

COMPUTER SCIENCE & DIGITAL FLUENCY SMART START GRANT LESSON PLAN

Date: April 2026		Unit/Lesson: <u>Unit 1: Analyzing and Modeling Data</u> Project: Quantitative Data Project	
Approximate Time (in minutes) to complete lesson: 2 days (approximately 78 minutes)		Grade Level: 12th Grade - ACE Statistics	
Materials and/or Resources: Quantitative Data Project Stapplet Canva		CSDF Concept/Standard Addressed: <input checked="" type="checkbox"/> Impacts of Computing <input checked="" type="checkbox"/> Computational Thinking <input type="checkbox"/> Networks and Systems Design <input type="checkbox"/> Cybersecurity <input checked="" type="checkbox"/> Digital Literacy	
Student-friendly “I Can” Statements: <ul style="list-style-type: none"> • I can design a realistic salary structure for a 10-person company that meets specific financial constraints (\$1 million total budget). • I can calculate and interpret the five-number summary (Min, Q1, Median, Q3, Max) and identify outliers for a quantitative dataset. • I can construct accurate dot plots and box plots to represent the distribution of employee salaries. • I can use the CSOCS framework (Context, Shape, Outliers, Center, and Spread) to compare my company's salary distribution with a classmate's. • I can ensure my digital advertisement meets accessibility needs (such as high-contrast colors and clear fonts) for a diverse range of potential employees. • I can use digital tools (like Stapplet) to visualize salary data. • I can independently select and use advanced features within Canva to create a complex digital artifact (flyer or advertisement) that effectively markets my company. 		Vocabulary Words: Quantitative Data Measures of Center Median Mean Measures of Spread Variability Range Interquartile Range (IQR) Five-Number Summary Outliers CSOCS Relative Frequency Skewed Dot Plot Stem Plot Box Plot	

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ENGAGING THE LEARNERS

Students are engaged through a Project-Based Learning approach that grants them agency as CEOs of their own company. By navigating the real-world constraint of a \$1 million budget, students need to think about what types of jobs they will need at their company and what is a fair salary to offer. This project offers students a lot of choice and investigation. The students are encouraged to look at advertisements of job offerings and see what they are drawn to and want to bring to their own company. This project also allows students to compare different data sets amongst the class. The students will learn about accessibility when designing in Canva.

EXPLORING THE CONCEPT

Students have already been instructed on the different types of graphs and how to analyze or compare using the CSOCS criteria. Students are exploring from the beginning of this project by discovering the types of jobs they need, researching fair salaries for the jobs and the types of advertisements that they include. Day 1 is really about exploring and creating their dream company. It is supported through the use of tools like Stapplet or spreadsheets. Students are plugging in salaries and seeing, in real-time, how massive salaries for the CEO creates outliers and impacts their data set.

During this time, I am circulating and answering any questions that they have. It is interesting to listen to the students justify their salary choices. Many times students end up researching whether or not they can have unpaid interns at their company because they run out of money.

The exploration wraps up with a quick turn and talk with a peer to discuss the following:

1. What was the hardest part about balancing your \$1 million budget? If you gave one person a huge salary, how did that impact your data set?
2. Look at your classmate's dot plot. Based only on the graph, would you want to work there? Why or why not?
3. Did the digital graph look the way you expected it to based on your list of numbers? What surprised you about the shape of your company?

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EXPLAIN THE CONCEPT(S)

Once the initial exploration we transition into putting it all together and start talking about the power of the story they tell. I bring the class together to formalize what they've seen: that every choice they made with a salary wasn't just a budget line, it was a data point and has an impact on their company's distribution.

Students will share their distribution and graphs with a peer in order to compare. I want the students to see that while a dot plot shows every individual salary, a box plot reveals the big picture of equity and spread. We use the CSOCS framework (Context, shape, outliers, center and spread) to analyze the distributions.

Finally, we shift gears into the digital world. As they prepare to jump into Canva, we discuss the concept of features that would be necessary on an advertisement. They explore different advertisements and decide what they would like to include on their own. We talk about bias and how that can look in different advertisements. We also tackle accessibility, discussing why choosing a readable font or a high-contrast color palette isn't just about looking good, it's about making sure their company's story is inclusive and professional for every potential hire.

ELABORATE

Extension idea:

Use AI as a thought partner or an "AI Consultant".

This isn't about the AI doing the work for them, it's about using the AI as a sounding board to uncover blind spots in their data and design.

Students will reflect on the following questions:

1. What was the most surprising red flag the AI found in your salary distribution?
2. Where did you disagree with the AI's feedback? Why do you think your human perspective was more accurate than the data analysis the AI provided?
3. Based on the AI's critique of your advertisement, what is one specific change you made to make your company more appealing to a diverse workforce?

EVALUATE: Assessment of Student Knowledge:

Informal (observation, student work sample, etc..)

Formal (formative or summative)

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Homework / Notes / Reflection:

Homework: Students would need to submit their work by the deadline. Anything that isn't finished in class would need to be completed as homework.

Reflection: Students are reflecting throughout the lesson with peers, individually and with an AI thought partner.