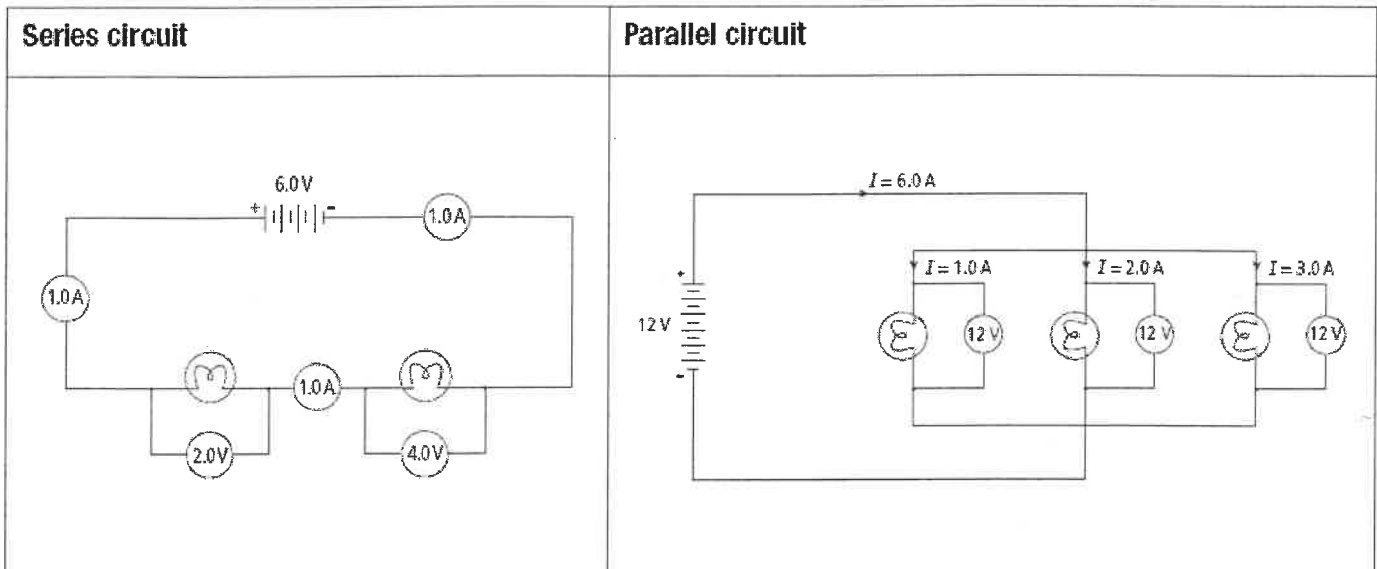


# Key Overview of Series and Parallel Circuits:

What happens to the current, voltage, and resistance in series and parallel circuits?

The table below summarizes the effects that series circuits and parallel circuits have on the current, voltage, and resistance of circuits:



**Current:**

The current through the whole circuit is the same throughout and is equal to the total current supplied by the source.

**Formula:**  $I_T = I_1 = I_2 = I_3$

**Current:**

The current through each pathway of the circuit adds up to the total current supplied by the source.

**Formula:**  $I_T = I_1 + I_2 + I_3$

**Voltage:**

The voltages across each of the loads in the circuit add up to the voltage supplied by the source.

**Formula:**  $V_T = V_1 + V_2$

**Voltage:**

The voltages across each of the loads in the circuit are equal to each other and to the voltage supplied by the source.

**Formula:**  $V_T = V_1 = V_2 = V_3$

**Resistance:**

Resistors placed in series increase the total resistance of the circuit. As a result, the total current throughout the entire circuit decreases.

**Formula:**  $R_T = R_1 + R_2$

**Resistance:**

Resistors placed in parallel decrease the total resistance of the circuit. As a result, the total current throughout the entire circuit increases.

$\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$   
**Formula:**  $R_T = ?$  (NOT EXPECTED TO KNOW)