 × 10 × 1.5 = 0.75 (J)		1 1	AO1 AO2 6.1.1.2

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08.4	some energy is wasted/not transferred to a store that is useful/not all the energy transfer is useful/some energy is transferred to the thermal store of the air		1	AO3 6.1.1.1 6.1.2.1 6.1.2.2
09.1	use a ruler to measure the initial height/height after 10 swings use a digital balance to measure the mass of the bob use the equation for gravitational potential energy to work out the energy before and after 10 swings find the difference between the initial and final energy/subtract the final from the initial energy		1 1 1 1	AO1 6.1.1.2
09.2	measuring the height sensible suggestion e.g., fix a ruler, use a video camera		1 1	AO3 6.1.1.2
10.1	energy that is no longer useful/stored in less useful ways		1	AO1 6.1.2.1
10.2	$\text{efficiency} = \frac{\text{useful output energy transfer}}{\text{total input energy transfer}}$		1	AO1 6.1.2.2
10.3	$\text{efficiency} = \frac{12}{20} = 0.6$	accept 0.6 with no working for two marks 60% scores one mark	1 1	AO2 6.1.1.2
10.4	car B has a lower efficiency so wastes more energy		1 1	AO3 6.1.1.2

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# AQA GCSE Science Combined Foundation

Practice answers