**Subject area/course**: Mathematics/AP Statistics

**Grade level/band**: 11-12

**Task source**: Summit Public Schools

**Regression Project**

**STUDENT INSTRUCTIONS**

1. **Task context**:

*How do we use the relationship between two variables to predict an outcome? How can we determine if this prediction is reliable?*

When can you make a reliable prediction? How many days in advance can a meteorologist predict the weather? Can you predict your favorite baseball player's performance this year using last year's results? Would you be willing to put your reputation or money on your predictions? There are analysts in many different fields whose main focus is making predictions based on past data. However, just giving predictions is not enough. These professionals have to explain if their predictions are reliable or not because people will take action according to those predictions. So, their word and analysis directly affects the actions and viewpoints of individuals.

1. **Final product**:

For this task, you will be creating a presentation in which you will be making a prediction on a certain topic, and sharing how reliable that prediction is. The most important part of this presentation is to choose a question you are actually curious about. What will the cost of gallon of gasoline be in July? Or how many total content assessments will your grade pass before the end of the month?

Once you have picked a topic you are interested in, you need to find a bivariate data set that could help you calculate your prediction. Organize and interpret your data appropriately and clearly identify patterns that describe the relationship between the two variables in your data.

Then you need to create a regression model that summarizes the relationship between your variables and will allow you to make predictions into the future. However, you will be asked to analyze how reliable is your prediction and explain your reasoning by using appropriate statistical values and terms.

Lastly, you will organize your entire process in an oral presentation that will be shared with your teachers and peers, in which you will also discuss what you will focus on, what you were curious to predict, and why you are interested in the topic or issue you decided to focus on.

**Additional Information**

1. **Knowledge and skills you will need to demonstrate on this task:**
* Creating and analyzing strong models facilitate an understanding that different variables are correlated and allow us to make reliable predictions.
1. **Materials needed:**
* Item A. Data Sets Graphic Organizer
* Item B. Predictions Graphic Organizer
* Access to a computer and the internet for research
1. **Time requirements:**

This task will take approximately 3 weeks to complete.

1. **Scoring:**

Your work will be scored using the Summit Public Schools Regression Project Rubric. You should make sure you are familiar with the language that describes the expectations for proficient performance.