



## Physics

## PHY3T/Q11/task

### Unit 3 Investigative and Practical Skills in AS Physics ISA (Q) Resistivity of a Metal Wire

#### Stage 1 Task Sheet

This task is worth 11 marks

You are advised to read through these instructions before beginning your work.

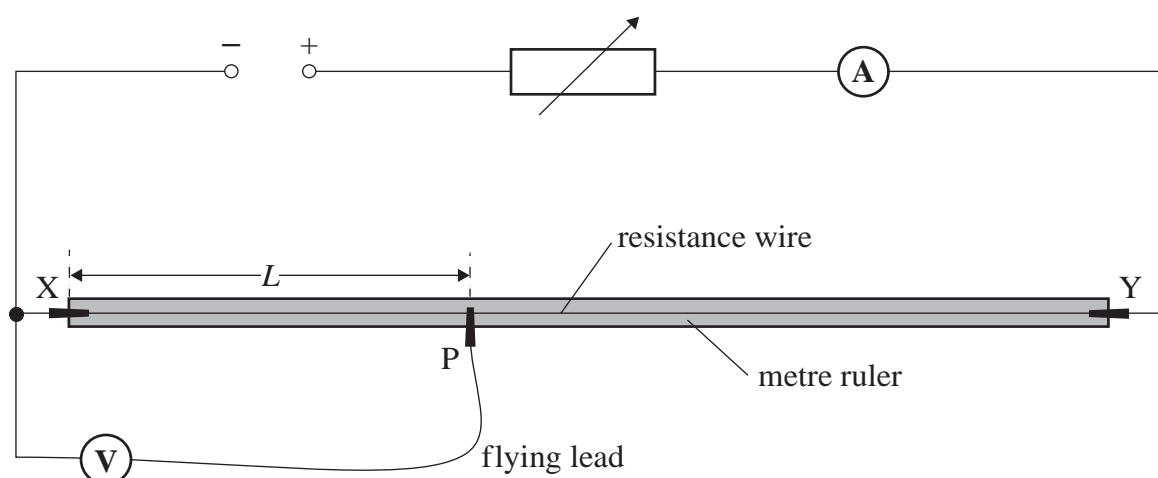
You are going to investigate the variation with length of the resistance of the wire supplied.

- Complete the circuit as shown in **Figure 1**: crocodile clips X, Y and P are already in place with leads attached.
- Record the precision of your voltmeter and your ammeter.
- Switch on the power supply and adjust the variable resistor if you are using one in your circuit, or the voltage control on the power supply if you do not have a variable resistor, so that the current,  $I$ , shown on the ammeter is 0.50 A.

**Always switch off the supply between readings and also ensure that  $I = 0.50$  A before reading the voltmeter.**

- Observe how the pd,  $V$ , between X and P varies for different lengths  $L$  of wire between X and P.
- Decide on a range of values for  $L$  for which you will measure  $V$ .
- Prepare a table to record all of your measurements for  $L$  and  $V$  and include a column for the resistance,  $R$ , of the wire between X and P.
- Carry out your experiment and complete your table.
- Draw a graph to show how  $R$  (plotted on the vertical axis) varies with  $L$ .

**Figure 1**



**After the Investigation**

At the end of the investigation, hand in all your written work, including the graph of  $R$  against  $L$ , to the supervisor.

This documentation will be required for Stage 2 of the ISA. Ensure that you have entered your centre details, candidate number and name on all the sheets you have completed.