

Practice using Ohm's law

Class: _____

Name: _____

- 1 Two groups of students were given different resistors and instructed to set up a circuit to determine the resistance of their resistor.

Tables 1 and 2 show their results.

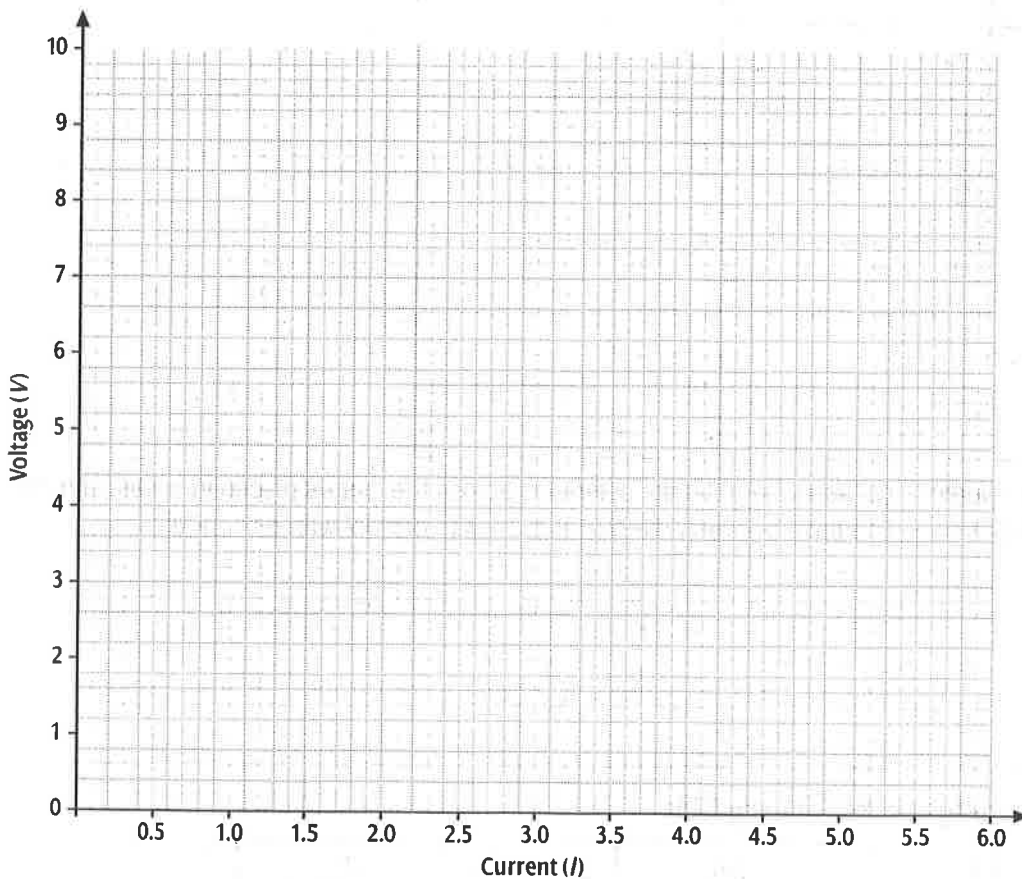
Table 1 Results for Group 1

Voltmeter reading (V)	0	1.5	2.9	4.4	6.0	7.4	8.8
Ammeter reading (A)	0	0.99	1.9	3.0	3.8	5.0	5.9

Table 2 Results for Group 2

Voltmeter reading (V)	0	1.4	3.0	4.3	5.8	7.3	8.9
Ammeter reading (A)	0	0.47	0.99	1.4	2.0	2.4	3.1

- a Graph voltage against current for each group on the axes below, using two different colours. Label each line of best fit with the number of the student group.



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- b Use the graphs to calculate the resistance of each resistor. Show your calculations on the graph and state the answer below.

Resistor for Group 1: _____

Resistor for Group 2: _____

- c Draw a circuit diagram to show the circuit these students would have set up for their measurements.

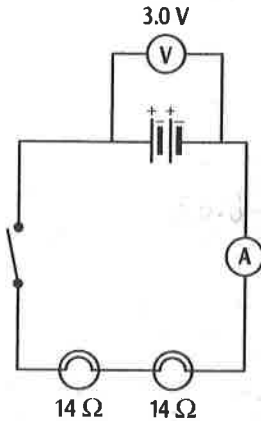
- 2 A series circuit containing one globe was found to have a current of 0.22 A. if the potential difference across the globe was 3.0 V, what was the resistance of the globe?

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- 3 The circuit below contains two globes. Calculate the expected ammeter reading.



- 4 An object of resistance $100\ \Omega$ was placed in a circuit. If the potential difference across the object was $9\ \text{V}$, what was the current?

- 5 Three identical globes were placed in series in a circuit with a $12\ \text{V}$ battery. The current reading was $0.27\ \text{A}$:

a What was the total resistance of the three globes?

b What was the resistance of each globe?

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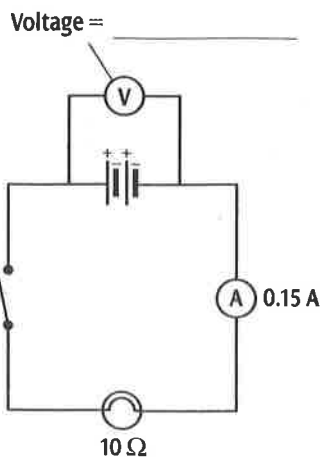
- 6 The conductivity of a concentrated salt solution was determined by passing the current from a 3 volt battery through the solution. The ammeter reading was found to be only 0.02 A. What was the resistance of the solution?

- 7 When a certain mystery battery was used to light up four globes in series, each of resistance 12.0 Ω , the current was measured to be 0.125 V. What was the voltage of the battery?

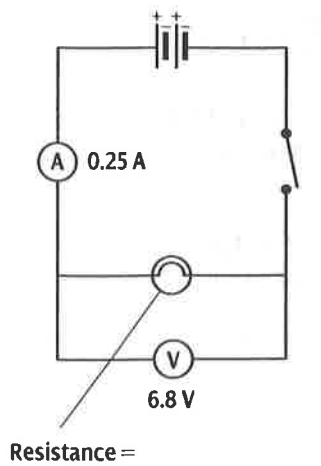
- 8 A toaster connected to a 240 V power supply uses a current of 12 A. Calculate the resistance of the toaster.

- 9 For each of the circuits shown below, calculate the missing measurement. In circuit C, assume that all the globes are identical.

Circuit A



Circuit B



Circuit C

