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# Solar Cells and Absorption

**Instructions:** Exploring the relationship between light and absorption in solar cells.

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# Solar Cells and Absorption

## Introduction

This activity demonstrates the ability of solar cells to absorb at different wavelengths of the electromagnetic spectrum and shows how the more it can absorb, the more power it produces.

## Equipment

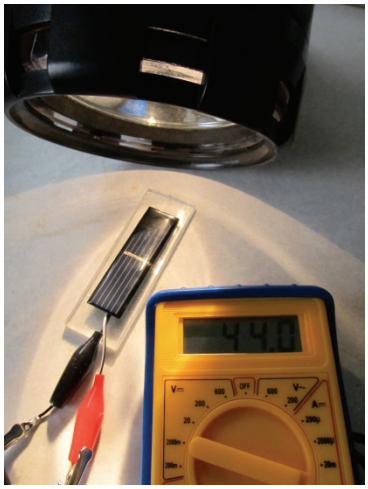
- Solar cell
- Light or torch
- Multimeter/Ammeter
- Acetates – one clear and three coloured: blue, red and green

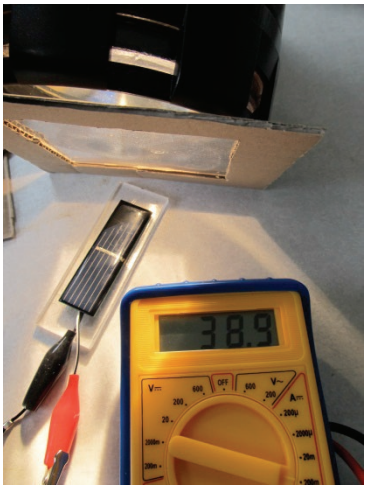
## Method

Attach the solar cell to the multimeter and measure the voltage and current.
Turn on the light and see how the voltage and current have changed.
Now put the clear acetate between the light source and the solar cell. Does the reading change?
Repeat with the coloured acetates and a combination of more than one acetate.
If you put all four acetates between the light source and the solar cell, is the solar cell still producing a reading?

## What is going on?

The solar cell is absorbing mainly visible light but will also be absorbing a small part of the infra-red and ultra-violet regions too. When the clear acetate is put between the light source and the solar cell, it absorbs the UV light before it gets to the cell and the current generated by the solar cell decreases slightly. Using coloured acetates will give a bigger decrease in the current as they absorb some of the visible light energy before it falls on the cell.
If all four acetates are put in the way, there will still be some current due to small amounts of incident light coming at other angles and from the solar cell absorbing a bit of infra-red too.





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