TOPIC: SOLAR ENERGY

Activity Instructions

Solar panels (or photo-voltaic modules) are composed of photo-voltaic cells that convert energy from the sun's rays into direct current electricity. The energy comes from photons – a fundamental particle or quantum of electromagnetic energy – which excite atoms in the solar panel to release electrons. The electrons then travel along the panel to metal conductive plates before entering wires as direct current (DC) energy. This DC energy must then be converted to alternating current (AC) energy before it can be used in our homes. During this exercise you will get the chance to take apart a solar stake light to investigate how much electromotive output a solar panel can create. The purpose of this activity is to identify the components needed to create and store energy. You can then explore how different light sources in your home create varying amounts of energy.

THINGS YOU WILL NEED:

- 1 solar stake light
- 2 alligator clips
- 1 multimeter
- 1 screwdriver
- One or more sources of light (lamps, flashlights, natural sunlight, cellphone flashlights)

INSTRUCTIONS:

1. Observe your solar stake
   - Pull the paper tab from the battery if there is one.
   - What do you notice about its operation?
   - Can you identify its components?

2. Open up your solar stake
   - Twist the head of the solar stake 'tulip' open so that you can observe the light
   - Turn the light switch to 'ON'
   - Use your screwdriver to remove the two screws on the inner plastic panel
   - You should now have access to the wires and circuit board inside

3. Cut the wires from the light to the solar panel