

ADDITIONAL DOCUMENTS

Student Worksheet: Models, Systems, and PV Energy

Name: _____ **TEACHER ANSWER KEY** _____ Class / Period: _____

Instructions: Please answer the questions below.

1. The most inexhaustible source of energy known to humans is the sun.
2. The energy of the sun is a renewable natural resource.
3. Sunlight causes a predictable change within a PV cell because of a natural phenomenon called the photovoltaic effect.
4. Through the photovoltaic effect, light energy is transformed into electric energy.
5. Electric energy is a flow of electrons.
6. A model is a copy or imitation, a simplified or stylized representation of a real object or system.
7. A system is a set of interacting parts that function as an organized whole.
8. Circle the two subsystems within our model system:
 - (a) the sun
 - (b) the PV cell, including the silicon and the electric contact grid
 - (c) the electric circuit, including the wire and bell (or other "electric" device)**
 - (d) people (living organisms) and chairs (nonliving things)**
9. Circle the one external variable that caused change in our model system:
 - (a) electrons
 - (b) the photovoltaic effect
 - (c) light energy from the sun**
 - (d) heat energy from the sun
10. Circle two differences between our model of a PV cell and a real PV cell:
 - (a) Our model had fewer parts than a real PV cell**
 - (b) Our model had more parts than a real PV cell
 - (c) A real PV cell has billions and billions of electrons**
 - (d) A real PV cell uses kinetic energy, or energy of motion