

Measuring g lab - Formative Task

ATL(s) being taught and assessed are a review of those in unit 1:

Research - Collect, record, and verify data (with a focus on gathering data with instrumental uncertainties)

Research - Process data and report results (with a focus on reporting processed data in graphical form)

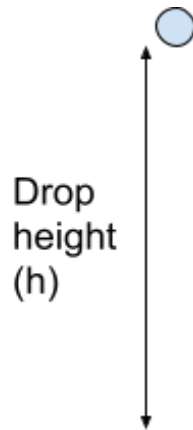
Research Question

What is the relationship between the height of a ball time it takes to fall?

Independent variable: Height of ball (h)

Dependent variable: Time taken to fall (t)

Controlled variables: Type, size, and mass of ball, timing device



Mathematical model :

If acceleration is constant then:

$s=h$ $u=0$ $v=?$ $a=?$ $t=?$

$$s = ut + \frac{1}{2}at^2$$

So, $2s = at^2$

Hypothesis:

If we graph the height doubled against the time squared then we should get a directly proportional relationship with a gradient of g and an intercept of 0.

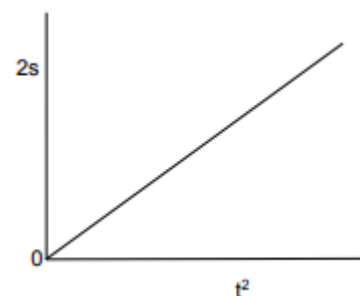


Table 1: Raw data table

Table 2: Processed data table

Figure 2: Graph showing the relationship between the time squared and the distance.

Value of gradient with absolute uncertainty:

Value of g with absolute uncertainty:

Assessment:

Not there yet	Meeting expectations	Beyond expectations
	<ul style="list-style-type: none"> - Axis correct way round to give a the g as part of the gradient - Instrumental uncertainty shown as constant error bars on x axis - Experimental uncertainty shown as variable error bars on y axis - Line of best fit plotted - Max and min lines of best fit attempted - Gradient and then g calculated 	