Many referees, reviewers, scientists will only look at the figures in a paper. The figures should also tell the whole story! Each figure should have a single point (or closely related points). Caption should explain every part of figure.

Different journals have different rules:
- Single, multi-panel
- Number of figures, formatting
- Read the website for authors and submission!
- Copy editors may be involved with labeling & formatting

Different types...

Introductory/Summary Figure

Results Figure
Supercooled spin liquid state in the frustrated pyrochlore $\text{Dy}_2\text{Ti}_2\text{O}_7$

Ethan R. Kassner$^a$, Azar B. Eyvazov$^a$, Benjamin Pichler$^{a,b}$, Timothy J. S. Munsie$^{c,d}$, Hanna A. Dabkowska$^c$, Graeme M. Luke$^{c,d,e}$, and J. C. Séamus Davis$^{a,f,g,h,1}$
**Introductory / Summary Figure**

- Purpose is to give an overview of the work early in the paper
- Sometimes used later in paper to summarize
- Often schematic
- Not data or results
- Important to (over-) simplify without introducing errors
- Important to be visually attractive

A great resource:

Learn a software platform:
Illustrator, CorelDraw, Powerpoint...
Example: Introductory Figure

Coupling Identical 1D Many-Body Localized Systems

Pranjal Bordia,¹,² Henrik P. Lüschen,¹,² Sean S. Hodgman,¹,² Michael Schreiber,¹,² Immanuel Bloch,¹,² and Ulrich Schneider¹,²,³

arXiv:1509.00478v1
Supercooled spin liquid state in the frustrated pyrochlore Dy$_2$Ti$_2$O$_7$


PNAS | July 14, 2015 | vol. 112 | no. 28 | 8549-8554
Results Figure

• Presents data, numerical results, theory curve
• Usually a graph
• Can encode a lot of information
  • Be careful! Too much is deadly
• Important to label axes clearly and correctly
• Make sure points, lines, and error bars are visible and distinct
Another example: results figure

Coupling Identical 1D Many-Body Localized Systems

Pranjal Bordia,¹,² Henrik P. Lüschen,¹,² Sean S. Hodgman,¹,² Michael Schreiber,¹,² Immanuel Bloch,¹,² and Ulrich Schneider¹,²,³

arXiv:1509.00478v1
General Advice

• Legible fonts
  • Print the figure at 100% (reproduction scale)
  • Line thickness
• Avoid similar colors, yellow, orange
• Avoid arbitrary units
  • Use physical, standard units
• Explain every part of the figure in the caption
  • symbols, insets, what each part is about
• Include scale bars & color bars
• Use high resolution, high contrast images
• Use vector graphics when possible
Figure 1. SRQ Plots of $T_i/T_n$ (Vertical Axes) Against $i/n$ (Horizontal Axes) for the Gibbs Sampler (a) and an Alternating Gibbs/Independence Sampler (b) for the Pump Failure Data Based on Runs of Length 5,000. Lines through the origin with unit slope are shown dashed; axis ranges are from 0 to 1 for all axes.
FIG. 2. (Color online) Possible layout for the 16-qubit chip.
Problems
More resources

• **Highly recommended:**
  • If you’re not acquainted with Edward Tufte’s books, *Visual Explanations* should be required reading. He rules!


• **Also highly recommended:**
  • “Graphing Resources” (http://www.ncsu.edu/labwrite/res/res-homepage.htm), particularly their “Revising your Visuals” section.