

5.5 Visuals and Information Visualization

Related Area(s): Technology

Lesson Objective(s): The objective of this lesson is to teach students about using their information in a visual way.

Outcome Goal(s): Students will have a component of their paper visualized.

Instructor Preparation Checklist

☐ Supplies and Tasks	Materials and Resources
Media & Audio	John Snow: https://www.youtube.com/watch?v=Pq32LB8j2K8 What is data visualization: https://www.youtube.com/watch?v=YaGqOPxHFkc PBS Data Visualization: https://www.youtube.com/watch?v=AdSZJzb-aX8 Video on Data Manipulation: https://www.youtube.com/watch?v=sxYrzy3cq8 Visualize This: https://www.youtube.com/watch?v=mkEXx7sDXAI
Websites	https://venngage.com/blog/9-types-of-infographic-template/ Adobe Spark: https://spark.adobe.com/ Tableau Public: https://public.tableau.com/en-us/s/
Read/Review	
Field Trips/Co-op/Outings	
Supplies Needed	
Print/Copy/Laminate	
Miscellaneous	
Additional Notes:	

Warm Up: What is Data Visualization?

Description: Show students the video [John Snow and the cholera outbreak of 1854 with Mike Jay](#) and discuss how statistical analysis and mapping were critical in figuring out how cholera was spreading in London. Sample Questions:

- Do you think that without John Snow's map, people would have realized how the cholera was spreading?

- How does putting data into visual form help us to understand information differently or sometimes better?
- When have visuals helped you to understand something better?

Purpose/Key Skills: The purpose of this activity is to show students the benefits of visualizing data and how it can make information more accessible. As in the John Snow case, visualization can even be a key component in problem solving.

Notes/Vocabulary: visualization, data

Materials:

Source: <https://www.youtube.com/watch?v=Pq32LB8j2K8>

(1) What is Data Visualization?

Description: Have students watch two videos and then participate in a class discussion:

Sample Questions:

- What does it mean to interpret data?
- What are the benefits of representing data visually?
- Has there ever been a time when students have struggled with a concept in words and understood it better visually?

Purpose/Key Skills: The purpose of this activity is to introduce students to the concept of data visualization, which is becoming increasingly important in the workplace. Data visualization is a tool that they can use to make information accessible to their audience, particularly when they have a presentation where they need to get complicated ideas across quickly.

Notes/Vocabulary: data visualization, data, graphic, infographic

Materials:

What is data visualization: <https://www.youtube.com/watch?v=YaGqOPxHFkc>

PBS Data Visualization: <https://www.youtube.com/watch?v=AdSZJzb-aX8>

(2) The Perils of Visualization

Description: Show students a video on how data visualization can be used manipulatively to persuade the viewer of an idea. Sample Questions:

- Can you manipulate a set of data to benefit your own agenda? How?
- Why is this practice ethical or unethical?

- Have you seen examples of this? Where?

Purpose/Key Skills: In a world where decisions and opinions are formed quickly based on data, it's important for students to develop a discerning eye when looking at information. This activity makes them aware of the ways in which they could be deceived.

Notes/Vocabulary: lurking variable, hidden factor, Simpson's Paradox

Materials: Video on Data Manipulation: <https://www.youtube.com/watch?v=sxYrzy3cq8>

(3) Visualization Planning and Exploration

Description: Have students explore the kinds of infographics on Venngage to understand what kind of infographic might benefit their information. Tell them to keep their Career Research Project in mind as they pick out a format that works for them.

Sample Questions:

- Where have you seen these kinds of infographics before?
- What kind of infographic do you think would best suit the information in your career research paper?
- How do you think that visuals would affect how the viewer perceives your information?

Then have them watch the video [Visualize This](#) on planning their data visualization and telling a story with data.

Purpose/Key Skills: This activity will help students to consider how they will use data visualization to supplement work they've done on their career research project.

Notes/Vocabulary:

Materials: Video: <https://www.youtube.com/watch?v=mkEXx7sDXAI>

Venngage: <https://venngage.com/blog/9-types-of-infographic-template/>

(4) Visualize Your Information

Description: Have students explore free data visualization or graphic design sites such as Adobe Spark and Tableau Public. If the school has access to paid systems, those may be used as well. Then have them produce a one-page graphic to go with the essay they've written about their potential future career.

Once students have finished, display the graphics and essays in a classroom museum and allow

students to walk through and look at one another's work. Consider asking the class to describe some of the ways that their classmates' work helped them to understand an idea about the career he/she wrote about.

Purpose/Key Skills: This activity will allow students a very brief introduction to using visualization to explain information. Looking at one another's work will give students an opportunity to see other's creativity and get ideas for future projects. Students may wish to use what they've learned in this exercise in their final project.

Notes/Vocabulary:

Materials: Computer Lab

Adobe Spark: <https://spark.adobe.com/>

Tableau Public: <https://public.tableau.com/en-us/s/>

Formative Assessment

☐	Skill Description and Assessment	Notes
	Student has participated in class discussion on information visualization	
	Student has created information visualization of their own work	