Project #1

OBJECTIVE: To show how electricity is turned “ON” or “OFF” with a switch.

Build the circuit shown on the left by placing all the parts with a black 1 next to them on the base grid first. Then, assemble parts marked with a 2. Install two (2) “AA” batteries (not included) into the battery holder (B1). When you close the slide switch (S1), current flows from the batteries through the lamp and back to the battery through the switch. The closed switch completes the circuit. In electronics this is called a closed circuit. When the slide switch is opened, the current can no longer flow back to the battery, so the lamp goes out. In electronics this is called an open circuit.

WARNING: Moving parts. Do not touch the fan or motor during operation. Do not lean over the motor.

Project #2

OBJECTIVE: To show how electricity is used to run a Direct Current (DC) Motor.

Build the circuit shown on the left by placing all the parts with a black 1 next to them on the base grid first. Then, assemble parts marked with a 2. Install two (2) “AA” batteries (not included) into the battery holder (B1). When you close the slide switch (S1), current flows from the batteries (B1) through the motor (M1) making it rotate. Place the fan blade on the motor shaft and close the slide switch. The motor will rotate forcing the fan blade to move air past the motor.

In this project, you changed electrical power into mechanical power. DC motors are used in all the battery powered equipment requiring rotary motion, such as a cordless drill, electric toothbrush, and toy trains that run on batteries just to name a few. An electric motor is much easier to control than gas or diesel engines.