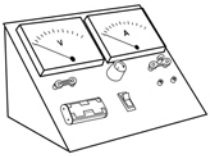
Expt. No.2:

To calculate unknown resistance

Replace the bulb pin connector in place of resistance pin as shown in below diagram. Repeat all the steps of experiment 1. You will get value of resistance of the filament of the bulb, which is unknown to you.

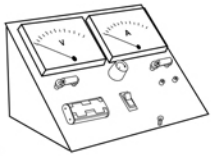


Expt. No. 3:

Resistences in series

Insert two unknown resistance pins in the respective alluminium pin as shown in the below diagram. This is the case of two resistance in series connection.

Repeat all the steps of Expt. 1. Calculate the mean value of R and verify it with the formula $R=R_1+R_2$, where R_1 & R_2 are the values of resistance used in the circuit.



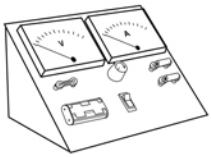
Obs. No.	Voltage V in Volt	Current I in amp.	$R_s=\frac{V}{I}$ Ohms
1			
2			
3			

Expt. No. 4:

Resistances in parallel

Insert the two unknown resistance pins and a copper connector pin in the respective alluminium pin as shown in the below diagram. This is the case of two resistance in parallel connection.

Repeat all the steps of Expt. 1. Calculate the mean value of R and verify it with the formula $1/R = 1/R_1 + 1/R_2$, where R_1 & R_2 are the values of resistance used in the circuit.



Obs. No.	Voltage V in Volt	Current I in amp.	$R_p=\frac{V}{I}$ Ohms
1			
2			
3			

THE WAY TOWARDS PRACTICAL SCIENCE

OHM'S LAW

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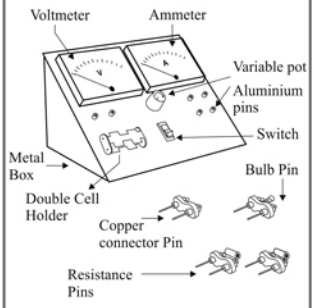
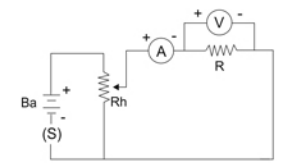
OHM'S LAW

Experimental verification of Ohm's Law
Voltmeter ammeter method

Assembly :

Consists of Voltmeter (0-3V), ammeter (0-1A), variable pot, double cell holder, switch and 6 alluminium pin fixed on a white acrylic base with wire connected to each other as shown in the circuit diagram. This acrylic base is fixed to blue coloured metal box. Two known resistance, bulb & a copper connector are part of the kit.

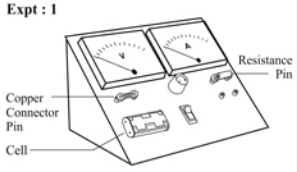




Ba = Battery Rh = Rheostat R = resistance
A = Ammeter V = Voltmeter S = Switch

To do and Observe :

Expt : 1



Step 1 :

Insert one resistance pin and copper connector pin in the alluminium pins as shown in the above diagram and two pencils in the double cell holder assembly. Put on the switch. Now you will observe that the pointers of the both voltmeter & ammeter shows zero reading.

Step 2:

Adjust the variable pot so that a small current flows through the circuit. Note down the voltmeter & corresponding ammeter reading.

This gives us first set of V-I readings

Step 3 :

Increase the current in the circuit step by step by varying the position of the variable pot. The values of voltages and corresponding current values are noted in all the cases. (Take minimum of 3 set of readings). Tabulate the reading as shown below :

Obs. No.	Voltage V in Volt	Current I in amp.	$R=\frac{V}{I}$ Ohms
1			
2			
3			

Step 4 :

Calculate the ratio of V/I = R for all the readings

Step 5 :

Finally calculate mean of all the resistance value. Compare this value with the one which is used in the circuit. They are almost equal. You will find that 'R' has almost constant value for all the observations. This verifies Ohm's Law because this shows that the current is directly proportional to Potential difference.