Answers from the Solar Electricity activity

- The motor stops.
- The sun! The PV panel takes the energy from the sun and converts it to electricity.
- Many homes have solar calculators, solar garden lights or window bobble-heads that are solar powered.

Vocabulary for young students

photovoltaic (PV) – the effect of producing electric current using light.
"photo" = light
"voltaic" = relating to electricity (volt)

Background information about photovoltaic cells

Photovoltaic cells (called PV or solar cells) are made of silicon (sand). The silicon is heated to extreme temperatures, then doped (coated/mixed) with chemicals, usually boron and phosphorous. This sets up an unstable environment within the photovoltaic cell. When light strikes the cell, electrons are dislodged and travel along wires placed within the cell. The electrons follow the wire and power whatever load is attached, in this case a motor. This flow of electrons is called electricity. PV cells use sunlight to directly produce electricity. Photovoltaic systems are quiet, clean, and non-polluting.

Because typical silicon solar cells produce only about ½ volt, cells are connected together to give more useful voltages. Usually 30 - 36 solar cells are connected in a circuit to give a final voltage of about 15-17 volts. To increase the power output further, modules are connected together to form an array.

Related books for young students

- ***Little Factory*** by Sarah Weeks and Byron Barton (Laura Geringer, 1998)
- ***Solar Power Comes to My Home*** by Susie Flann (BookSurge Publishing, 2008)