

Commentary on candidate 7 evidence (Measuring g)

The evidence for this candidate has achieved the following marks for each section of this course assessment component.

Section	Expected response	Maximum mark	Mark awarded	Commentary
1 Aim	An aim that describes clearly the purpose of the investigation.	1	1	The candidate's aim clearly describes the purpose of the investigation.
2 Underlying physics	An account of the physics relevant to the aim of the investigation.	3	2	The candidate has shown a reasonable understanding of the physics relevant to the aim. Relationships are stated and variables defined. Distinction could have been made between <i>gravitational field strength</i> and <i>acceleration due to gravity</i> .
3a Brief summary	A brief summary of the approach(es) used to collect experimental data.	1	1	The candidate has briefly summarised what they are measuring in both experiments and has indicated the measuring instruments used. Either summary would be sufficient to be awarded the mark in this section.
3b Sufficient raw data	Sufficient raw data from the candidate's experiment.	1	1	The data from the candidate's first experiment includes repeated measurements for five values of the independent variable. The range of the independent variable could have been greater, however, it is acceptable and the mark for this section is awarded.

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3c Data table	Data, including any mean and/or derived values, presented in correctly produced table(s).	1	1	<p>The tables drawn by the candidate of the data from the first experiment have correct headings and units. Mean and derived values have been presented in a table of the data from the first experiment.</p> <p>The table drawn by the candidate of the data from the second experiment has correct headings but is missing units.</p> <p>The mark is awarded for the tabulated data from the first experiment.</p>
3d Relevant data	Data relevant to the experiment from an internet/literature source or data relevant to the aim of the investigation from a second experiment.	1	1	The candidate has sufficient data from a second experiment.
3e Citation and reference	A citation and reference for a source of internet/literature data or information.	1	0	The reference to the source quoted misses the date accessed, and the reference is not listed near the end of the report.

Section	Expected response	Maximum mark	Mark awarded	Commentary	
4a	Suitable scales	The axes of the graph have suitable scales.	1	1	The graph has suitable scales on both axes.
4b	Suitable labels and units	The axes of the graph have suitable labels and units.	1	1	The graph has suitable labels and units on both axes.
4c	Accurately plotted data points and line of best fit	Accurately plotted data points and, where appropriate, a line of best fit.	1	0	The candidate has not accurately plotted the fourth data point. The line of best fit would be acceptable.
5	Uncertainties	Scale reading uncertainties and random uncertainties.	2	1	In the first experiment, scale reading uncertainties are included for both measurements, but the candidate has not calculated a random uncertainty. In the second experiment, a random uncertainty has been calculated, but the candidate has not included scale reading uncertainties.
6	Analysis	Analysis of experimental data.	1	0	The candidate has made a good attempt at the calculation of the gradient of the line in the first graph, but made an arithmetic slip in the final part of the calculation. In the second experiment, the candidate has made no attempt at analysis beyond averaging.

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7 Conclusion	A valid conclusion that relates to the aim and is supported by all the data in the report.	1	1	Conclusion to the aim is given by quoting a value from both data sets. The arithmetic slip in the calculation of the gradient has already been taken into consideration.
8 Evaluation	Evaluation of the investigation.	3	1	The candidate has attempted two statements. A systematic uncertainty is identified by the line of best fit missing the origin, but the candidate has not given a possible source. The second statement, about the <i>mask</i> is possibly more trivial, but is a valid evaluative statement supported by justification.
9 Structure	A clear and concise report with an informative title.	1	1	The report is clear and concise with an informative title.
Total		20	13	