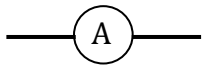
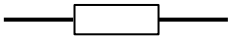
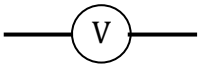
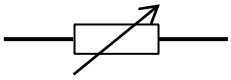
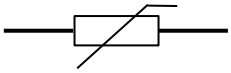
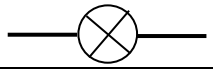
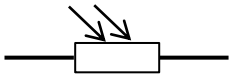
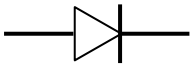
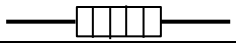
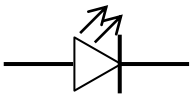
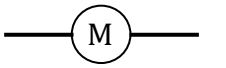
5.2 Circuit components and their characteristics

videos

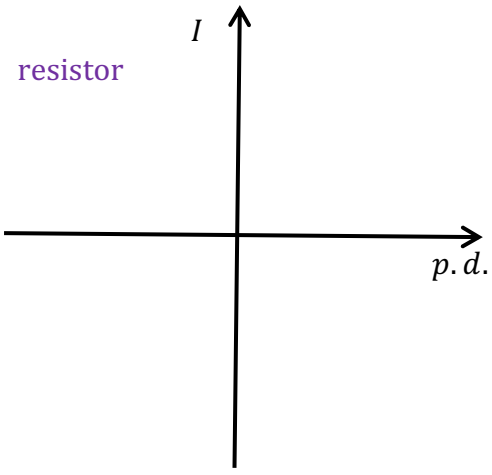
(1) Identify the following components:

Circuit symbol	name	Circuit symbol	name
			
			
			
			
			
			

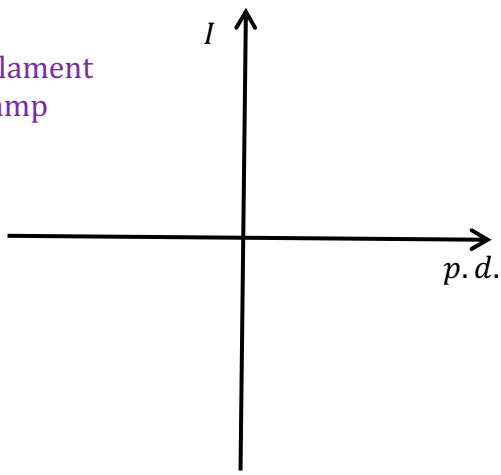
If you get stuck, you can do an internet search for circuit symbols.

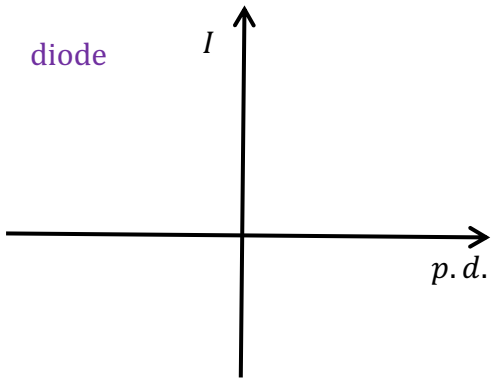
As in the GCSE you are required to know the current-voltage (IV) characteristics of a resistor, a filament lamp, and a diode.
(2) Sketch the graphs.

resistor



filament lamp





(3) What is the explanation for the shape of the filament lamp graph?

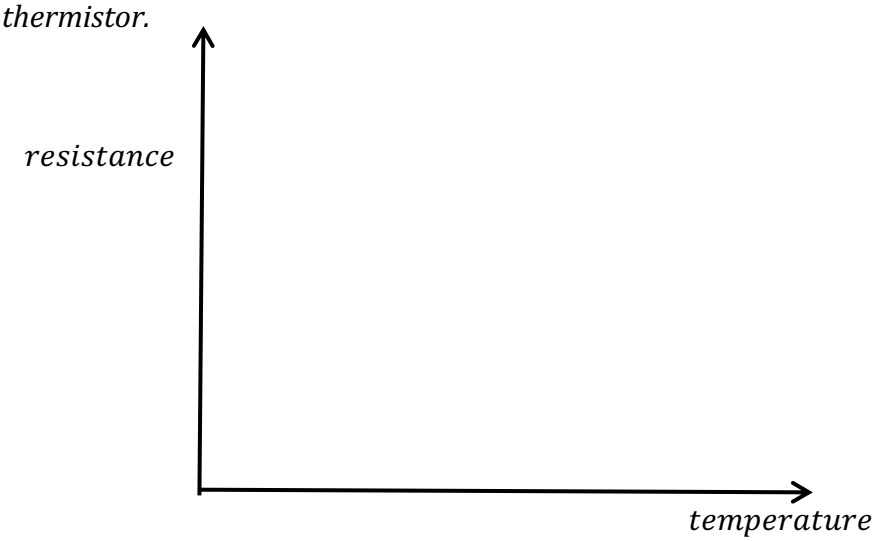
(4) What is the function of a diode in a circuit?

The resistance of metals increases with temperature. They are said to have a positive temperature coefficient.
(5) How does temperature affect the movement of atoms in a metal?

(6) Can you explain why this has the effect of reducing the flow of electrons, causing a higher resistance?

Diodes, thermistors and light dependent resistors are made out of semiconductors. The resistance of a thermistor responds very differently to temperature compared to a metal. If fact the resistance decreases (not increases) as the temperature increases. We say that the thermistor has a negative temperature coefficient.

(7) Sketch a graph to show how the resistance changes with temperature for a thermistor.



(8) What could you use a thermistor for? Explain how you would use it.