



How Tilt Angle Affects Solar Cell Output

Activity Summary

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DESCRIPTION: Students will expose solar cells to a light source from a set distance and measure the output with a multimeter. Students will change the angle that the light source strikes the solar panel and measure the resultant output. They will compare and contrast the outputs that the different angles produce.

GRADE LEVEL(S): 6, 7, 8

SUBJECT AREA(S): Science, energy, renewable resources, inquiry, electricity, solar power

ACTIVITY LENGTH: 40 minutes

LEARNING GOAL(S): After the completion of this lab, students will be able to describe how the angle of light exposure affects solar cell output, have practiced using a multimeter, and have analyzed collected data.

STANDARDS MET:

Oregon:

- 6.2P.2 Describe the relationships between: electricity and magnetism, static and current electricity, series and parallel electrical circuits.
- 7.2E.1 Describe and evaluate the environmental and societal effects of obtaining, using, and managing waste of renewable and non-renewable resources.

SCIENCE MATERIALS LIST

- Solar cell
- Multimeter
- Resistor (or small load)

OTHER MATERIALS LIST

- 250-500 W camping or shop lights
- Meter stick/ruler
- Protractor
- “Measuring Solar Cell Output—Tilt Angle” student handout

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BONNEVILLE : 240 SW 1st Avenue
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Lesson Details:

1. Pass out the “Measuring Solar Cell Output—Tilt Angle” handout and materials to each student group.
2. Have students work through the procedure included in the handout.
3. Wrap up with a class discussion about what students observed.

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