There are several factors that affect resistance:

The thickness of the connecting wires :

- thin wires have more resistance than thick wires

The length of the connecting wire :

- the longer the wire the more resistance

The material :

- copper and aluminum have low resistance
- nichrome and tungsten have a higher resistance

How the circuit is connected series vs parallel

How the circuit is connected series vs parallel

In our examples, with the Christmas lights. The bulbs provide resistance.

In a series circuit, the resistance in the circuit equals the total resistance of all the bulbs. The more bulbs in the circuit, the dimmer they will light.

In a parallel circuit, there are multiple paths through which current can flow, so the resistance of the overall circuit is lower than it would be if only one path was available. The lower resistance means that the bulbs will burn brighter compared to the same number of bulbs arranged in a series circuit.

Attachments

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