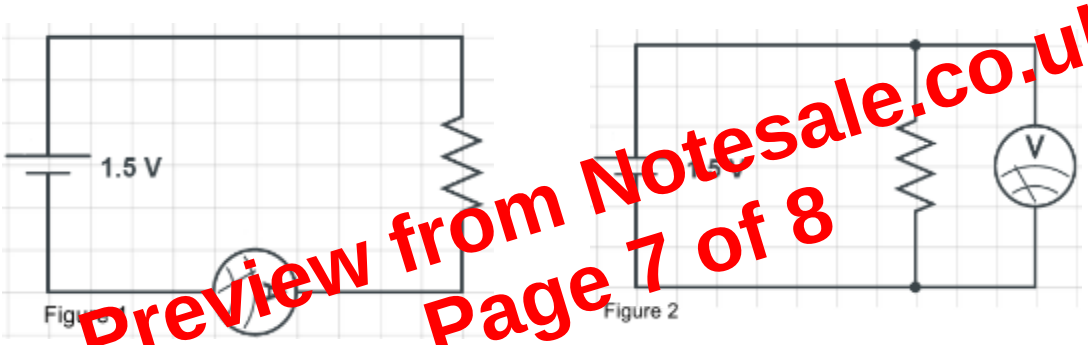
experiment. If our data points produced a near-linear proportionality between potential difference and current, and had a correlation coefficient close to 1, then we have experimentally deduced that Ohm's law is accurate.

The data that we withdrew from our experiment gives us a strong linear relationship between potential difference and current, but contained systematic errors that could not be avoided. We accounted for these systematic errors and uncertainties by adding a margin of error and two supplementary lines that indicated the upper and lower bounds in which the line of best fit could have fallen into. In *Figure 3,* you are able to see that the data points can be connected in a linear fashion. Hence, the experiment has verified that the potential difference scales with the current in a 1:1 ratio, and has a resistance close to one Ω. We have fulfilled the purpose of the experiment by verifying the accuracy and practical application of Ohm's Law in direct current circuits.



Above: The two diagrams that we constructed in order to compute the resistance of a resistor. The first diagram was used to measure current. The second diagram was used to measure voltage.

Results:

The experiment that we conducted contained a 15% margin of error, caused by the sources of systematic error. The theoretical resistance is $1\,\Omega$ whilst the resistance that we computed in our experiment was $0.87\ \Omega$.

Source of Systematic Error: