

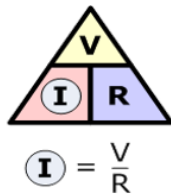
Meters

Lesson #3



Background Information

In Lessons 1 and 2, circuits were built that used lamps, LED's and motors to indicate how much current is flowing through a circuit. However, the speed of a fan blade and brightness of a light are difficult to quantify. Meters are used to accurately measure these parameters. Inside a meter, there is a fixed magnet in a movable coil. As the current flows through the coil, it creates a magnetic field. The interaction between the two magnetic fields causes the pointer on the meter to move. A multimeter can be used to measure current, voltage and resistance in a circuit. Remember the inverse relationship:



As current increases, resistance decreases.

As current decreases, resistance increases.

Terms:

1. The meter has positive (+) and negative (-) polarity to show the direction that the current will move the pointer.
2. The meter in the kit has a switch to change between high and low current scales. The range is between 10 mA (milliamps) and 1 A. The low setting is 10 mA.
3. The meter will measure the current in a series circuit.
4. Current higher than 1 A can be measured by connecting resistors in parallel in a circuit. Remember, placing resistors in parallel decreases the total resistance.