

Names \_\_\_\_\_  
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### [3] Angles of Sunlight

**FIND** "Summer Sun/Winter Sun". →

**READ** aloud:

This activity will help you answer these questions:  
 Does it matter which way we point the solar cells on our solar vehicle? Does the angle of sunlight on the solar cell affect how much energy it can capture?



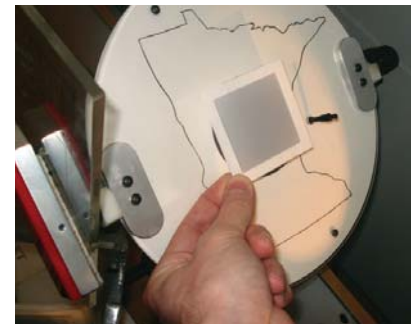
**Setup:**

- 1.) Slide the solar cell in the earth's position with the gray handle.
- 2.) Rotate the solar cell so that the red arrow points to 90°.
- 3.) Turn the knob until the percent of solar power reads 95%.  
 (95% instead of 100% to increase sensitivity)

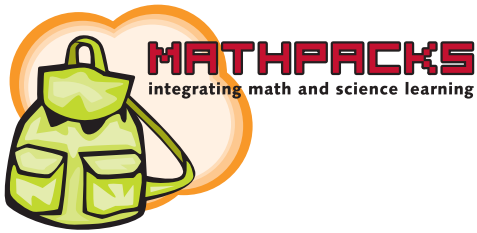


**GRAB** cloud filter. →

For the cloudy day, hold the "cloud" filter over the solar cell.  
 Fill in the chart below.



Angle of sunlight to solar cell	Draw a picture of the light rays and the solar cell	Percent of solar power on a sunny day		(With cloud filter) Percent of solar power on a cloudy day	
		PREDICT	MEASURE	PREDICT	MEASURE
90°		95%	95%		
60°					
45°					
30°					



Names \_\_\_\_\_  
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[3] Angles of Sunlight, continued

At what angles does the solar cell capture over  $\frac{3}{4}$  of the sun's energy on a sunny day?  
On a cloudy day?

At what angles does the solar cell capture over  $\frac{2}{3}$  of the sun's energy on a sunny day?  
On a cloudy day?

At what angles does the solar cell capture over  $\frac{1}{2}$  of the sun's energy on a sunny day?  
On a cloudy day?

Write a sentence or two describing how the angle affects how much energy the solar cell can capture.