Solar Cell

**Background Information**: A photovoltaic cell (solar cell) is a means to convert sunlight into electricity. This light, has different wavelengths in regards to its different color.

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**Questions to ponder: How** does the amount of light affect a solar cell? Does the wavelength (color) of light affect a solar cell?

**Materials:**

Solar cell and motor hobby kit (or you may create a simple motor attached to a solar cell)

Black construction paper

Color transparent film

Timer

**Procedures** (Part 1)

* Mark one of the fan blades with a dot large enough to be seen.
* Do a controlled test- place the solar cell into bright sunlight, set the timer to 15 seconds and count how many spins the dot makes in that time.
* Repeat with black construction paper coverage ¼, ½, ¾

|  |  |
| --- | --- |
| **Coverage** | **# of spins** |
| No coverage |  |
| ¼ |  |
| ½ |  |
| ¾ |  |
| All covered |  |

1. How did the spinning motion change when the solar cell was partially covered?
2. What happened when the solar cell was completely covered?

**Procedures**: (Part 2)

* Use your data from your previous controlled test.
* Cover the solar cell with colored transparency film- record the number of spins in 15 seconds.
* Multiple by 4 to obtain the number of spins per minute.
* Record data and repeat for other colors of transparency film

|  |  |  |  |
| --- | --- | --- | --- |
| Color | # off spins | x’s 4 | Spins/minute |
|  |  | 4 |  |
|  |  | 4 |  |
|  |  | 4 |  |
|  |  | 4 |  |

**Conclusion:** Congratulations! You have been chosen by Tennessee Valley Authority (TVA) to teach a group of employees about how they can use solar panels to create efficient power. Using data from the previous activities (solar coverage and light wavelength), guide TVA employees to the best locations in our community for installation of solar panels and if there is a certain coverage that could be the most efficient. Make sure to explain your reason using data, and an accurate description of the location.