Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   Period: \_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Data Discussion for Patterns in Solar Cells

|  |  |
| --- | --- |
| **Research Question:**  How does the angle between the ground and a given solar cell affect the it power produces? | |
| Date: 3/20/2018 (Spring Equinox)  Location: Galapagos Islands (Latitude 0o)  Solar panel: size = 1 m x 1 m, Efficiency: 20% | Date: 3/20/2018 (Spring Equinox)  Location: Oregon (Latitude 45o N)  Solar panel: size = 1 m x 1 m, Efficiency: 30% |
| Equation: | Equation: |
|  |  |
| Date: 3/20/2018 (Spring Equinox)  Location: Alaska (Latitude 85o)  Solar panel: size = 1 m x 1 m, Efficiency: 20% | Date:  Location:  Solar panel: |
| Equation: | Equation: |
|  |  |

|  |  |
| --- | --- |
| Similarities | |
| Differences | |

|  |  |
| --- | --- |
| Prediction Question 1: For the Galapagos solar panel display, what would the power be if you turned it upside down on the roof, that is 180o degrees? Why does this make sense? | Prediction Question 2: For the Alaska solar panel, if instead of tilting it towards the sun you tilted it backwards away from the -95o degrees what would the power be? How could it still be generating a little power? |
| Prediction 1: | Prediction 2: |
| At their respective optimum angles, why is Oregon’s solar panel producing more power than the Galapagos or Alaska solar panel? | |

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| --- | --- | --- | --- |
| In words with some annotated pictures, describe what the values mean the following contexts: | | | |
|  | In the real world, it means | In the graph, it shows up as | In the mathematical model, it is |
| A |  |  |  |
| B |  |  |  |
| C |  |  |  |
| Write out the equation using all words (concepts): | | | |

|  |  |  |
| --- | --- | --- |
| Engineering Design Question:  How could you modify a solar panel to increase the effective A, B, and C values? | | |
| For A: | For B: | For C: |