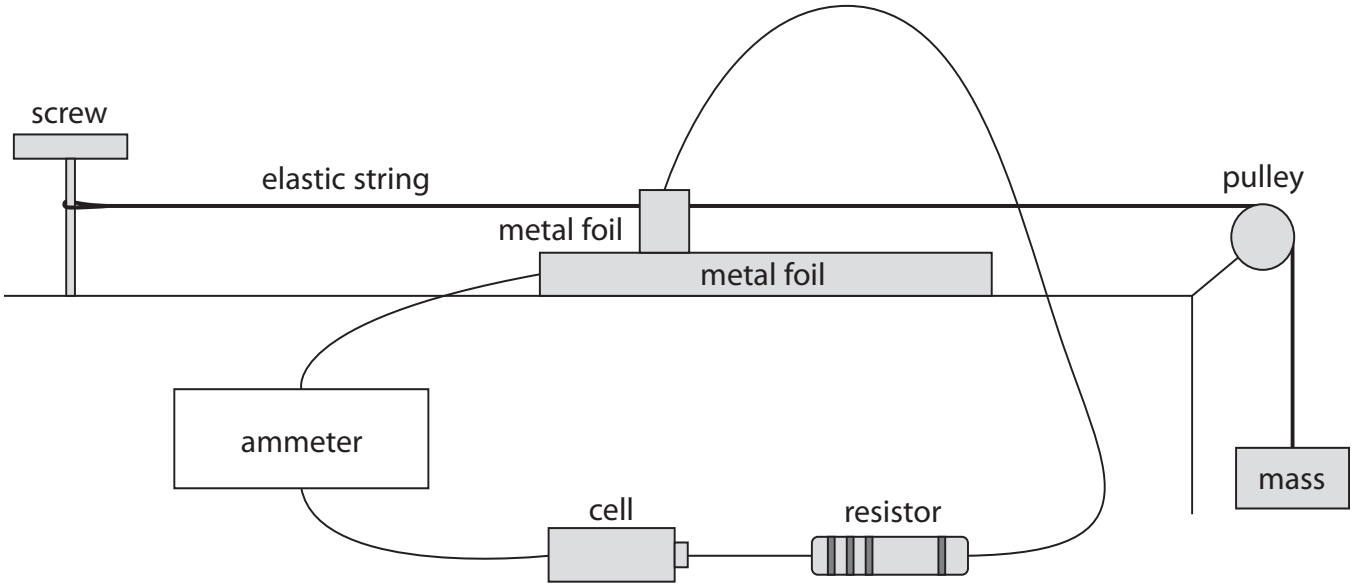
12 The diagram shows some apparatus used to find the mass of an object.

The two pieces of metal foil act as a variable resistor.

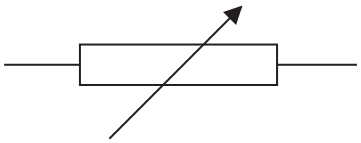
When more mass is added, the elastic string stretches and the small piece of metal foil moves to the right.



(a) (i) Draw the circuit diagram for this electrical circuit.

The variable resistor has been drawn for you.

(4)



(ii) Draw a voltmeter on the diagram to measure the voltage of the variable resistor.

(2)

(b) Explain how the voltage across the variable resistor changes if more mass is added to the end of the elastic string.

(4)

(c) The student extends the investigation by keeping the mass constant and replacing the cell with a variable power supply.

The student measures the current in the circuit for different voltages.

These are the results.

Voltage in V	Current in mA
0.0	0.0
2.0	4.0
4.0	7.0
6.0	11.0
8.0	14.0

(i) State the independent variable in the student's investigation.

(1)

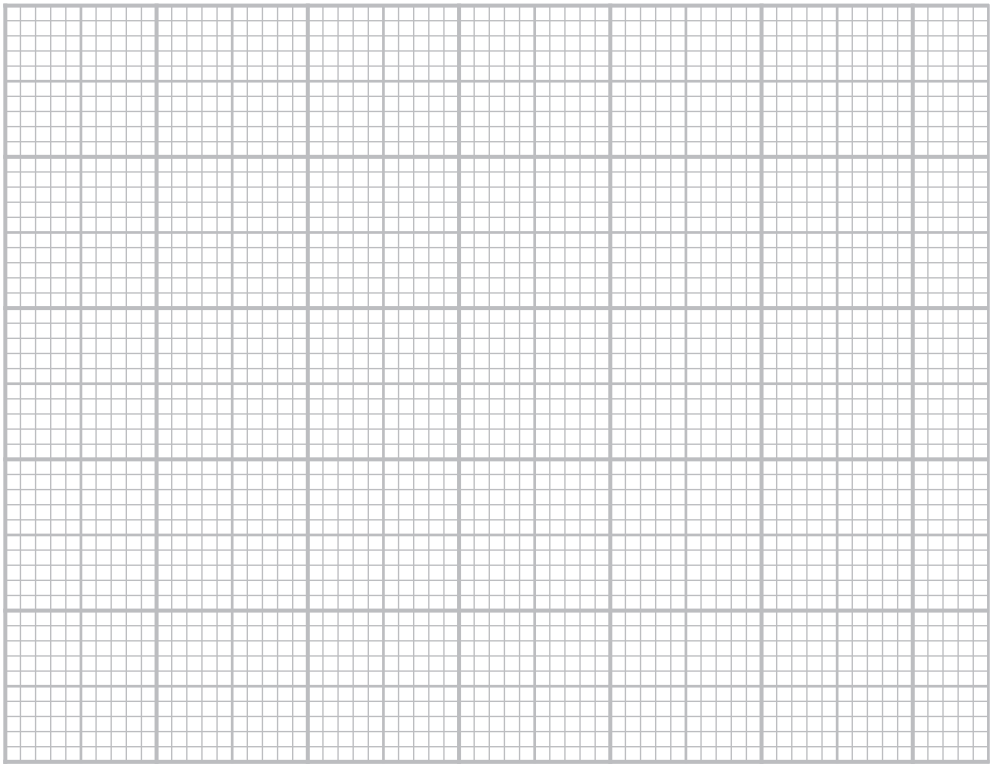
.....

(ii) Plot the student's results on the grid.

(3)

(iii) Draw a line of best fit.

(1)



(Total for Question 12 = 15 marks)

TOTAL FOR PAPER = 110 MARKS