

Light Source

Different sources like the sun, fire, lamps, and some chemical reactions radiate light.

On a bright, sunny day, the sun shines approximately 100 watts of energy per square feet of the earth, which is equivalent to the energy of one light bulb.

The electric light bulb is a light source as well. In normal light bulbs, a very thin wire of Tungsten is located inside a bulb. When

electricity is connected to the two ends of this wire, because of its high resistance, its temperature increases rapidly and by wire excitement, light is emitted.

If we could collect all of the energy of sun, we could power our schools, homes and businesses at no cost. Solar cells are one way to harness this infinite source of energy. Our kit uses a light bulb to simulate the solar energy.

Solar Cell

Solar cells convert energy of the sunlight (light bulb in our case) directly into electricity, but they cannot store it. These solar cells or modules are made of semi conducting materials. (Modules are a group of cells electrically connected and packed, Figure 4.) When sunlight is absorbed by these materials (slightly modified silicon), the solar energy knocks electrons loose from their atoms, allowing the electrons to flow freely through the material to produce electricity. This process of converting light (photons) to electricity (voltage) is called the photovoltaic (PV) effect. In addition, all photovoltaic cells have one electric field that acts to force electrons released by light absorption to move in a specific direction. This movement or flow of electrons creates current, and by placing metal contacts on the top and bottom of the photovoltaic cell, we can draw this

current (i.e. electricity) for consumption.



Figure 4 - Solar Modules