

## Experiment to illustrate the principle of operation of the Potentiometer

1. Set up a variable potential divider circuit as shown below.

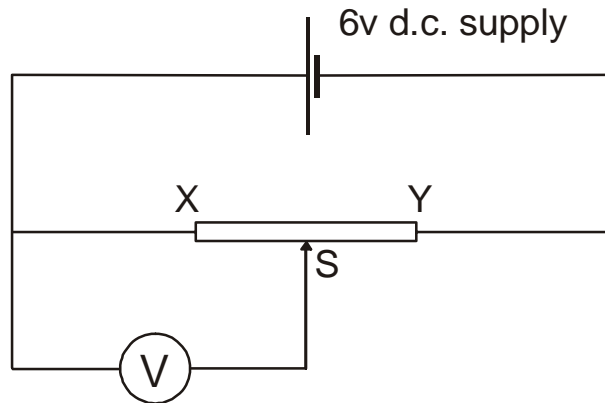


figure 1

Read the voltmeter with the sliding contact, S, at different positions.

### Results

Distance of s from X	Voltmeter Reading
zero	
$(XY)/4$	
$(XY)/2$	
$3(XY)/4$	
XY	

### Conclusion

---

---

2. Measure the voltage of a battery (“battery A” in the diagram on the next page). Let this voltage be  $V_1$ .

Voltage  $V_1 =$  \_\_\_\_\_ volts

With the circuit above, adjust the position of S so that the voltmeter indicates a voltage equal to  $V_1$ .

Leave S in this position but change the circuit to the one shown in the figure 2.

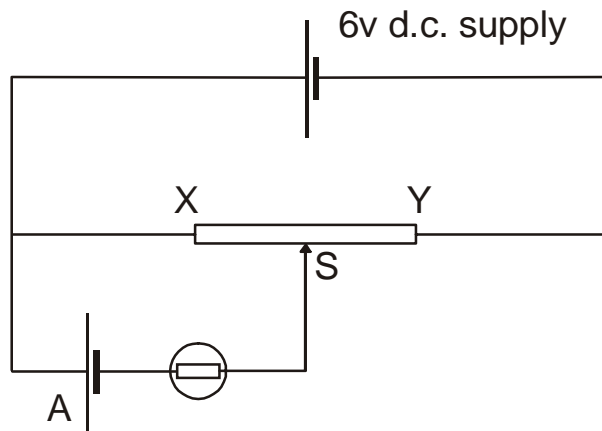


figure 2

a) The bulb does *not* light because

---

---

---

b) Move S to X. The bulb lights. Which supply is lighting the bulb, battery A or the 6v supply ?

---

c) Move S to Y. The bulb lights. Which supply is now lighting the bulb ?

---

The circuits used in this experiment are called potential divider circuits. A POTENTIOMETER is a form of potential divider which can be used to measure an unknown voltage by comparing it with a known voltage. In its simplest form, a potentiometer consists of a piece of resistance wire of *uniform cross-section* about 1m long, mounted on a support with a linear scale placed near it.