

July 12, 2022

Announcements

July 15, 1 pm: Panel



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

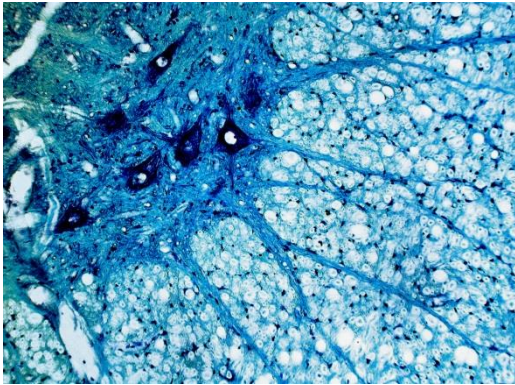
- Save at high resolution, correct format

YES: TIFF, SVG

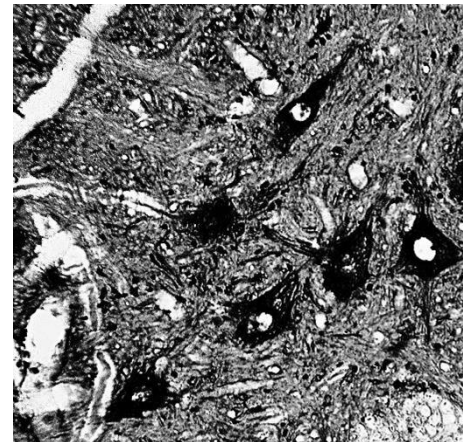
Avoid: JPEG, PNG, GIF or BMP

600 dpi or higher (sometimes 1200 dpi)

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



Original

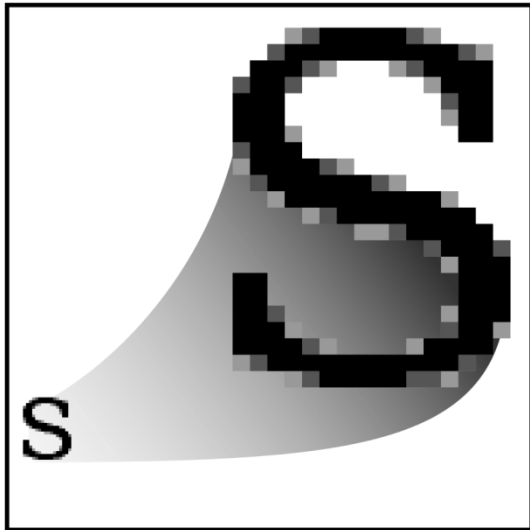


Edited

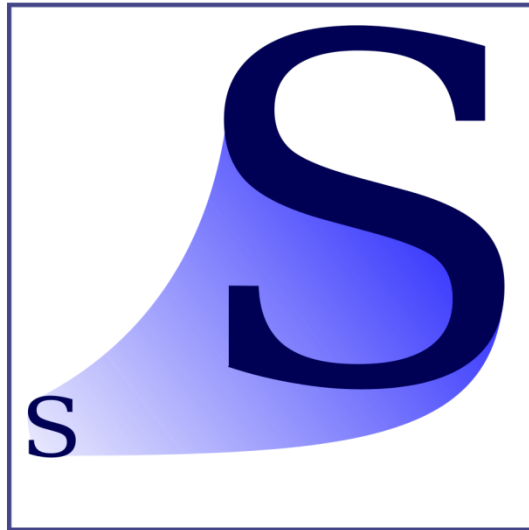
Vector vs Raster Graphics

Raster Data: pixels (bitmap data)

Vector Data: set of instructions



Raster
.jpeg .gif .png



Vector
.svg

JPEG = Joint Photographic
Experts Group

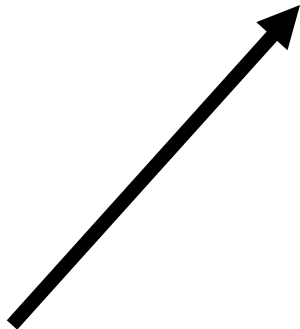
GIF = Graphics Interchange
Format

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



Serif: a decorative stroke with a stem at the end of letters.
(Pronounced: “Se – rif” not “Se – reef”)

Sans serif: no stem at the end of letters.

Serif or Sans serif?

Serif or San serif?

Serif or Sans serif?

Serif or Sans serif?

From Science -- Instructions for preparing an initial manuscript guide to authors

(<https://www.science.org/content/page/instructions-preparing-initial-manuscript>)

Typefaces and labels

Please observe the following guidelines for labels on graphs and figures:

Use a sans-serif font whenever possible (we prefer Helvetica).

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!

A rectangular box containing the text 'Avoid!' has two arrows pointing downwards and outwards to two columns of text. The left arrow points to a column of text in a clean, sans-serif font. The right arrow points to a column of text in a cursive, handwritten-style font.

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.*

Fonts

Question:

When is the only time you can use
Comic Sans Serif on a poster?

Answer:

When your poster is a comic!

Figure Legends

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

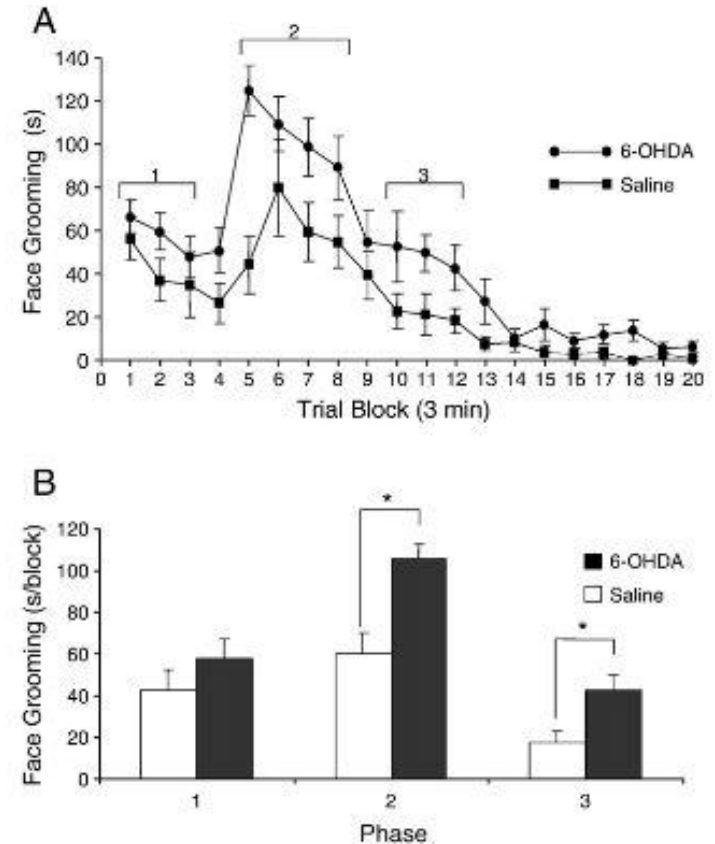
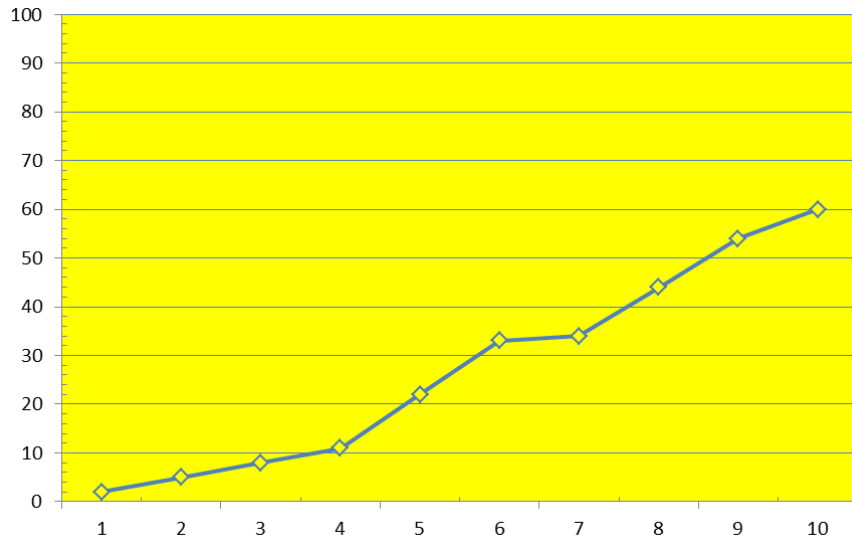


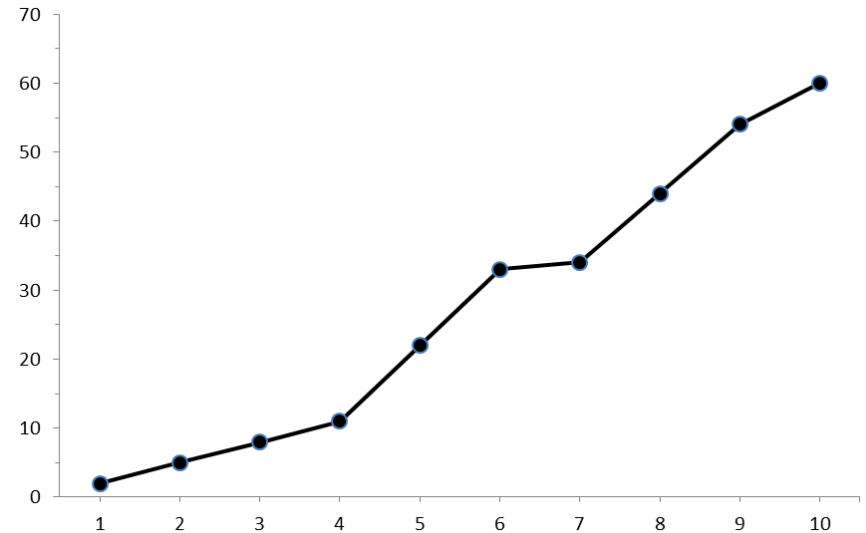
Fig. 2 – Effect of unilateral, intrastriatal 6-OHDA administration on Formalin-induced facial scratching. **A:** Time course of facial scratching and grooming represented in blocks of 3-minute intervals after the Formalin was injected into the upper lip. The duration of Phase 1, 2 and 3 are indicated 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



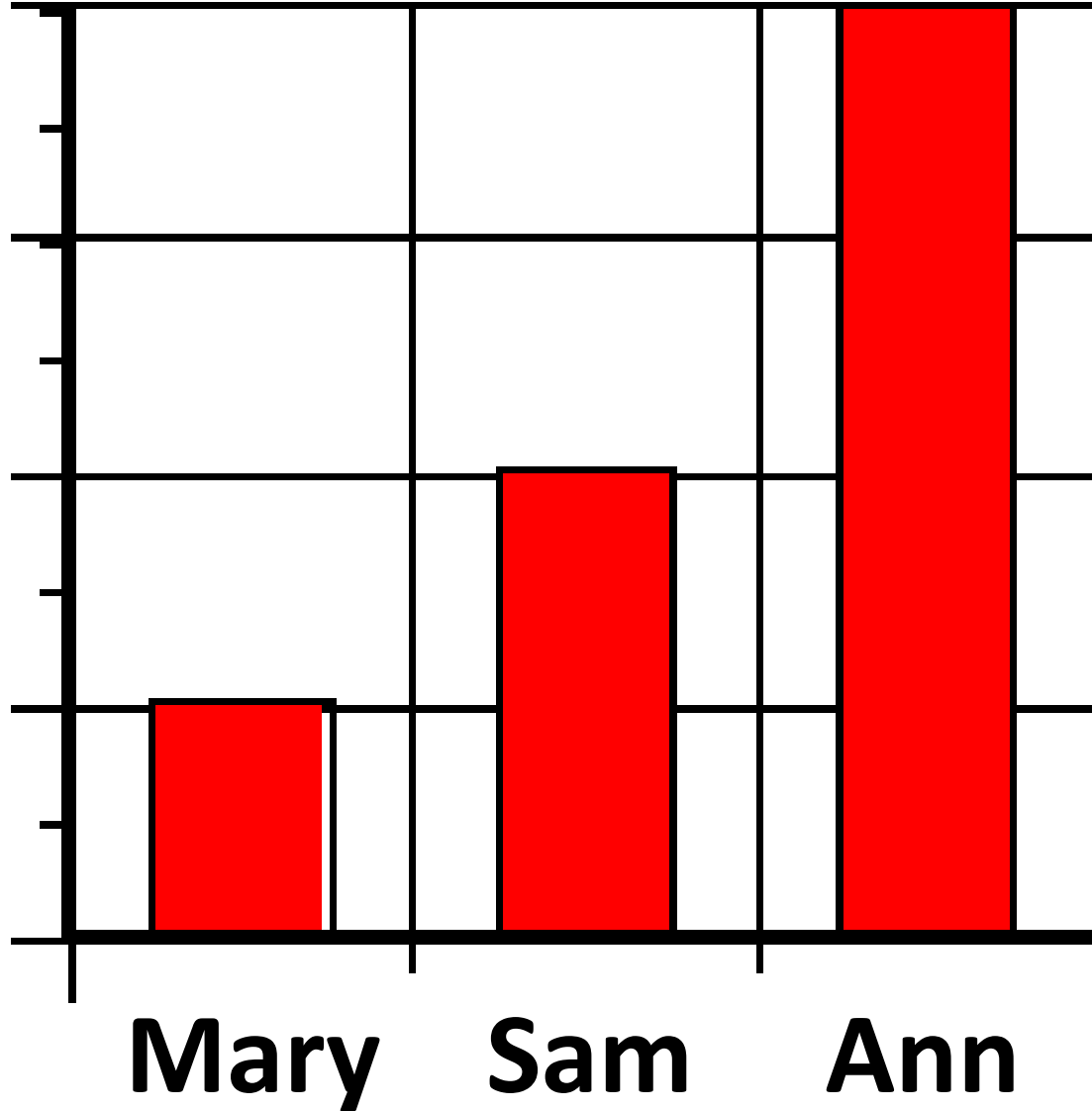
How would you improve this figure?

Misleading Graphics



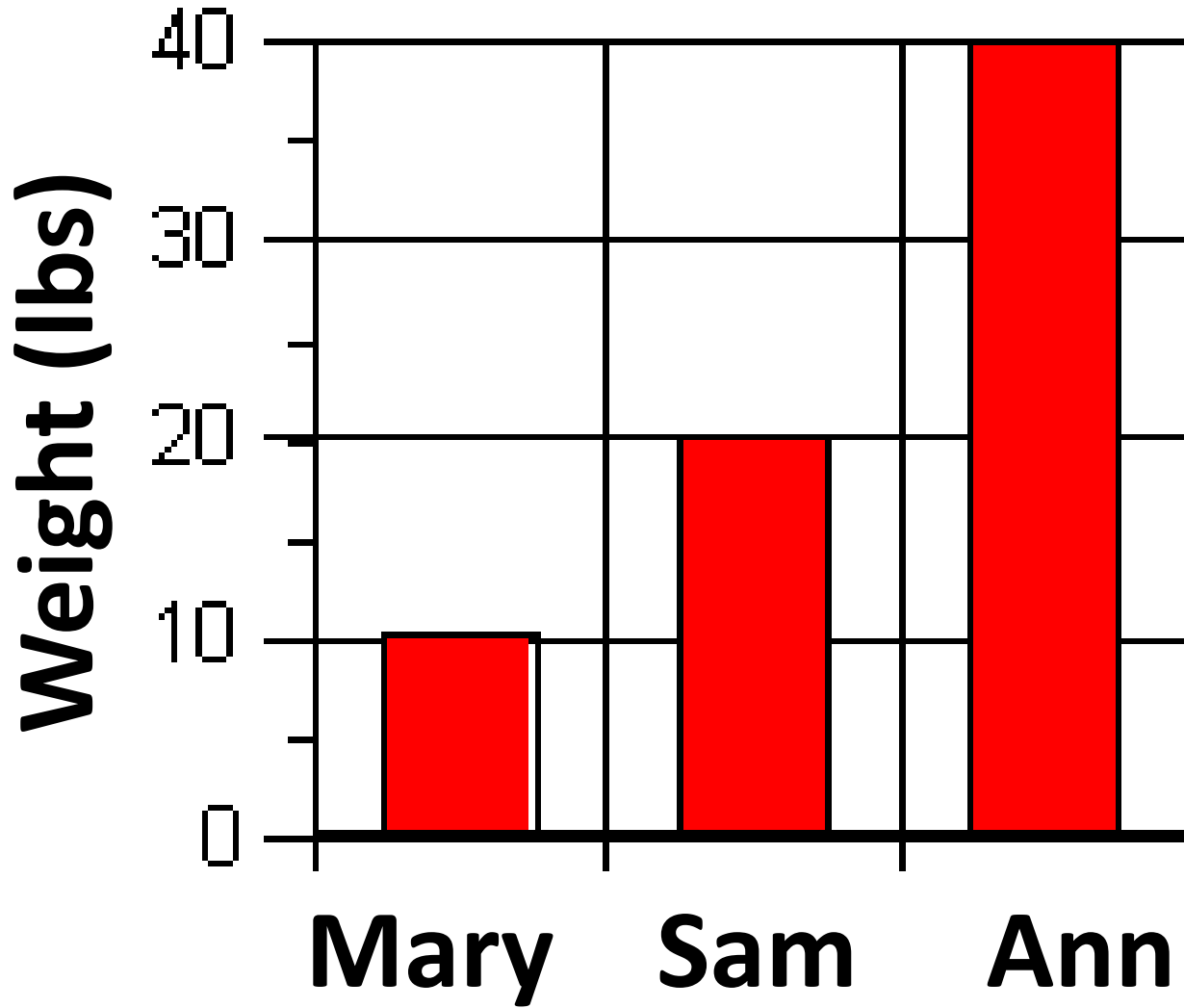
Pumpkin
size

Misleading Graphics



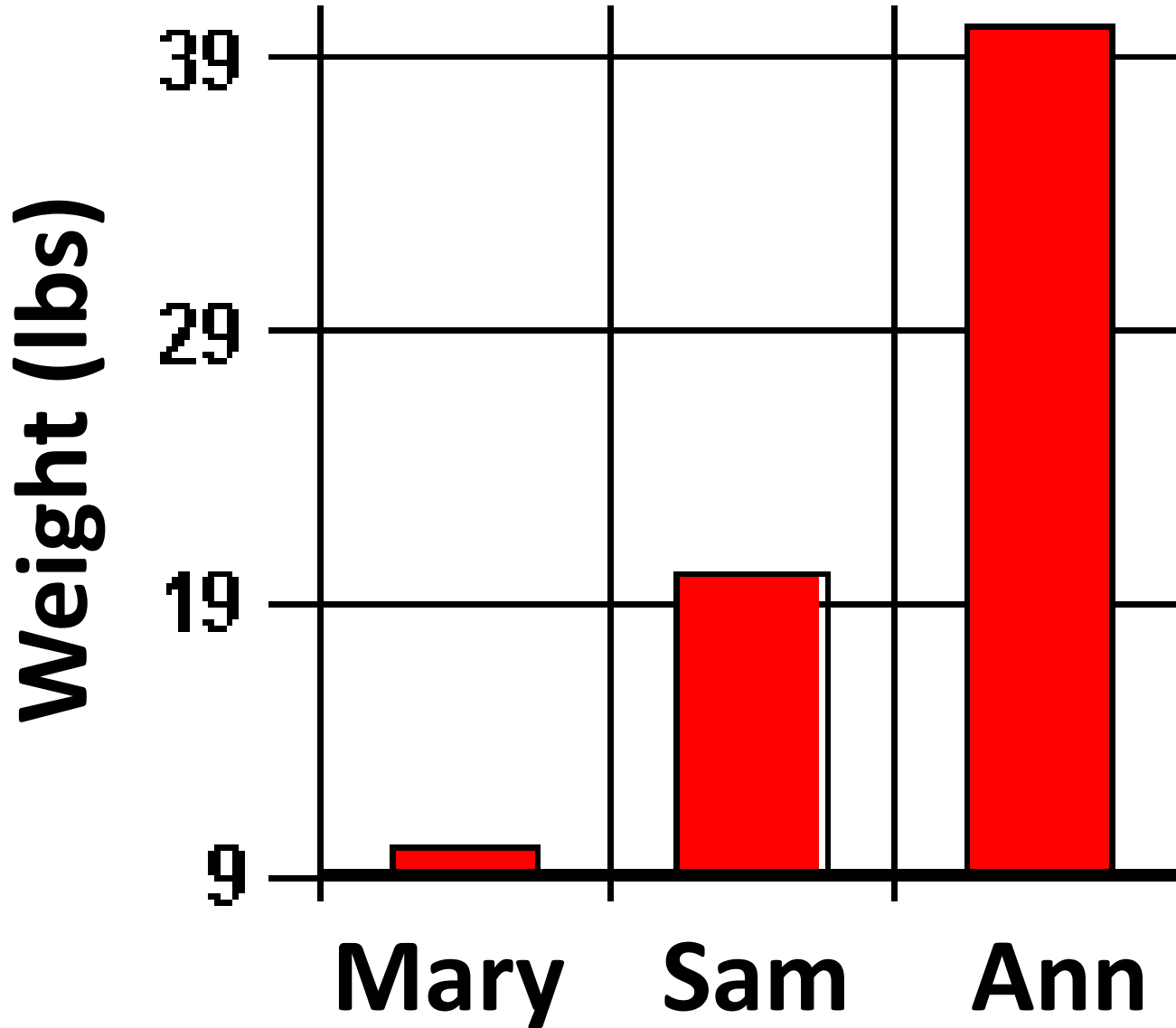
Pumpkin
size

Misleading Graphics



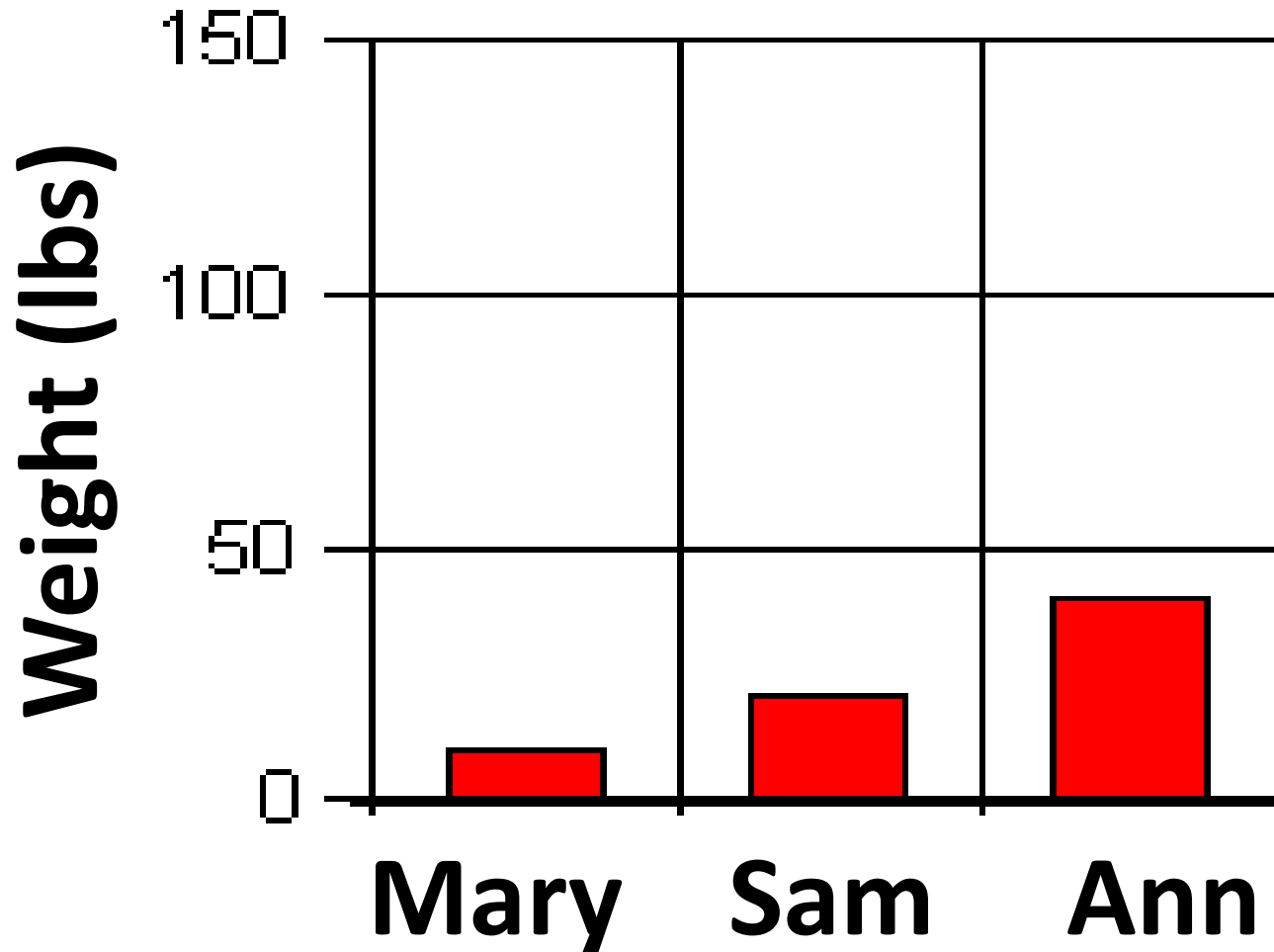
Pumpkin
size

Misleading Graphics



Pumpkin
size

Misleading Graphics



Pumpkin
size

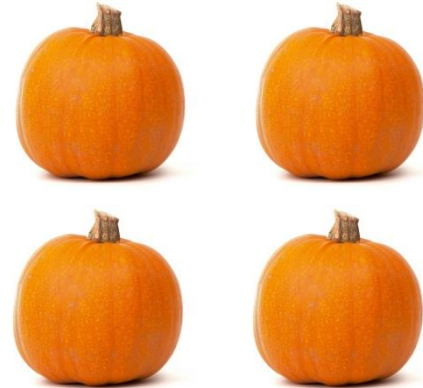
Misleading Graphics



Mary



Sam



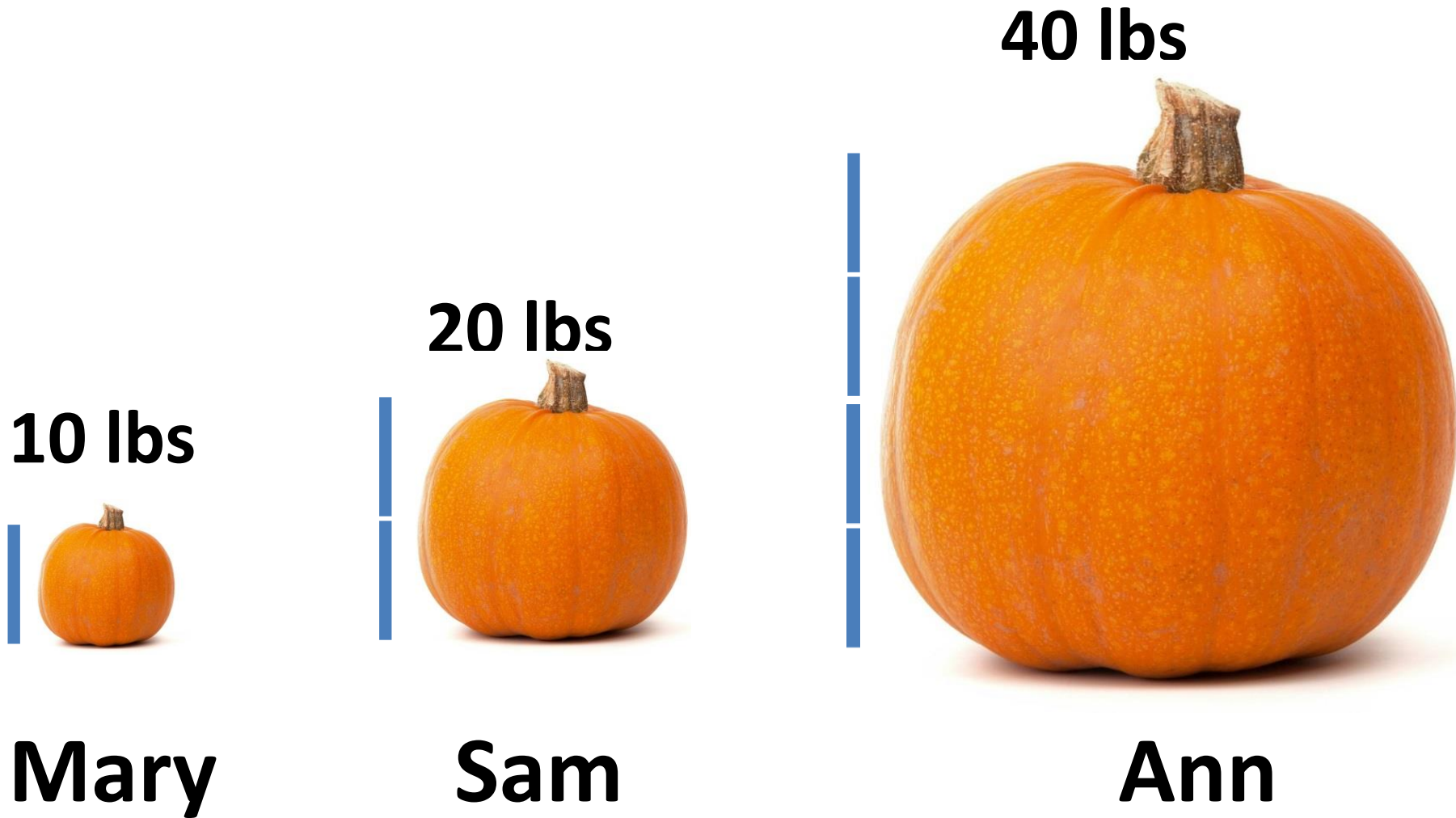
Ann



= 10 lbs

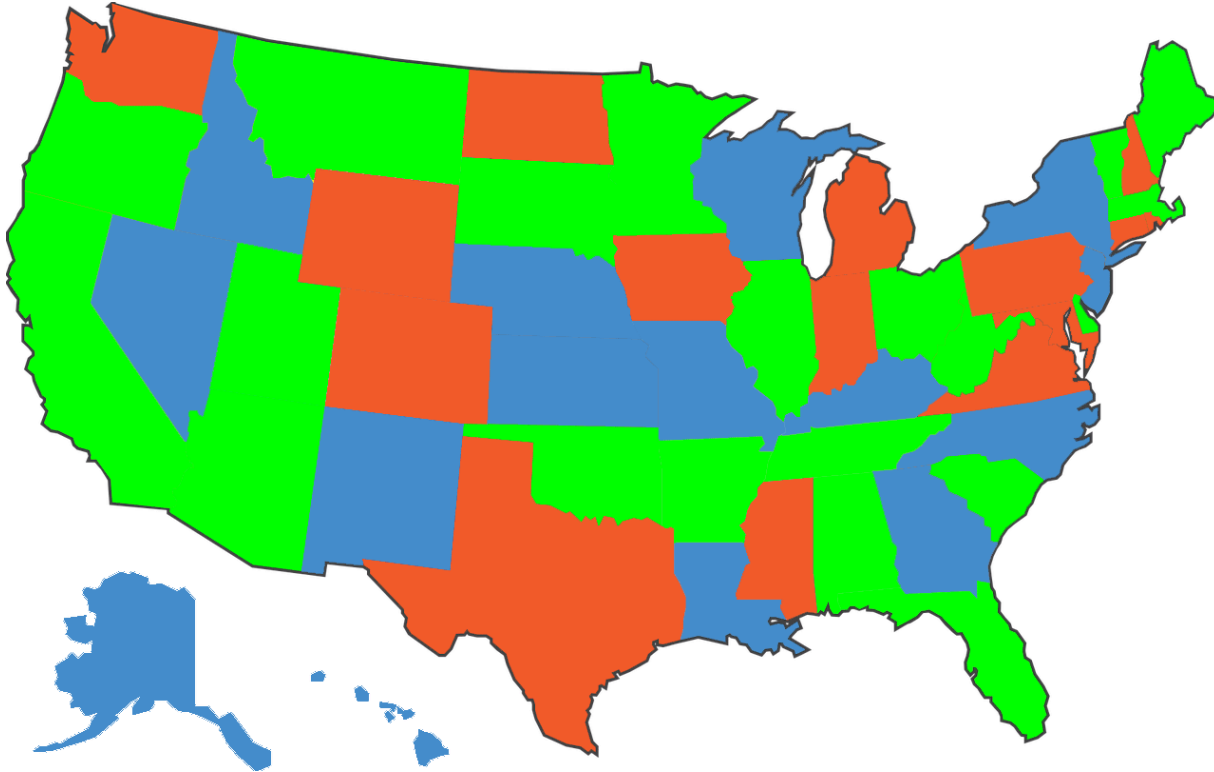
Pumpkin
size

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>

For Next Week

Bring 2-3 potential project titles to class.