

### Math Marvels - Group 1

The two values, intensity of sunlight striking the Earth (Irradiance) and the electrical output of a solar/photovoltaic array are directly proportional to each other. The values below were obtained from the solar array at Endeavour Elementary on May 14, 2013. Fill in the remaining numbers, rounding to two decimal places.

Time	Irradiance ( $\text{wm}^2$ )	Electric Output (kW)
5:00 am	0	0
5:30	2	
6:00	14	
6:30	30	
7:00	90	
7:30	286	
8:00	371	
8:30	527	
9:00	640	
9:30	736	
10:00	827	
10:30	899	
11:00	955	
11:30	998	
12:00 (noon)	1013	
12:30	1017	
1:00 pm	1000	
1:30	978	
2:00	921	
2:30	850	9.18
3:00	768	
3:30	669	

4:00	566	
4:30	425	4.59
5:00	331	
5:30	191	
6:00	65	
6:30	34	
7:00	15	
7:30	2	
8:00	0	0

Graph your results with time on the x- axis. Be prepared to share your graph with the class.

All solar panels and arrays are sized (and rated) by the amount of electricity they produce when the sunlight equals  $1000 \text{ Wm}^2$ . What size array is this?

***Puzzle Me This!***

What was the weather at Endeavour Elementary on that day? Be prepared to share your answer with the class.

The electricity that the solar array produces is used by the school, saving them money. If the school saves 12 cents for every kWh that is produced by the array, how much money did the school save on May 14, 2013? (Hint: kWh - kilowatt hours - is an hour measurement)