# Module 15                                                    **Physics**

Know the difference between electron flow and conventional current

Know what series and parallel circuits are and how they work

Calculate the effective resistance for resistors in series or parallel

Use Ohm's Law to calculate voltage, current, or resistance

Calculate the power drawn by a circuit

Know the difference between a fuse and a circuit breaker

Know what fuses and circuit breakers are used for

Be able to determine the best size fuse for a circuit

Formulas:

Voltage = Current x Resistance

Power = Current x Voltage

Series Resistance = $R_1 + R_2 + \dots$

$$\frac{1}{\text{Parallel Resistance}} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$$

# Module 16

Know what a dipole is

Be able to draw magnetic field lines

Know what causes some materials to be magnetic and others not

Know the difference between paramagnetic, ferromagnetic, and diamagnetic materials

Know how to make a magnet out of something not already magnetized

Understand what causes the earth's magnetic field

Be able to use the right-hand rule of magnetism

Understand how current is induced in a wire in a magnetic field

Know how an AC generator works

Know why AC power (and not DC) is used for homes and businesses