



In Achievement Standard: **90935** (Version **3**)  
Credits: **4**

Subject Reference: **Physics 1.1**  
Year: **2022**

*Carry out a practical physics investigation that leads to a linear mathematical relationship, with direction.*

**Student Name:** \_\_\_\_\_

<b>Achieved</b>	
	Correct independent & dependent variable stated or inferred from results
	Used data range for independent variable including 4 or more different points
	Collected 4 or more measurements for dependent variable
	Units are stated correctly for independent & dependent variable (found somewhere in paper)
	Develop a method for collecting the data - includes steps or a reasonable description of how experiment was carried out
	Measurements obtained are reasonably accurate ( see moderated answer sheet)
	Graph data correctly plotted -- dependent on on y axis independent on x axis (1 error accepted)
	Graph line does <b>NOT</b> have to be a straight line
	Graph axis correctly labelled variable name & unit
	Use acceptable data range for Independent variable
	Conclusion links the data to the identified trend on the graph - has indicated that as independent increases dependent will also increase
<b>Merit</b>	
	Used techniques to increase accuracy eg <ul style="list-style-type: none"><li>• Averaged data</li><li>• Correction errors eg parallax and/ or zero error - if applicable</li></ul>
	Identified & described controlled variables that could a significant effect on the results
	Drawn a linear graph that is valid for the data
	Drawn a straight line on the graph that best fits the plotted points
	Written a conclusion that states the equation of the relationship
	Explained the equation in terms of its variables rather than x and y
<b>Excellence</b>	
	Written a discussion that validates the conclusion: (at least <b>TWO</b> from the following – Moderator's report)
	<ul style="list-style-type: none"><li>• Justify the accuracy- improving techniques and how these made the measurements more reliable <b>NOT</b> limitation of equipment</li></ul>
	<ul style="list-style-type: none"><li>• Justify the min and max independent values</li></ul>
	<ul style="list-style-type: none"><li>• Justify why a variable needs to be controlled</li></ul>
	<ul style="list-style-type: none"><li>• Describe any difficulties encountered when making measurements and how these difficulties were overcome</li></ul>
	<ul style="list-style-type: none"><li>• Link between investigation findings and applicable physics ideas</li></ul>
	<ul style="list-style-type: none"><li>• Describe any unexpected outcomes of the processing of the results and how these could affect the validity of the conclusion</li></ul>