

# Electrical Circuits - bulbs in Parallel

## Apparatus

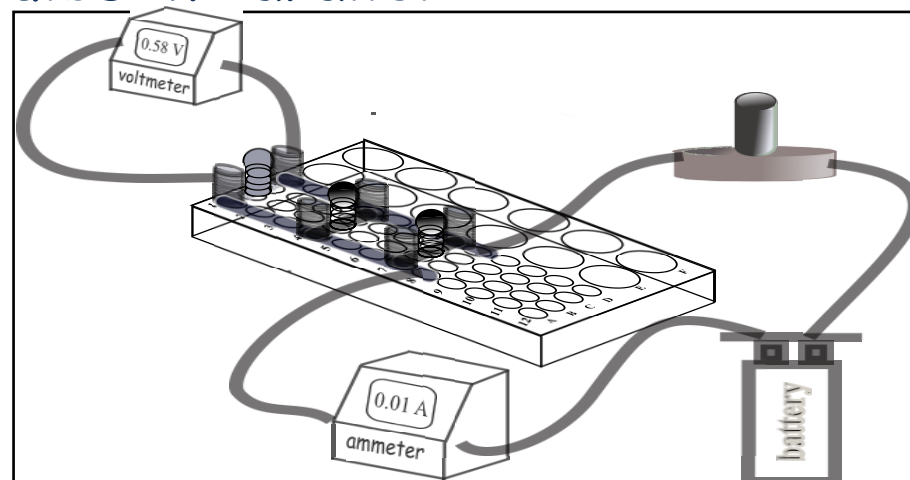
For this experiment you will need the following apparatus:-

Digital ammeter and voltmeter or a multi-meter  
3 bulbs with bulb-holders  
1 9V battery with connector  
1 variable resistor  
Comboplate  
6 springs  
2 copper strips  
6 leads with jack-plugs.

## Procedure

1. Place springs in wells A1,D1, A4, D4, A7 and D7
2. Connect the two lines of springs using the 2 copper strips.
3. Connect bulb-holders **without the bulbs** to the 3 sets of springs as shown in the diagram opposite
4. Connect your ammeter to the end of the copper strip running down line 1 and then connect this to the battery. The battery should then be connected to the variable resistor as shown in the diagram.
5. Screw a bulb into the first bulb-holder across A1 and D1. Note the brightness of the bulb.

6. Record the readings on the meters in the table on your results and conclusions sheet.



7. Break the circuit by pulling out one of the leads from your ammeter. **This stops the battery from being drained too quickly.**
8. Take one of your other bulbs and bulb holders and connect it across the springs in A4 and D4.
9. Now complete the circuit again by reinserting the wire into your ammeter. Record your meter readings and in the table
10. Unscrew the second bulb. What happens to the brightness of the first bulb? Does it go out or stay on.
11. Break your circuit again to save your battery.
12. Add a third bulb to the circuit and screw in all three bulbs. Record your meter readings.
13. Investigate the effect of unscrewing and screwing different combinations of bulbs on the circuit.

# Bulbs in Parallel - Results and Conclusions

## RESULTS

Record your results in the table below:-

Number of bulbs	Ammeter reading	Voltmeter reading
1		
2		
3		

Write a short description of what you see happen when the bulbs are unscrewed and screwed in again.

## CONCLUSIONS

1. What happens to the voltage across all three bulbs as the number of bulbs increases?
2. What happens to the electric current in the circuit as the number of bulbs increases?
3. Explain why the bulbs glow equally brightly as their number increases.

4. On a separate sheet of paper draw the circuit you have made using the following symbols:-

