

Producing More Electricity with Solar Cells and Solar Panels

Student Activity Sheets - Explanation, Extension and Evaluation

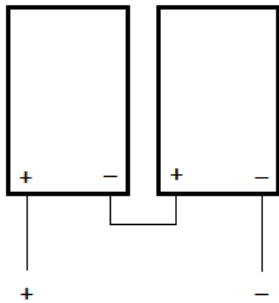
Explanation

1. Was there an independent variable in these experiments? If so, what was it?
2. Was there a dependent variable in these experiments? If so, what was it?

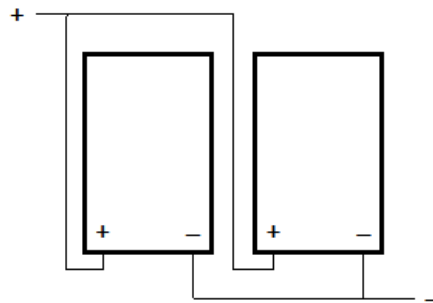
Extension

The electrical devices in your house require a voltage of 120 volts. You have four solar panels that each produce 30 volts. Can these solar panels be used to obtain a voltage of 120 volts? If so, use words or draw a diagram to describe how you would connect them together to obtain 120 volts.

Series Connection Example



Parallel Connection Example



Evaluation

You have six solar panels each of which produces 30 volts and 5 amperes.

1. Draw a diagram that shows the set of six solar panels all connected in series. What voltage would you measure from all six when they are connected together? What electrical current would you measure from all six connected together?
2. Draw a diagram that shows a set of six solar panels all connected in parallel. What voltage would you measure from all six connected together? What electrical current would you measure from all six connected together?
3. Draw a diagram that shows two sets of three solar panels all connected in series and then connect the two sets in parallel. What voltage would you measure from all six? What electrical current would you measure from all six?