**Subject area/course**: Mathematics/Algebra 1

**Grade level/band**: 8

**Task source**: Virtual Learning Academy Charter School; Adapted by Theresa Morris

**Rising Cost of College Tuition**

**STUDENT INSTRUCTIONS**

1. **Task context**:

Students and families consider many variables when making a decision about which college to attend. Considerations include: what majors are available, proximity to home, family history with a college or university, athletic opportunities, as well as cost.

You and a friend are discussing which university or college is a better financial choice.

To answer this question, you will:

* Select two colleges/universities from the same category
  + Categories include:
    - Community or Technical College (Example: Central Ohio Technical College)
    - State College/University (Example: The Ohio State University)
    - Private College/University (Example: Stanford, Yale, Marietta College)
* Collect data regarding the cost of tuition for both colleges/universities for 15- 20 years
* Create a scatterplot from this data
* Write an equation for the line of best fit for each college/university
* Use the equation to predict the cost of tuition for the years in which you might attend college
* Compare each college to the National Average of tuition for this type of university (Your teacher will provide this data).

You will summarize your decision and justification in class (3-5 minutes) and create presentation material by creating one of the following:

* Power Point presentation
* Summary Report
* Movie or video

1. **Final product**:

* Summarize your decision and justification – short paragraph.
* Create a presentation or report to turn in to your teacher. The following information must be included in the presentation material:
  + Graph(s) showing scatterplots and line of best fit for each university/college and the national average
  + Equation for the line of best fit for both colleges/universities you selected and the national average
  + The predicted cost of tuition at both colleges/universities and the national average for the time period you might attend college.
  + Describe what the slope for the line of best fit tells you about each college.

**Additional Information**

1. **Knowledge and skills you will need to demonstrate on this task:**

* Research and collect data
* Create a scatterplot
* Draw a line of best fit
* Write an equation to represent the line of best fit
* Use an equation to make predictions about future tuition costs
* Research and synthesize information
* Collaborate with peers
* Communicate ideas
* Provide justifications using mathematics

1. **Materials needed:**

* Computer graphing program such as grapher (found on all Macs), sketchpad, Geogebra or Logic Pro, word processing software, a graphing calculator like TI-83/84 or N-spire or a graphing calculator simulator on their computer
* Internet access for research (www.CollegeCalc.org)
* Your teacher will provide data regarding the National Average of Tuition for the type of university/college you select

1. **Time requirements:**

You will have approximately 5 days to complete this task. Your teacher may choose to make changes to the task or adjustments to the time.

This task will be accomplished using the following process:

* **Day 1:** Collect and Research Data on the tuition for two colleges/universities (from the same category) and begin to create scatterplots.
* **Day 2:** Finalize scatterplots from the Data, draw a line of best fit, and write an equation for each line
  + For both colleges/universities selected
  + National average for tuition for the category you selected (teacher will provide data)
* **Days 3- 4:** Decide which of the two colleges/universities you selected is the better financial decision and create a class summary and a presentation material to share your decision and justification. Include in your justification what the slope for the line of best fit tells you about each college.
* **Day 5:** Class Presentations

1. **Scoring:**

Your work will be scored using the SCALE Mathematics Performance Assessment Rubric and the SCALE Effective Communication Oral Presentation Rubric. You should make sure you are familiar with the language that describes the expectations for proficient performance.

**List of Colleges/Universities by Category**

**Community College**

* Central Ohio Technical College
* Cincinnati State Technical and Community College
* Columbus State Community College
* Cuyahoga Community College
* Edison State Community College
* Lorain County Community College
* Marion Technical College
* Owens Community College
* Sinclair Community College
* Terra State Community College

**State College/University**

* Bowling Green State University (main campus)
* Cleveland State University
* Kent State University at Kent
* Miami University Oxford
* Ohio State University (main campus)
* University of Cincinnati (main campus)
* University of Toledo
* Wright State University (main campus)

**Private College/University**

* Denison College
* Franciscan University of Steubenville
* Harvard University
* John Carroll University
* Marietta College
* MIT
* Princeton University
* Stanford University
* University of Dayton
* University of Northwestern Ohio
* Xavier University