

July 13, 2021

## Announcements

- Thursday, July 15, 9:00 am

Dr. Kate MacDuffie - Neuroethics Seminar



- Stipends?
- Photo for CNT article

# Graphics, Images and Figures

Posters | Talks | Papers

## Why?

- First impression of your work
- Reflects on you, your lab, your institution
- Poor images may reduce the impact and opinion of your work even if the science is solid.

# Graphics, Images and Figures

## Before you start:

- Know the requirements
  - Poster size?
  - Journal limitations?
  - Color or B&W?
  - Single or double column?
- Know the purpose of your figures
- Gather the necessary data
- Know your equipment (e.g., microscope, image editing software, etc.)



# Formatting Figures

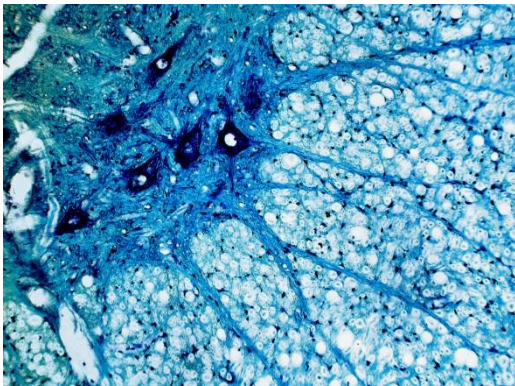
- Save at high resolution, correct format

**YES: TIFF, SVG**

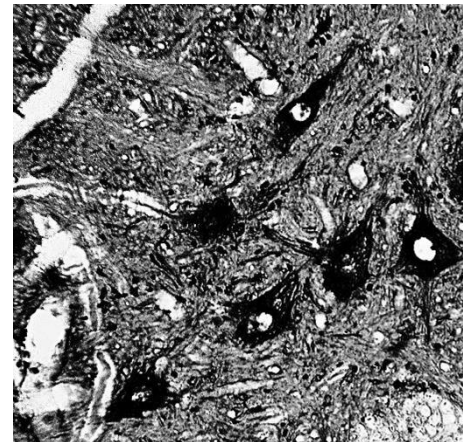
Avoid: JPEG, PNG, GIF or BMP

600 dpi or higher (sometimes 1200 dpi)

- If you alter an image (crop, tint, rotate, sharpen, etc.), then save the original image.



Original

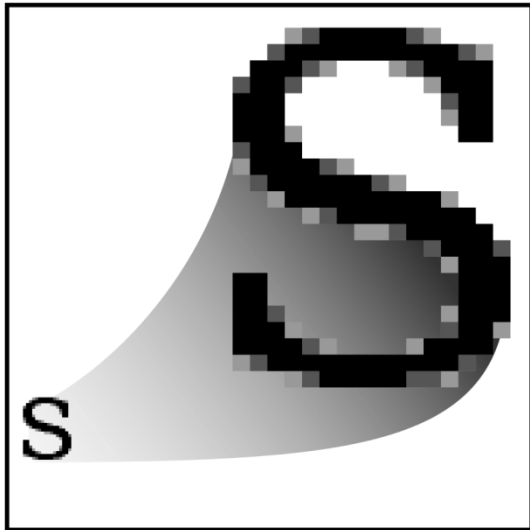


Edited

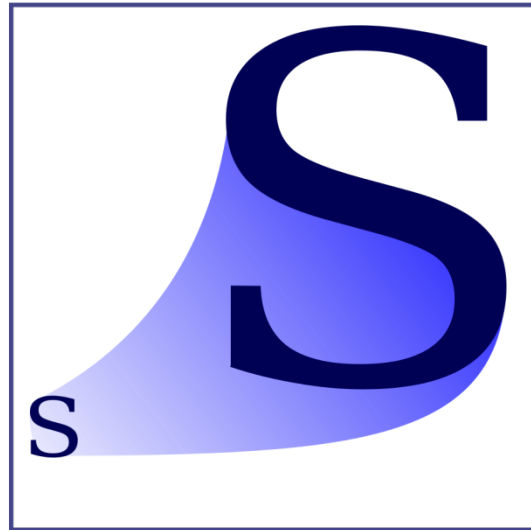
# Vector vs Raster Graphics

Raster Data: pixels (bitmap data)

Vector Data: set of instructions



**Raster**  
.jpeg .gif .png



**Vector**  
.svg

JPEG = Joint Photographic  
Experts Group

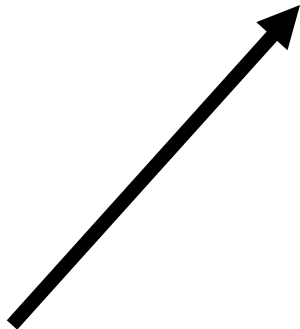
GIF = Graphics Interchange  
Format

PNG = Portable Network  
Graphics

SVG = Scalable Vector  
Graphics

# Beware!

## JPEG



# Publication Quality Figures

## Tools:

- Photoshop (Adobe) - \$\$\$
- Illustrator (Adobe) - \$\$\$
- R (<https://www.r-project.org/>) - Free
- Inkscape (<https://inkscape.org/en/>) - Free



# Other Image Editors

- GIMP - <https://www.gimp.org/> - Free
- Paint.net - <https://www.getpaint.net/> - Free



paint.net

# Fonts

- Size?
- Style?

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Tellus integer feugiat scelerisque varius morbi. Elementum sagittis vitae et leo duis ut diam. Turpis massa tincidunt dui ut ornare lectus sit. Sit amet mauris commodo quis imperdiet massa tincidunt. Congue eu consequat ac felis donec et odio pellentesque.

Labels – Short Text - Projection

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Tellus integer feugiat scelerisque varius morbi. Elementum sagittis vitae et leo duis ut diam. Turpis massa tincidunt dui ut ornare lectus sit. Sit amet mauris commodo quis imperdiet massa tincidunt. Congue eu consequat ac felis donec et odio pellentesque.

Print - Paragraphs

# Fonts

- Size?
- Style?

Avoid!

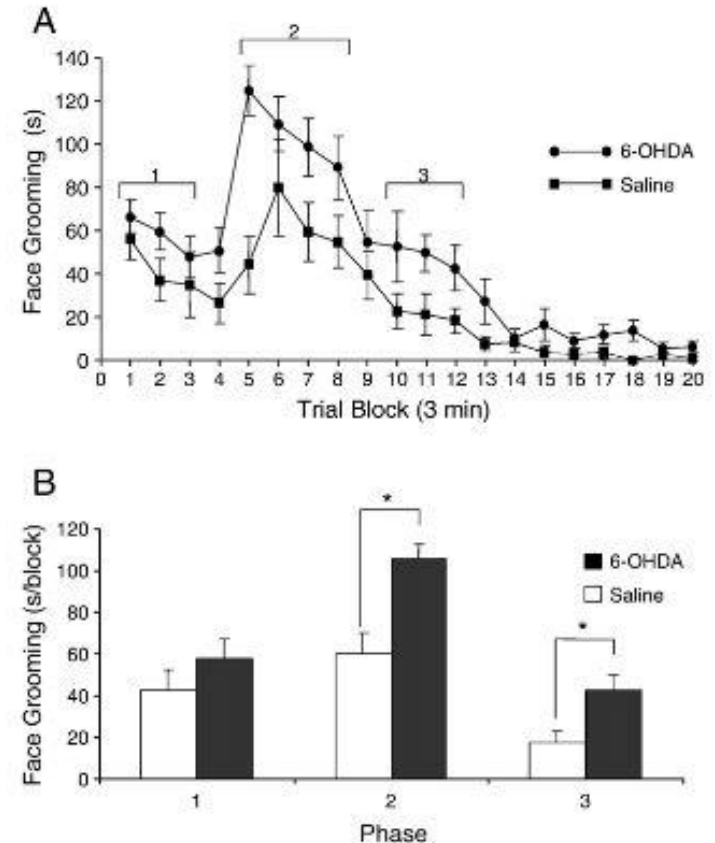


Lorem ipsum dolor sit amet,  
consectetur adipiscing elit, sed  
do eiusmod tempor incididunt ut  
labore et dolore magna aliqua.  
Tellus integer feugiat  
scelerisque varius morbi.  
Elementum sagittis vitae et leo  
duis ut diam. Turpis massa  
tincidunt dui ut ornare lectus  
sit. Sit amet mauris commodo  
quis imperdiet massa tincidunt.  
Congue eu consequat ac felis  
donec et odio pellentesque.

*Lorem ipsum dolor sit amet,  
consectetur adipiscing elit, sed do  
eiusmod tempor incididunt ut  
labore et dolore magna aliqua.  
Tellus integer feugiat scelerisque  
varius morbi. Elementum sagittis  
vitae et leo dui ut diam. Turpis  
massa tincidunt dui ut ornare  
lectus sit. Sit amet mauris  
commodo quis imperdiet massa  
tincidunt. Congue eu consequat  
ac felis donec et odio pellentesque.*

# Figure Legends

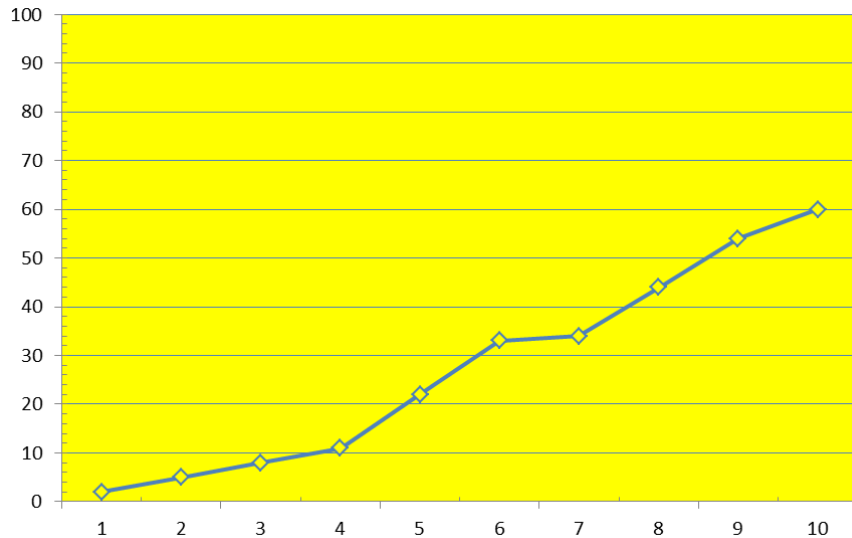
- ALL figures should have legends.
- Legend should have enough information to stand on its own.



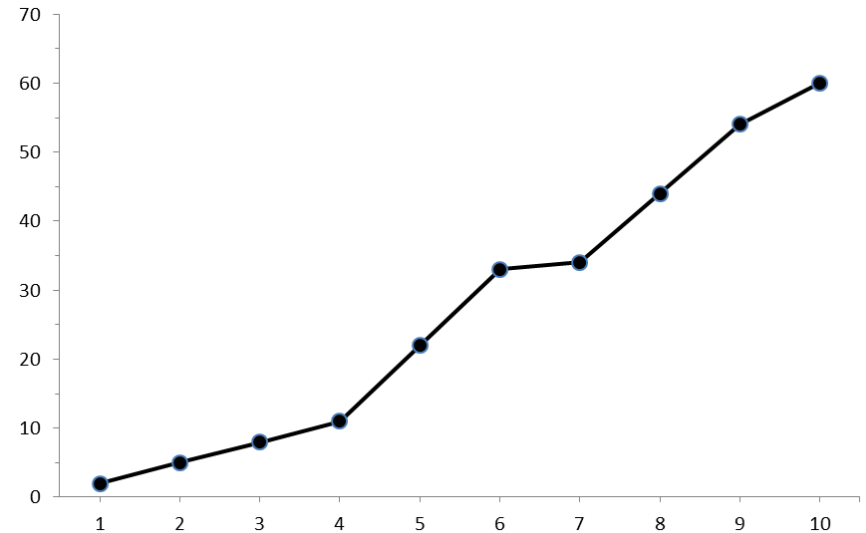
**Fig. 2 – Effect of unilateral, intrastriatal 6-OHDA administration on Formalin-induced facial scratching.** **A:** Time course of facial scratching and grooming represented in blocks of 3-minute intervals after the Formalin was injected into the upper lip. The duration of Phase 1, 2 and 3 are indicated brackets above different data points. **B:** Averaged facial scratching and grooming during Phase 1, 2 and 3 after Formalin was injected into the upper lip. Data are presented as the mean  $\pm$  se; (\* =  $p < 0.05$ , t-test.)

# Remove Unnecessary Elements

Before



After



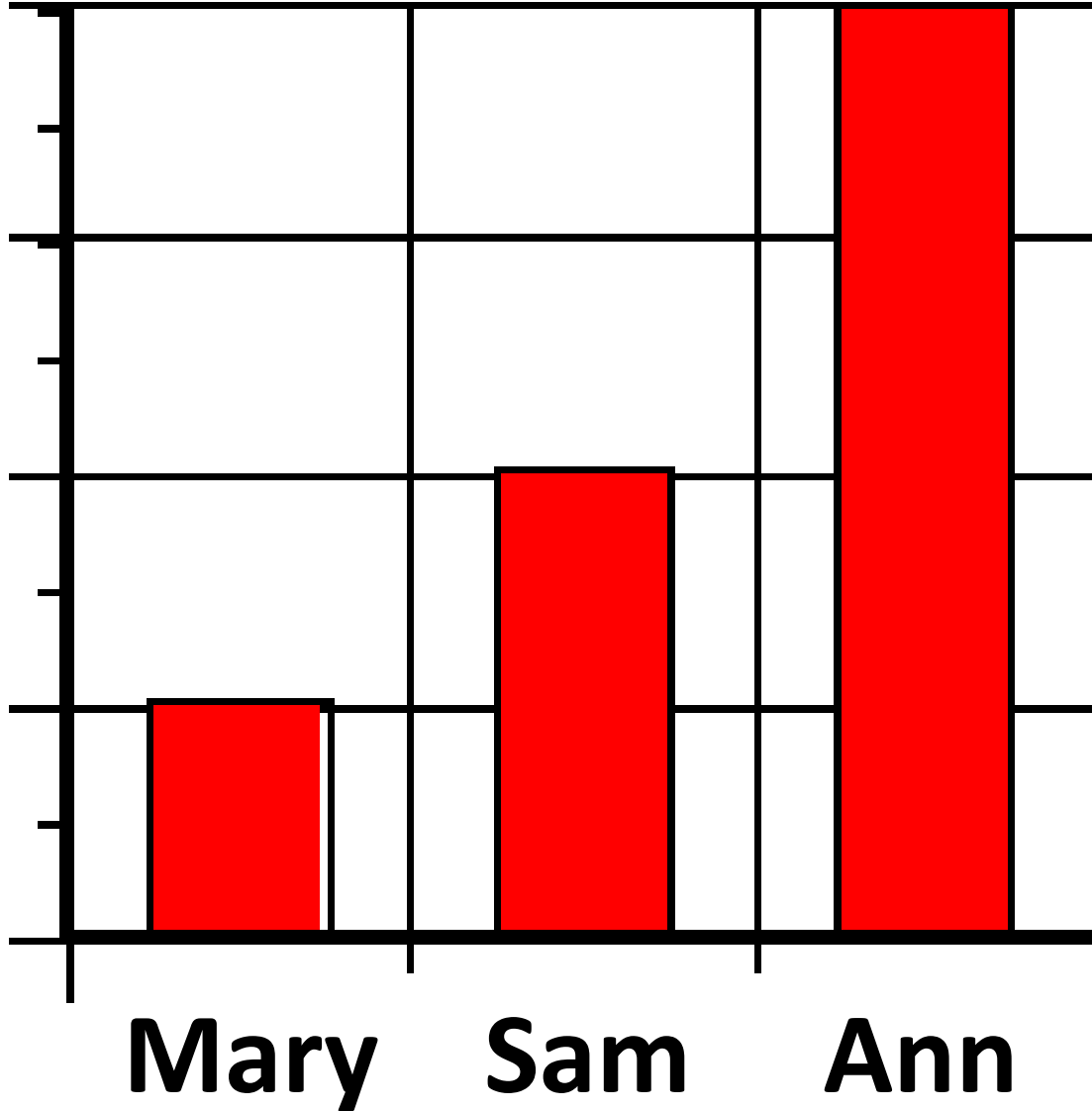
How would you improve this figure?

# Misleading Graphics



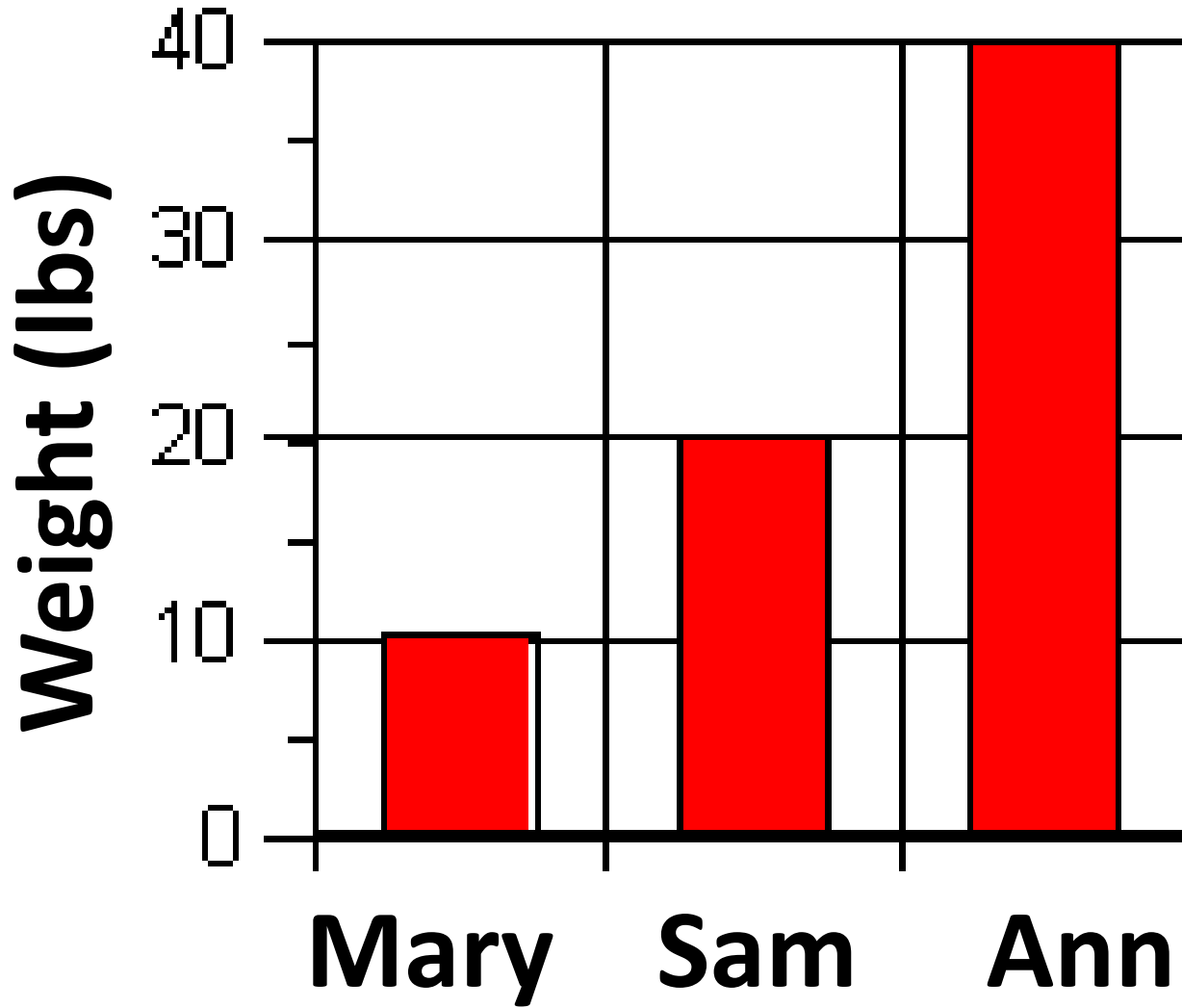
Pumpkin  
size

# Misleading Graphics



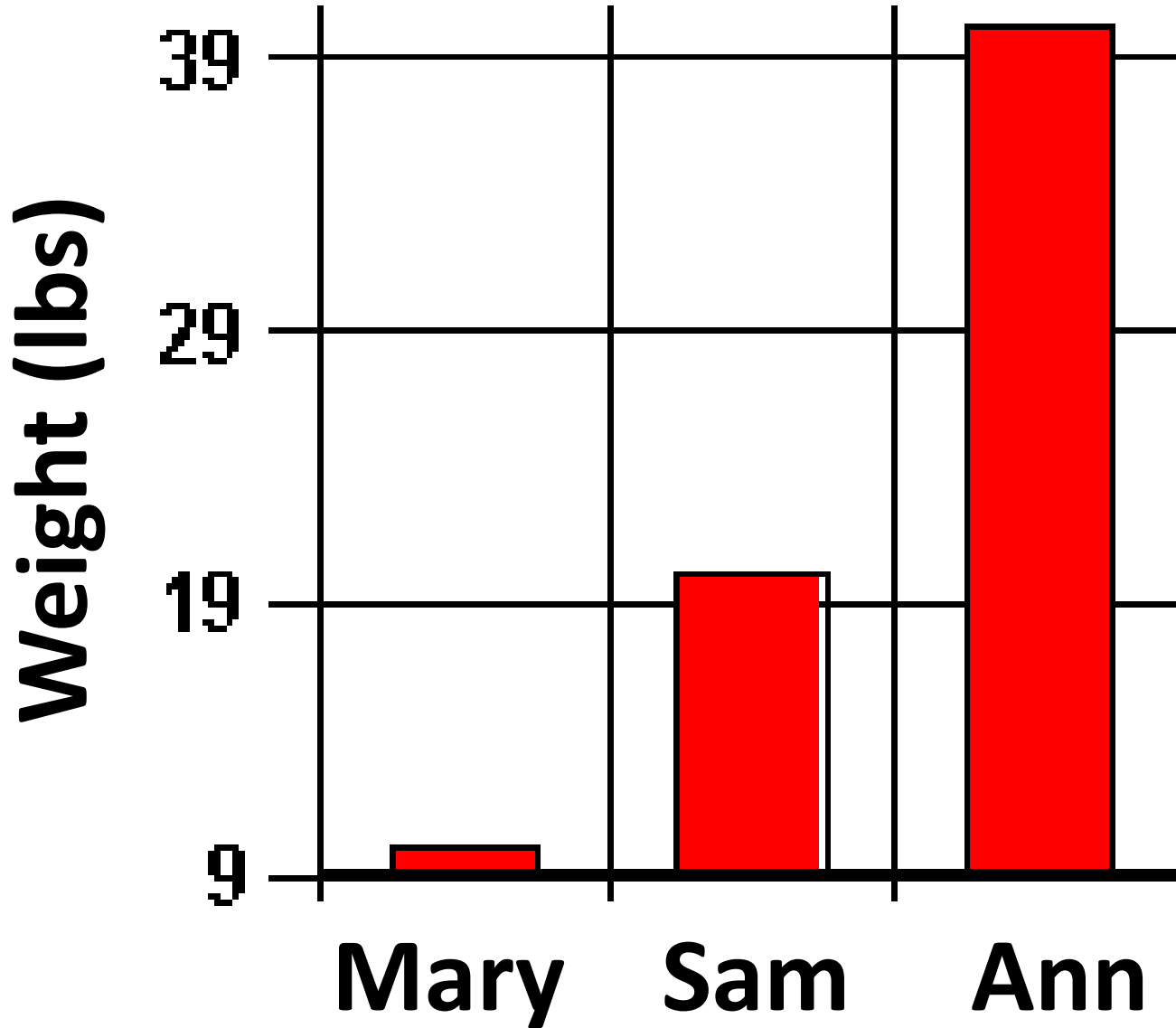
Pumpkin  
size

# Misleading Graphics



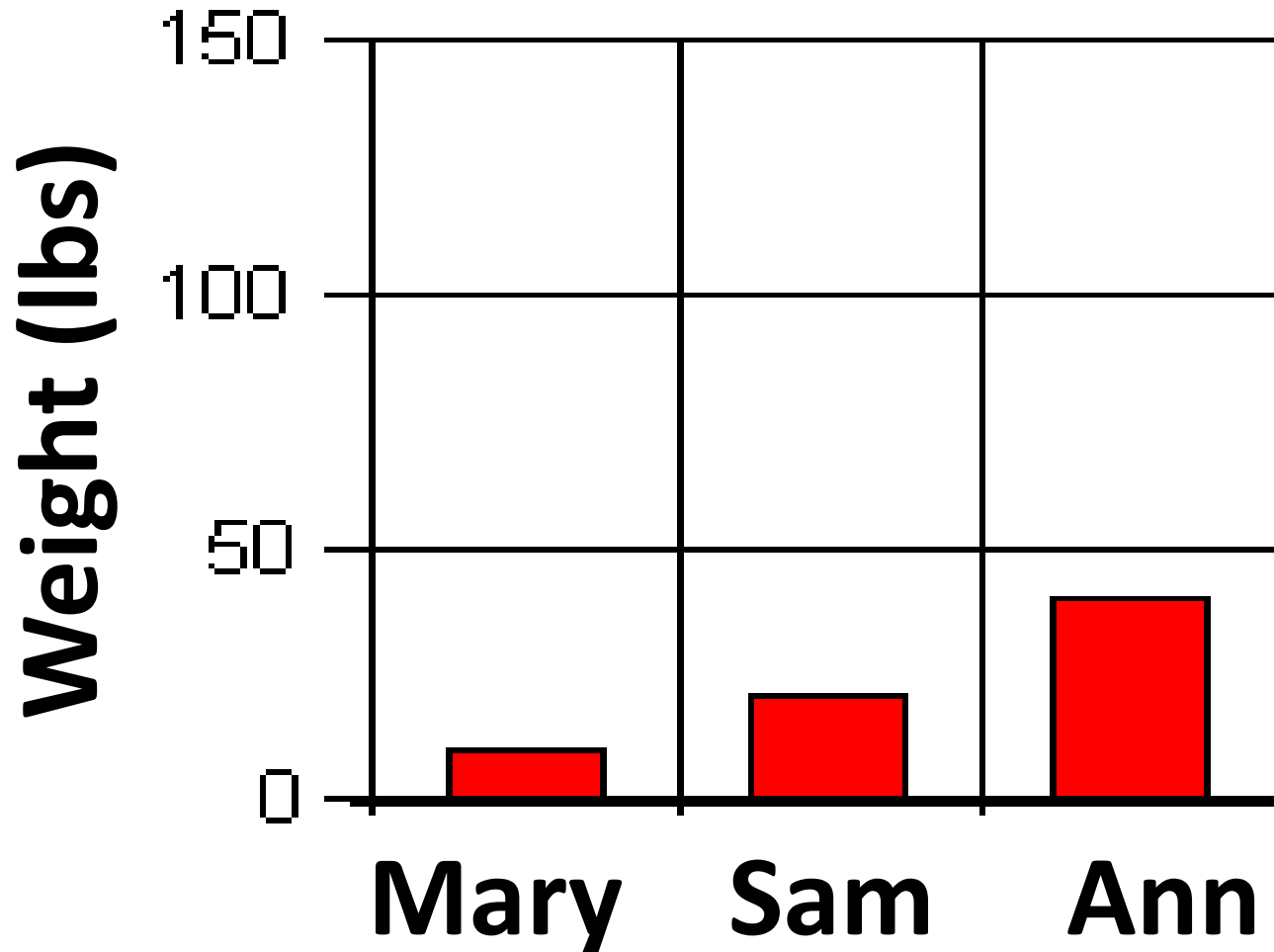
Pumpkin  
size

# Misleading Graphics



Pumpkin  
size

# Misleading Graphics



Pumpkin  
size

# Misleading Graphics



**Mary**



**Sam**



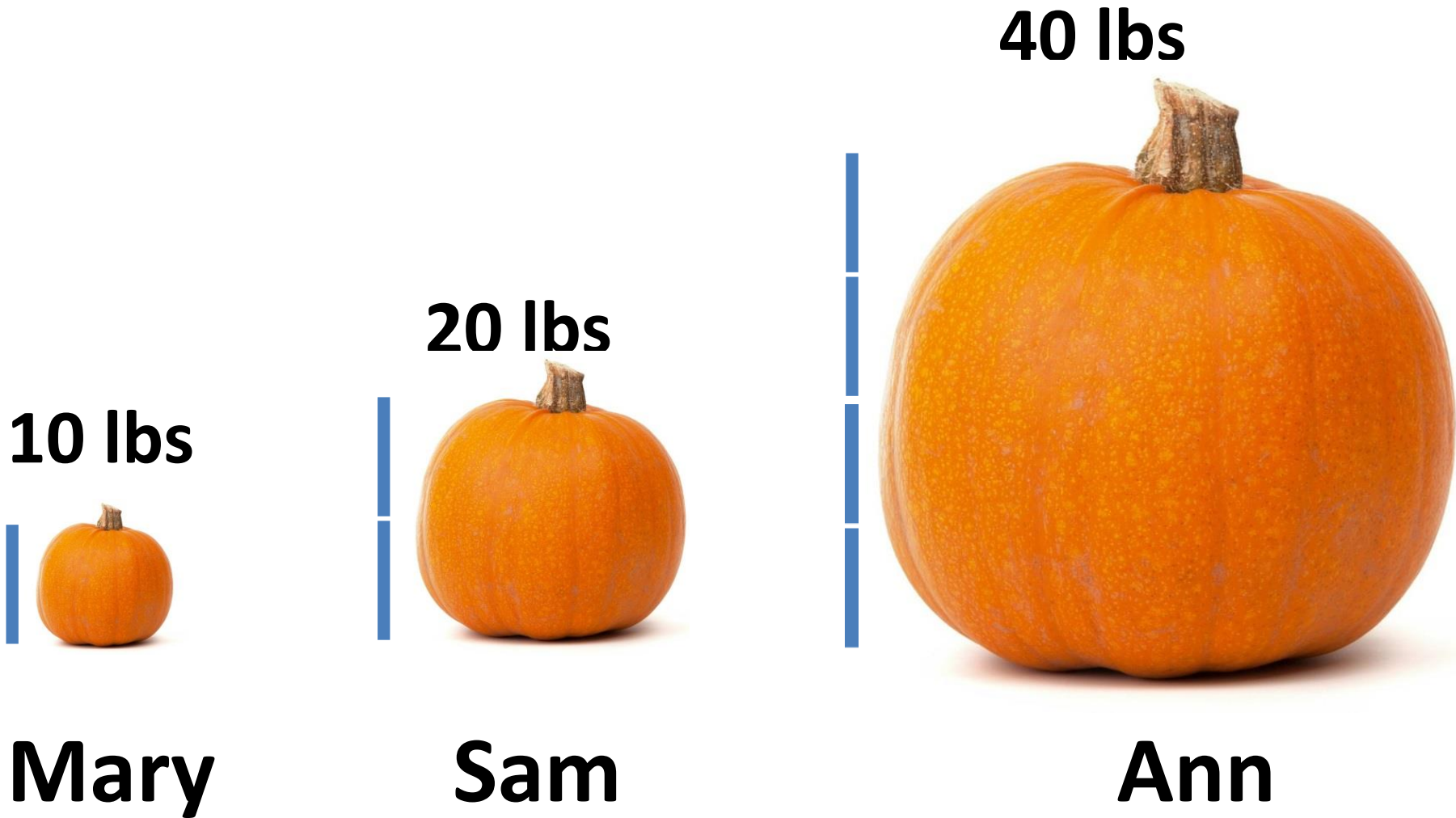
**Ann**



**= 10 lbs**

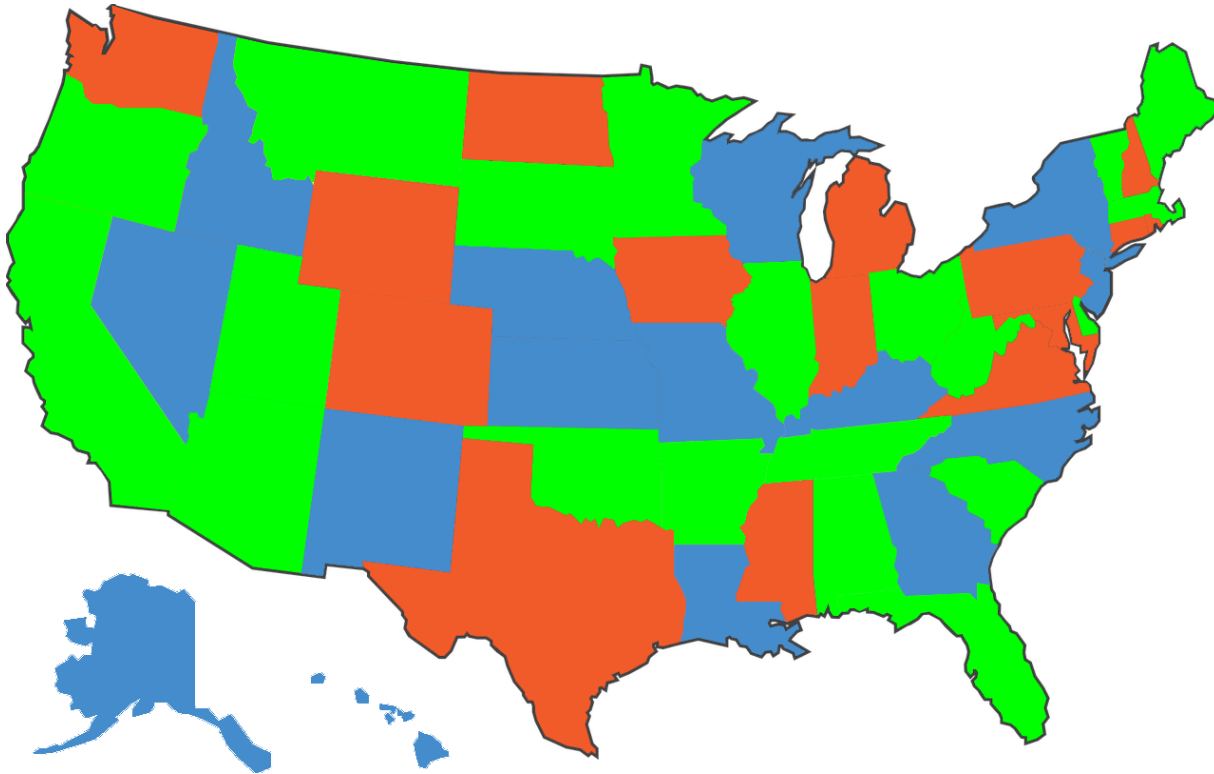
Pumpkin  
size

# Misleading Graphics



Height goes from Mary's = 1, Sam's = 2; Ann's = 4 But area of a circle:  $\text{Area} = \pi r^2$   
Therefore, area for Mary's = 0.785; Sam's = 3.14; Ann's = 12.56

# Meaningless Graphics



**Red** States = People Love Pizza

**Green** States = People Like Pizza

**Blue** States = People Hate Pizza

# Resources

Scientific Data Presentation: a Picture Is Worth a Thousand Words

<https://www.aje.com/arc/Scientific-data-presentation-picture-worth-thousand-words/>

Ten Simple Rules for Better Figures

<https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1003833>

# Reminder:

Thursday, July 15, 9:00 am

Dr. Kate MacDuffie - Neuroethics Seminar

<https://washington.zoom.us/j/93165594341>

Meeting ID: 931 6559 4341

## For Next Week

Bring 2-3 potential project titles to class.