



A Level Physics Online

AQA Physics - 7407/7408

Module 1: Measurements and Their Errors

You should be able to demonstrate and show your understanding of:	Progress and understanding:			
	1	2	3	4
1.1 Use of SI units and their prefixes				
Fundamental (base) units: mass, length, time, amount of substance, temperature, electric current and their associated SI units.				
Derived SI units.				
Knowledge and use of the SI prefixes, values and standard form. Students should be able to use the prefixes: T, G, M, k, c, m, μ , n, p, f.				
Students should be able to convert between different units of the same quantity, eg J and eV, J and kW h.				
The fundamental unit of light intensity, the candela, is excluded. Students are not expected to recall definitions of the fundamental quantities. Dimensional analysis is not required.				
1.2 Limitation of physical measurement				
Students should be able to identify random and systematic errors and suggest ways to reduce or remove them.				
Precision, repeatability, reproducibility, resolution and accuracy.				
Students should understand the link between the number of significant figures in the value of a quantity and its associated uncertainty.				
Absolute, fractional and percentage uncertainties represent uncertainty in the final answer for a quantity.				
Combination of absolute and percentage uncertainties.				
Students should be able to combine uncertainties in cases where the measurements that give rise to the uncertainties are added, subtracted, multiplied, divided, or raised to powers. Combinations involving trigonometric or logarithmic functions will not be required.				



You should be able to demonstrate and show your understanding of:	Progress and understanding:			
	1	2	3	4
Represent uncertainty in a data point on a graph using error bars.				
Determine the uncertainties in the gradient and intercept of a straight-line graph.				
Individual points on the graph may or may not have associated error bars.				
1.3 Estimation of physical quantities				
Students should be able to estimate approximate values of physical quantities to the nearest order of magnitude.				
Students should be able to use these estimates together with their knowledge of physics to produce further derived estimates also to the nearest order of magnitude.				

