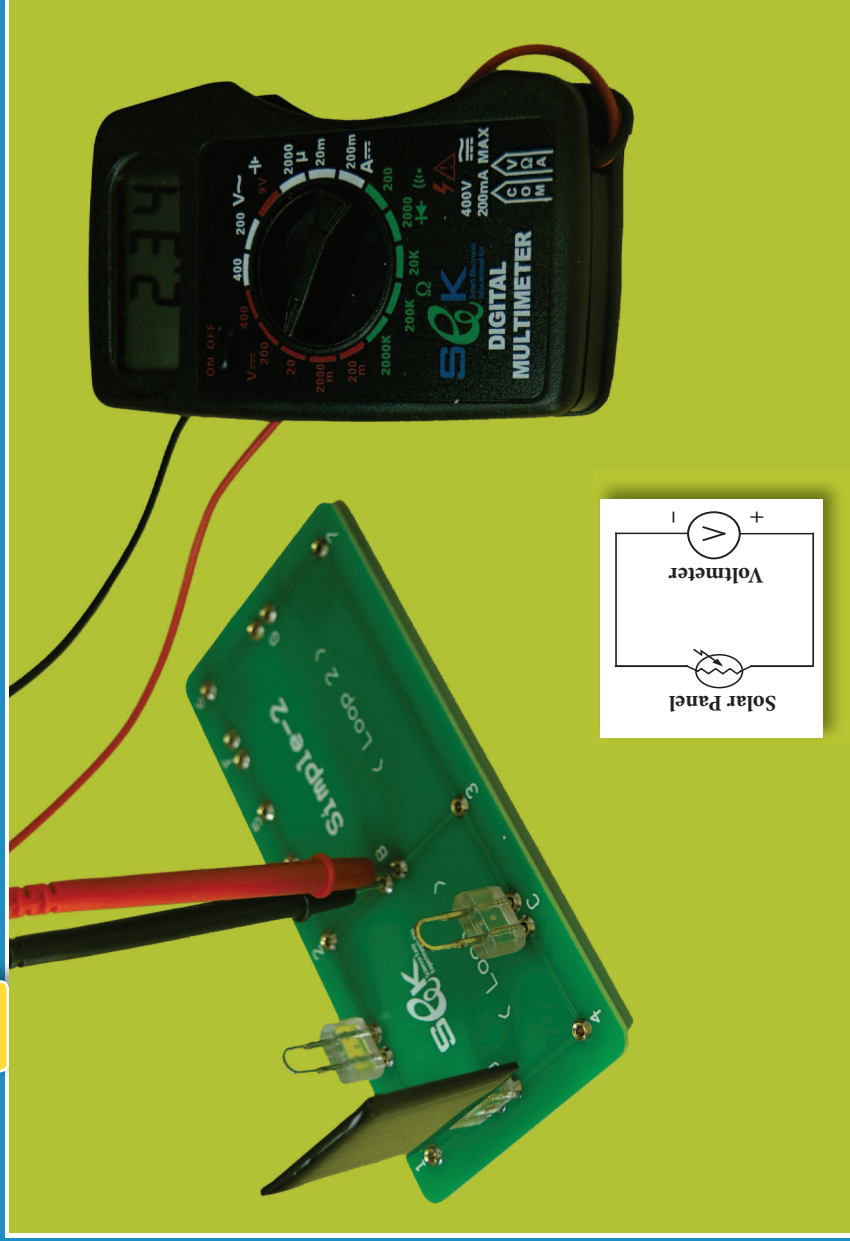


Experiment

9

Generating Electricity from a Solar Cell



Objectives

1. The student will use the solar cells to produce electricity.
2. The student will investigate the factors that affect solar cells efficiency.

Apparatus

- Experiments Board (Simple-2)
- DMM
- Electric Motor
- LED
- Solar Panel
- Jumpers

Procedure & Conclusions

1. Insert the solar panel at the pair (G).
2. Set the multimeter to “20V” in the DC (direct current) range, insert the DMM probes at the pair (B).
3. Insert jumpers at the pairs (E) & (F), as shown in the photo, watch the DMM reading.

4. Expose the solar panels to a light source while watching the DMM reading.
 - The maximum voltage of the solar panel when exposed to a light source is volt.
5. Adjust the angle of inclination of the solar panel so that the sun light vertically falls against the front face of the solar panel while watching the change in the DMM reading.
- When the sun light vertically falls against the front face of the solar panel, its output voltage ... increases / decreases ...
6. Insert the electric motor with a fan at pair (B) instead of the DMM probes, then expose the solar panels to the sun light, see if the fan moves.
7. Adjust the angle of inclination of the solar panel so that the sun light vertically falls against the front face of the solar panel while watching the change in the speed of the motor rotation.
 - When the sun light vertically falls against the front face of the solar panel, the rotational speed of the electric motor ... increases / decreases ...
8. Shade the solar panel with your hand and watch the change in the rotational speed of the electric motor.

- By shading the solar panel, the rotational speed of the electric motor ... **increases / decreases ...**
9. Insert a LED at pair (B) instead of the electric motor, in a way that the positive terminal of the LED will be towards point (2); see if the LED emits light.
 10. Adjust the angle of inclination of the solar panel so that the sun light vertically falls against the front face of the solar panel while watching the change in the light emitted from the LED.
 11. Shade the solar panel with your hand and watch what will happen to the LED.

Discussion

1. Discuss the energy transformation takes place in the solar cell.
2. Discuss the several types of the solar panels?
3. Discuss why solar energy is considered a clean green energy.
4. Discuss how solar energy can be utilized in your daily life.