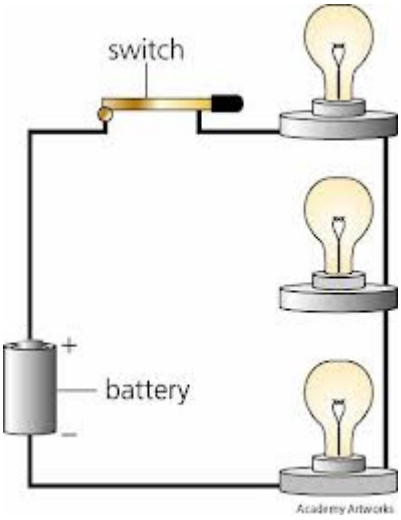
Series vs Parallel Circuits

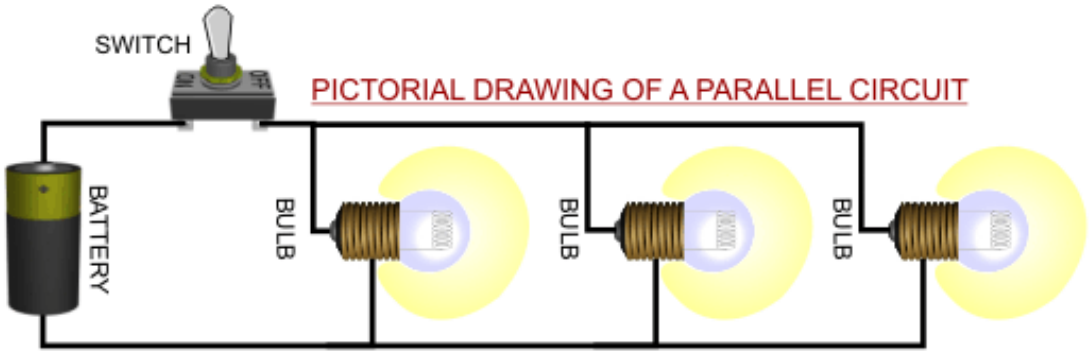


Series Circuit – Resistors are placed in series. This increases the total resistance of the circuit As a result, the total current throughout the circuit decreases.

The bulbs won't be so bright.

Parallel Circuits – resistors are placed in parallel. This decreases the total resistance of the circuit. As a result, the total current through the circuit increases.

The bulbs will be brighter.



What's the advantage to series circuits?

- Bulbs get brighter
- Electrons can go different paths
- Less resistance
- Less resistance = brighter bulbs
- One light can go out, but the rest still work

Formulae to know:

Finding Resistance for Series

$$R_T = R_1 + R_2$$

Finding Resistance for Parallel

$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2}$$

Parallel vs. Series Circuits

Compare	Contrast	
- Both are circuits - Both have connecting circuits - Conducting wire - Power source - voltage	**Parallel** - has junctions - only one path - Current is less - Resistance is more - Voltage is the same over all resistors	**Series** - no junctions - more than one path - Current is more - Resistance is less - Total voltage is the sum of the individual voltages