

## Data Visualization Best Practices Workshop Teacher Report

**Name:** Kathryn Thompson

**Area(s) of Teaching:** Math, Computer Science

**Where You Teach:** La Salle Academy

**Please describe your activity goal:**

The goal of this activity is to introduce students to data visualization. It is intended for a computer science class (comprised of 11<sup>th</sup> and 12<sup>th</sup> graders) where students have had little to no exposure to data visualization before. By the end of the activity, students will be able to explain what data visualization is, identify good versus bad visualizations, and create a pie chart based on Census Bureau data.

**What is the intended visualization?**

Students will look at several visualizations (pie charts, bar graphs, line graphs, etc.) to talk about what is good or bad about them. Then they will create a pie chart.

**Please provide the activity wordings presented to the students:**

Data, Data visualization, Pie Chart, Bar Graph, Line Graph, Cleaning data, Big data

**Please describe the nature of the activity (e.g. In class activity? Homework? Something else) and the rationale behind your choice.**

Students will complete most of this activity during classtime, with the option to do some work at home before their presentations. This is because I think there will be a lot of discussion about what data visualization is, and what makes a visualization good versus bad. There will also be some collaboration when students work together to create their pie chart, and this is best done during class.

**Were students engaged?** This activity has not been completed yet, but I anticipate that students will be engaged. This activity has tons of real-world applications and encourages collaboration among students, which are two qualities of an engaging activity.

**What is/are the dataset(s) that will be used for the activity? How will students access the dataset(s)?**

The first part of the activity will involve looking at charts/graphs that have already been created, so they will not need to see the raw data for this. I will direct them to explore <https://junkcharts.typepad.com/> in order to see some examples of bad graphs. We will then talk about why they are bad/misleading.

The data set that will be used for the second part of the activity is Foreign Born Population data from the US Census Bureau (accessible at the link below). I will provide the link to my students, but I will also give them some time to explore the US Census Bureau website to see how many data sets are available and what kind of information we can learn through them.

<https://data.census.gov/cedsci/table?q=Foreign%20Born&hidePreview=false&t=Foreign%20Born&tid=ACST1Y2018.S0502&vintage=2018>

**What tool(s) are students going to use? How will students have access to the tool(s)?**

Students will use Google sheets as the primary method of looking at and manipulating the data. This is because my school is BYOD (bring your own device) so the tools we use need to be web-based and accessible by all devices, including Chromebooks. I will start by demonstrating how Google Sheets works and creating my own example of a chart before directing them to work with the US Census Bureau data to create their own chart.

For advanced students who finish early or are looking for more interesting graph displays, I may direct them to Infogram so they can play around with more complex tools. This part is optional.

**How are you going to grade the activity? (e.g. Rubric)**

I will use a rubric to grade the activity. The criteria that I plan to use are:

- Contribution to classroom discussion about good versus bad visualizations (this can be submitted through writing for students who do not feel comfortable talking out loud)
- Pie chart is clean, aesthetically pleasing, and easy to understand
- Pie chart displays accurate data based on the US Census Bureau website

- Written responses to follow up questions are thorough and reflective.
- Written responses demonstrate an understanding of what makes a good data visualization.

**Do you think you will keep incorporating data visualization in the future?**

I will definitely continue to incorporate data visualization in the future. I think it is beneficial for all students to be exposed to this field. Not only is it interesting and relevant, but it will allow them to see how data is used in so many career fields. Ultimately, I would love to start incorporating data visualization into my Algebra class to get them exposed to these ideas at an even earlier age.