NAME: ______________________________

PRACTICAL INVESTIGATION ASSESSMENT RUBRIC

Stage 1	/15
Stage 2	/8
Stage 3	/12
TOTAL	**/35**

Stage 1 – Planning

Section	Sub-Section	0 marks	1 mark	2 marks
Title/Question	**Question under investigation**	Not shown	The title is a relevant research question relating to the Units 1 & 2 Physics Areas of Study.	
Introduction	**Aim**	Not shown	A general aim or purpose of the investigation is stated.	The aim of the investigation, including the variables under consideration, is clearly stated.
	Hypothesis	Not shown	A formulation of an appropriate hypothesis and/or prediction.	Independent formulation and justification of an appropriate hypothesis and/or prediction.
	Background Physics	Not shown	Some identification and discussion of relevant background concepts.	Accurate identification and explanation of the main relevant background concepts.
	Classification of Variables	Not shown	Some variables are defined.	The independent, dependent and controlled variables are all clearly defined. Each variable can be classified as qualitative or quantitative
Methodology	**Planned Method**	Not shown	Conducts investigations mostly under direction, generally using appropriate equipment and materials and demonstrating a systematic approach. Step-by-step instructions are outlined.	Independently designs and conducts investigations selecting appropriate equipment and materials, demonstrating a systematic and comprehensive approach. Concise step-by-step instructions are outlined in the logbook.
	Validity	Not shown	The method is valid –only one independent variable is changed at a time	The method is valid. Only one independent variable is changed and how to measure the dependent variable is outlined. How to maintain control variables has been outlined. Two continuous independent variables have been examined.
	Repeatability & Reliability	Not shown	The method chosen provides sufficient detail to provide both repeatability and reliability.	
	Safety & Ethics	Not shown	Some relevant hazards are listed and/or appropriate safety measures have been stated	

TOTAL STAGE 1: / 15

Created by M. Judd, September 2017. Acknowledgement to L. Jarvie.

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Stage 2 – Conducting Investigations

Section	Sub-Section	0 marks	1 mark	2 marks
Conducting Investigations	**Laboratory Skills**	Not shown	Demonstrated application of given safe and ethical work practices in undertaking and reporting investigations.	Demonstrated independent and responsible application of safe and ethical work practices in undertaking and reporting investigations.
	Data Collection	Not shown	Generation and collection of data that is mostly relevant to the question under investigation.	Systematic generation and collection of sufficient and repeated data that is relevant to the question under investigation.
Results	**Raw results table**	Not shown	Results table is correctly formatted, with SI units and a title. Repeated measurements are clearly identifiable and averaged.	Results table is correctly formatted, with units and a title. Repeated measurements are clearly identifiable and averaged. Correct application of significant figures and uncertainties has been included
	Graphing Results	Not shown	Results have been graphed. Axes labelled appropriately and SI units used.	Results have been graphed. Where possible a relationship between variables has been investigated and stated. Axes labelled appropriately and SI units used. Outliers have been identified.

TOTAL STAGE 2: / 8

Stage 3 – Analysing & Communicating

NAME: ____________________________________

Section	Sub-Section	0 marks	1 mark	2 marks
Discussion	**Analysis & Evaluation of Primary Data**	Not shown	Investigation results have been presented in an appropriate format to illustrate relevant trends. Data is referred to and/or evaluated.	Highly proficient presentation of investigation results in an appropriate format to illustrate relevant trends, patterns and relationships. From graphs, a title, axis labels, outliers and line of best fit have been considered. Primary data is specifically referred to and specifically analysed and evaluated. The significance of the primary data is clearly, concisely and coherently articulated.
	Links to Relevant Physics Concepts	Not shown	The results of the investigation have been summarised and discussed in the context with a relevant Physics concept	A sophisticated analysis and evaluation of the links between investigation findings and relevant Physics concepts is evident.
	Outliers	Not shown	Any outliers are identified and subsequent treatment of outliers is discussed clearly, concisely and coherently	
	Limitations & Improvements	Not shown	At least one limitation in data collection and at least one suggested improvement in data collection is discussed.	At least one limitation in data and methodology is discussed. Sources of error are outlined. At least one relevant suggested improvement in data collection is discussed clearly, concisely and coherently.
Conclusion	**Response to the Aim**	Not shown	Conclusion relates to the purpose of the investigation but is too general, too restrictive and/or does not take sufficient account of the uncertainties.	Conclusion can be reasonably inferred from the data and the relationships obtained, takes into account uncertainties, explains differences between expected and actual results and offers reasonable suggestions for improving and/or extending the investigation.
References & Acknowledgements	**Referencing of Quotations and Source**	Not shown	A list of relevant references is provided, written in APA referencing style.	
Poster	**Presentation**	Not shown	Summarised information inserted under appropriate headings. Scientific conventions have been followed, including symbols and units.	Summarised information inserted under appropriate headings. Word count does not exceed 1000. Scientific language has been used contextually. Poster is eye-catching and all diagrams are labelled.

TOTAL STAGE 3: /12

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