

# Data Visualization Summary

## *Overview for the ASSURE REU*

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As you craft visualizations, first ask yourself:

### **1. Is the graphic explanatory or exploratory?**

- **Explanatory** – you are trying to make a point, ask yourself what is the point you are trying to make?
- **Exploratory** – you are inviting the viewer to explore the dataset, make their own inferences

*Often the very first graphics you make in your work and research will be **exploratory** and then you finalize into an **explanatory** graphic.*

### **2. How will this graphic be used?**

- In an oral presentation you want something understood without much staring at the data – simplicity is best in this case
- In a paper or a written document – perhaps more detail that invites the viewer to explore is better.

*Know your audience, what do they know? What do they need explained?*

### **3. What is the first thing you want them to see?**

- Graphics have a “flow” to them. Most audiences are familiar with bar charts, line plots etc – if you want to get creative try to make the viewer know where to look and what the message is for them.

Once you’ve an idea of what you are presenting, and to whom, consider the following design elements:

**Compose** What relationships are you highlighting?

- Organizing elements, defining relationships

**Abstract** How are you representing relationships?

- Define and represent meaning

## **Color**

- Choose your color(s) to highlight relationships, label, attract or downplay interest
- Often we spend the most time in visualizations on color: color tends to be one of the first things we notice.

**People see, and process information, differently from each other.**

Some general guidelines:

- Try to avoid red and green colors in combination
- Bright and harsh color contrasts (e.g. bright green vs muted green) can be challenging for sensory sensitivities

Some useful tools for simulating various color blindnesses:

- ColorOracle [colororacle.org](https://colororacle.org)
- VizPalette [projects.susielu.com/viz-palette](https://projects.susielu.com/viz-palette)

## **Layer**

- Overlap multiple levels to represent relationships

## **Refine**

- Edit and simplify to the most direct communication possible

**Happy Visualizing!**