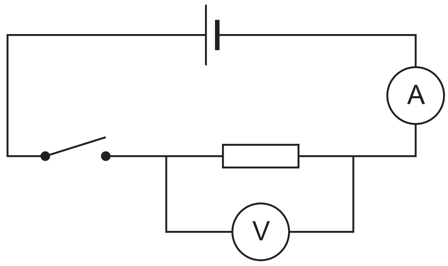
Comparing different energy resources

Advantages and disadvantages of different sources of energy

- How cheap is the energy source?
- How polluting is it? Consider the environmental consequences of both the extraction and the use of the energy.
- How sustainable is it? Will it run out soon or is it renewable?
- How convenient is it? We often need energy in large quantities but many non-polluting forms of energy are only available in small quantities (e.g. solar cells, wind, waves).
- Is it easy to turn into a useful form, such as electricity or fuel for a vehicle?

Ohm’s law

1 Set up a circuit as shown in the diagram below using the resistance wire given to you as the resistor.



2 Measure the current in the circuit.

3 Measure the potential difference (voltage) across the conductor.

4 Record your results in a table like the one below.

No. of cells	**Voltage (*V*)**	**Current (*I*)**	**Voltage/current (*V*/*I*)**
1			
2			
3			
4			
5			

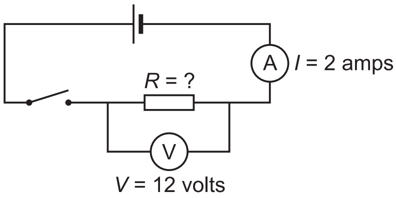
5 Repeat steps 1–4 with two cells, three cells, four cells and five cells.

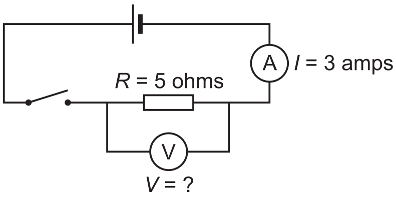
6 Divide voltage by current in each case and write the results in the appropriate row in the last column.

7 Plot a line graph of the voltage (*y*-axis) against the current (*x*-axis). What conclusions can be drawn from the graph?

Questions

1 In the following circuits, find the missing values of R and V.





2 In the same circuit, if R = 4 ohms and the voltage across the wire is 12 volts, what is the current I through the circuit.

3 In the same circuit, if R = 10 ohms and the voltage across the wire is 5 volts, what is the current I through the circuit.