Performance Based Learning and Assessment Task

Activity/Task Title

I.   ASSESSSMENT TASK OVERVIEW & PURPOSE:
For this activity, the student will work with a group to collect and analyze data about the average yearly temperatures in Southwest Virginia. They will be expected to represent their data in a table, then create a graph from the data. Finally, the students will work together with their to establish an equation that best describes the trend of their data.

II.   UNIT AUTHOR:
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III. COURSE:
Algebra Functions and Data Analysis

IV. CONTENT STRAND:
AFDA, Functions

V.   OBJECTIVES:
AFDA.3 The student will collect data and generate an equation for the curve (linear, quadratic, exponential, and logarithmic) of best fit to model real-world problems or applications. Students will use the best fit equation to interpolate function values, make decisions, and justify conclusions with algebraic and/or graphical models

VI. REFERENCE/RESOURCE MATERIALS:
Calculator, graph paper, internet, "Temperature Math Activity" handout

VII. PRIMARY ASSESSMENT STRATEGIES:
See attached assessment list

VIII. EVALUATION CRITERIA:
See attached assessment list

IX. INSTRUCTIONAL TIME:
Approximately 75 minutes

Temperature Math Activity

Scenario:

You've been chosen to receive an all-inclusive 2 week vacation to anywhere in the world! The only stipulation is, the location you pick, needs to be a common popular vacation spot. You can choose a beautiful island, a big city, or the quietness of a secluded mountain resort. The choice is yours! So, in order to know what to pack, you need to research the average temperatures for your destination during the time you expect to visit.

Directions: (NEATLY answer each question on your own piece of paper. One paper is to be turned in for the entire group.)

1.) You and your team are to decide where you will spend this vacation. Some examples are:

Honolulu, Hawaii

Las Vegas, Nevada

Los Angeles, California

Nassau, Bahamas

Dublin, Ireland

Sydney, Australia

2.) Next, determine how you will evaluate the temperatures for your location. You may choose to travel during a certain month, or certain weeks of the year. The time you travel is up to you. You may use any electronic device that has internet capabilities. Be sure to state where you found your information.

3.) Based on the information you find, you will need to decide how to represent your data. You need to represent your information using two methods.

4.) After you have represented the location's temperatures, you will need to generate an equation that best describes your data. Use that equation to predict what the temperature will be like when you arrive.

Assessment List

Number	Element	Point Value	Self-Assessment	Teacher-Assessment
1	Destination and time period of vacation was identified	5		
2	Appropriately represented the temperature data in two ways	5		
3	Appropriate equation was identified to represent the data	5		
4	Equation was appropriately used to predict temperature during vacation time frame.	5		
5	Work is complete	5		
6	Work is neat	5		

Rubric

#	Element	0	1	2	3	4	5
1	Destination and time period of vacation was identified	No effort	-------------	-------------	--------------	---------------	Identified Destination and time period
2	Appropriately represented the temperature data in two ways	No effort	Incorrectly Represented the Data		Correctly Represented the Data in 1 Way		Correctly Represented the Data in 2 Ways
3	Appropriate equation was identified to represent the data	No effort	Incorrect Equation for Data	------------	------------	------------	Correct Equation for Data
4	Equation was appropriately used to predict temperature during vacation time frame.	No effort	Equation was Not used Correctly	------------	------------	------------	Equation was Used Correctly
5	Work is complete	No effort	Omitted 3 Questions	Omitted 2 Questions	Omitted 1 Question	--------------	Completed
6	Work is neat	No effort	Un-readable	Sloppy	Somewhat Neat	Mostly Neat	Neat and Organized

Student Work/Benchmark

Temperature Activity

1.) Our group decided to travel to Nassau, Bahamas during the month of January.

2.) For our research, we used the site http://www.bahamas.climatemps.com/.

3.) Temperature Table: (Our maximum temperature is 82 and our minimum is 70.)

Month	Temperature
January	70
February	70
March	72
April	74
May	77
June	80
July	82
August	82
September	81
October	79
November	75
December	71

Average Temperatures
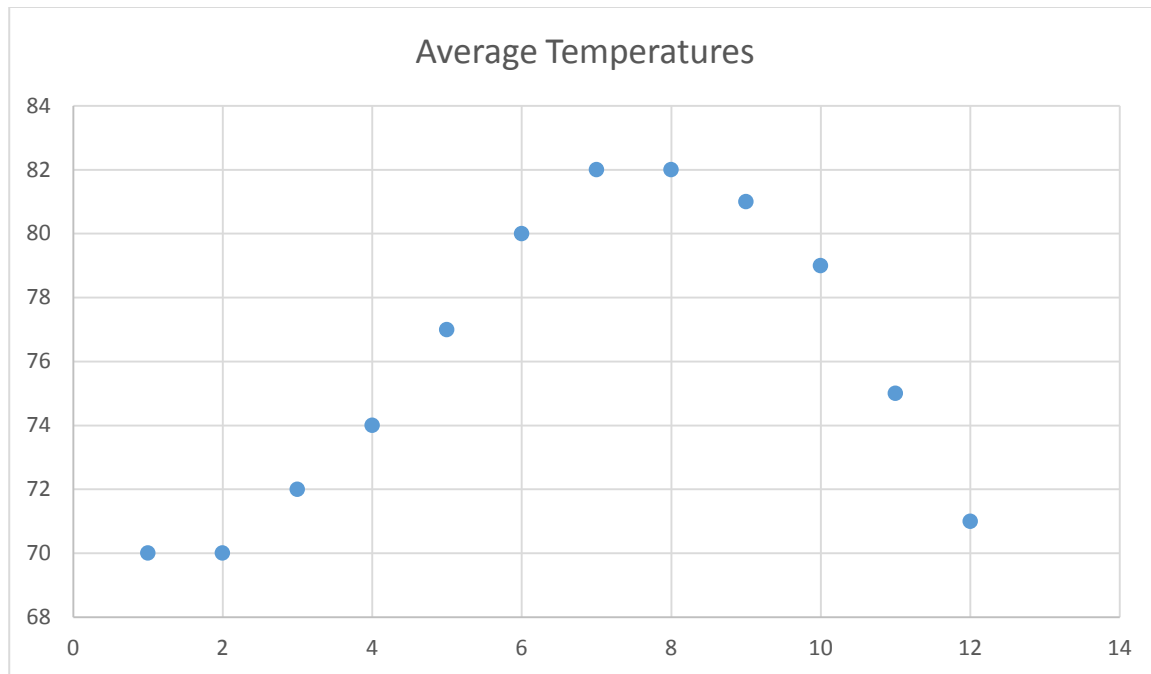
4.) Our equation that best fits our data of temperatures is: $y = -.35x^2 + 5.05x + 62.02$. Based on our temperatures, if we were to arrive in Nassau during the month of January, we can expect temperatures to be in the upper 60s, approximately 68 degrees.