Project: The Mathiness of Truthiness

Essential Question: How can a mathematical lens help us to deeper unpack the assumptions we make about the world and seek after truth?

The Mathiness of Truthiness

A Bivariate Stats Newspaper Project

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How can a mathematical lens help us to deeper unpack the assumptions we make about the world and seek after truth?

Part 1: WORLD NEWS

Data Analysis from graphs found on the internet

1. CHOOSE a current event topic

2. FIND two different graphs (1 per person) from the internet about your current event topic.

3. ANALYZE your graphs by answering the following questions:

- ❖ What is going on with this graph?
- ❖ What data might have been collected to make this graph?
- ❖ How much data was collected to make this graph?
- ❖ Is there or could there be a trendline for this graph? What might it be?
- ❖ What would the r2 (R-squared) value be for the graph?
- ❖ What is the "story" of this graph?

Part 2: LOCAL NEWS

Data Collection & Analysis for your original research study

1. BRAINSTORM (on post-its) as many quantitative variables (the result is a NUMBER!) related to your topic as you can (aim for 10 post-ts between the two of you)

(insert pic of brainstorm here)

2. CREATE at least 3 questions (by connecting your current event topic to our class). Example: (Current Event Topic: Public Lands Heist. Question: On a scale from 1-10, how happy are you? How many National Parks have you visited?)

(insert 3 questions here)

2. MAKE a hypothesis about what data results you will get from your question(s).

(write at least 2 hypotheses here)

3. CREATE a google form with your question and SHARE it in the google classroom stream.

(add the link to your google form here)

4. COMPLETE all google forms from your classmates.

5. CREATE google sheet AND insert a scatter plot GRAPH(S) of your data

❖ Your scatter plot should have the following:
   ➢ o Regression line (trendline)
   ➢ o Linear equation
   ➢ o R^2 value
   ➢ o Properly and completely labeled title and axis (including units)

6. CREATE a data table showing all of the data you collected

7. COMPLETE analysis of graphs by answering the following questions:

❖ Did your data have any outliers? Explain.
❖ Does correlation imply causation in this situation? What other variables could be affecting the outcome?
❖ Explain (thoroughly) what data you collected, how you collected it and how you can use it to answer your question
❖ An explanation as to which variable is independent and which is dependent
❖ What is the regression equation?
❖ Is there correlation between the variables? Why or why not? Use specific math calculations and/or explanations.

Learn more at hthgse.edu/unboxed/pbl_kits/

Part 3: EDITORIAL

Conclusion questions

1. CREATE a 2 or 3-paragraph Editorial by answering at least 5 of the following questions:

Questions for the editorial:
- ❖ Describe the data you found in your research phase. Were you surprised by your initial findings and the different ways that information was shared?
- ❖ Were any of your graphs contradictory?
- ❖ Answer your initial project question in a full sentence and explain using the data you collected.
- ❖ Was your hypothesis correct? Why or why not? Explain.
- ❖ Knowing that you have an independent value of _____, find the corresponding dependent value using your regression equation.
- ❖ Knowing that you have a dependent value of _____, find the corresponding independent value using your regression equation.
- ❖ What factors contributed to your outcome?
- ❖ What problems or challenges did you face during this data collection?
- ❖ Did anything surprise you?

Part 4: CREATE GOOGLE DRAWING NEWSPAPER

Design and Summarize Learning

1. OPEN Google Drawing - Make Template 12 inches (width) by 18 inches (height)
2. CHOOSE Name of Newspaper
3. ADD date & headline for newspaper
4. ADD Graphs, Pictures & Analysis
5. ADD Editorial
6. ADD Glossary (this will be the back of your newspaper where you summary your learning of our bivariate statistics unit). Define each
7. ADD partner names.
8. Get Peer Feedback
9. REVISE Newspaper based on peer feedback
10. PRINT final newspaper on newsprint paper.