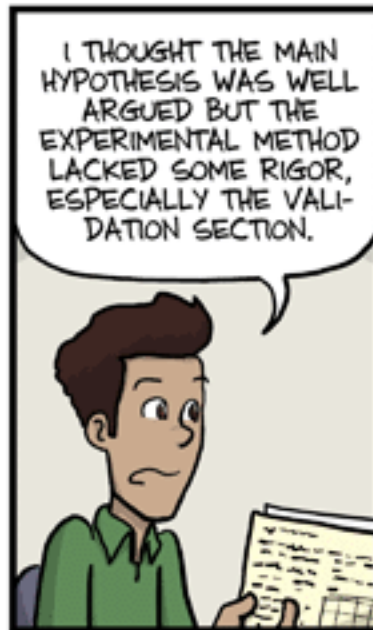


20.109 Communication Workshop 3: Journal Clubs

Sean Clarke & Prerna Bhargava
Fall 2019

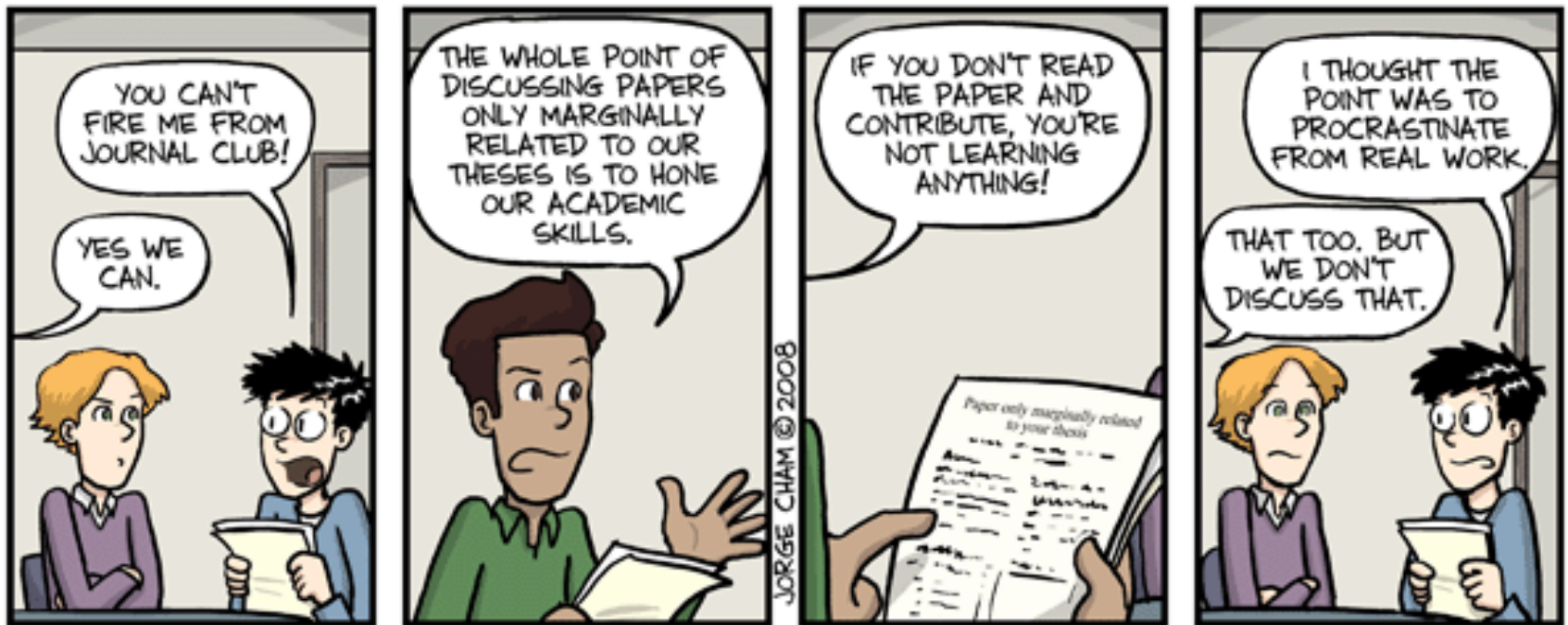
<https://mitcommlab.mit.edu/be/>
Helping you communicate effectively.



JORGE CHAM © 2008

Who has been to a journal club before?

What are they like?



Journal clubs build transferable **skills**



- Critically evaluate a paper to see how work has been done
- Learn to communicate YOUR work better

Journal clubs have different **objectives**

- learn a field
- explain a method, how to apply it
- make sure people read a really important paper
- determine how close a project is to your story

20.109 goals

Show that you understand the paper by presenting clearly:

- the take-home message
- WHY and HOW the experiments were done (**METHODS!**)
- what the conclusions were

Today, we will cover 3 aspects of presentation prep

1. Craft a story
2. Design effective slides
3. Present your slide deck clearly

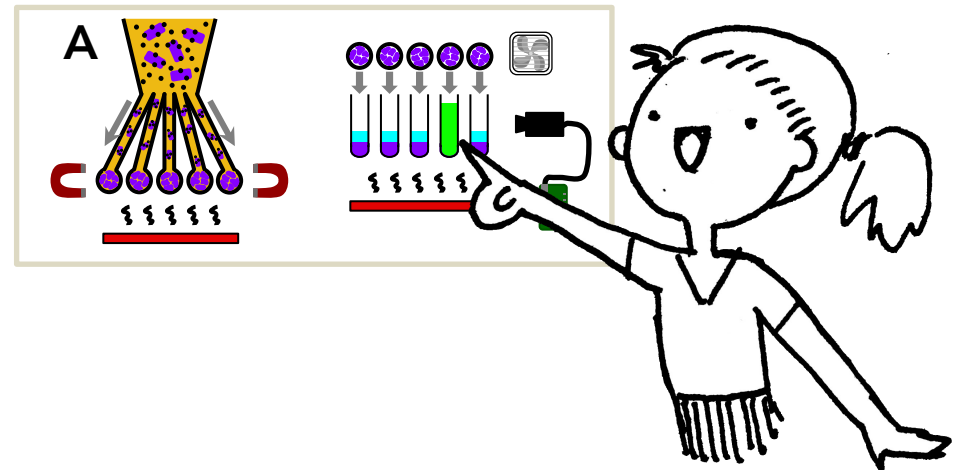


Image: Diana Chien

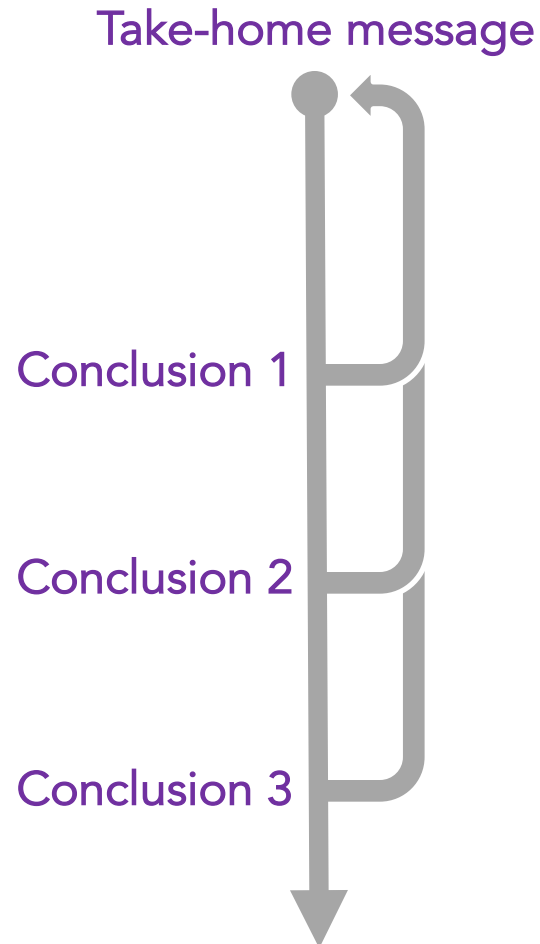
1. Craft a storyline from the paper

“Excellent students tell a story.”


-Noreen

Create a single storyline.

Identify a **take-home message**; everything else leads to it.



Chronology is actually confusing



The authors ligated DNA into a plasmid,
then they transformed it into cells,
then they looked at fluorescence data,
and then they had a calcium sensor.

But why did they do these things?

Storytelling conveys logic & motivation



The authors wanted to engineer a calcium sensor's binding sensitivity.

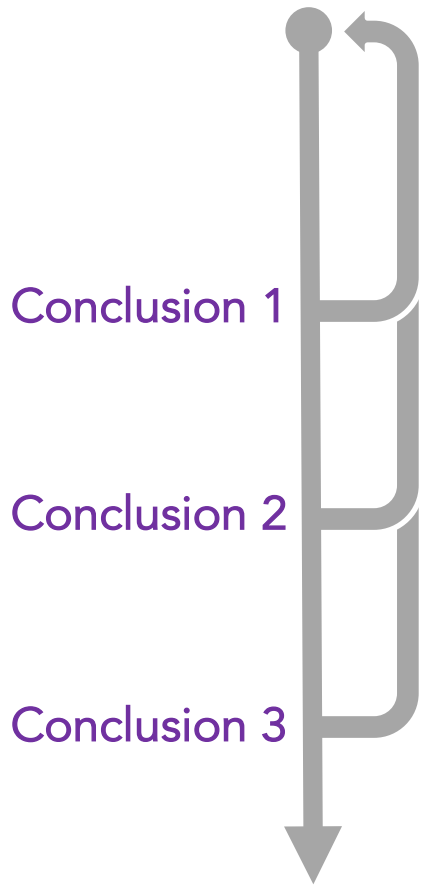
To change the binding site, they did site-directed mutagenesis,

then they expressed the mutant protein in cells,

and then they assessed its binding properties with a fluorescent assay.

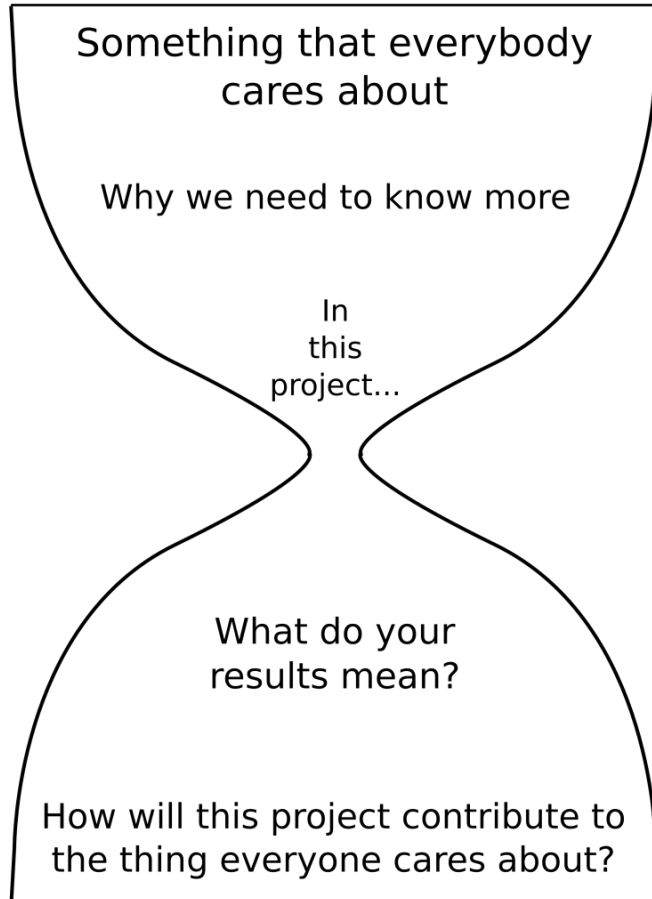
Organize your journal club presentation to **tell us a story**

Take-home message



- Identify the question/message
- Include only **essential** results, key experiments and relevant data
- **Connect** all results back to the question/message
- Explain **logic & motivation** with titles & transitions

The hourglass structure from abstracts can help with storyline.



General background

Specific background

Knowledge gap, Unknown

HERE WE SHOW...

Results

Implication

Significance

Activity

What storyline would you use for this paper?

A Functional Cancer Genomics Screen Identifies a Druggable Synthetic Lethal Interaction between *MSH3* and *PRKDC*

Felix Dietlein¹, Lisa Thelen⁴, Mladen Jokic⁴, Ron D. Jachimowicz⁴, Laura Ivan⁴, Gero Knittel⁴, Uschi Leiser⁴,
Johanna van Oers⁵, Winfried Edelmann⁵, Lukas C. Heukamp², and H. Christian Reinhardt^{3,4}

What content will you include?

Which parts of the figures would you choose to present?

What is their significance to the main question?

2. Design effective slides to convey the story

Good slides are a lot like good figures

Title = take-home message

Show **minimal essential data**

Maximize signal-to-noise

Control pace: separate or mask figure panels

Add or remove labels

Effective redundancy: align visual, written, + spoken!

“What would help my audience understand this faster?”

If you're not going to talk about something, leave it out.

Make slide titles take-home messages

DON'T use

General descriptions of "what"

INSTEAD use

Sentences that answer "so what?"

Method EMK-1 Knockdown

EMK1/Par1 was knocked down in MDCK (kidney) cells using siRNA

Results Ca-switch

MDCK cells form a lumen after changing extracellular calcium concentration

Mitochondrial ROS induction in cell lines

Mitochondrial ROS induction is decreased in adk^- cells

Comparison of primer specificity

Primer 1 is better than Primer 2 at differentiating closely-related HIV strains

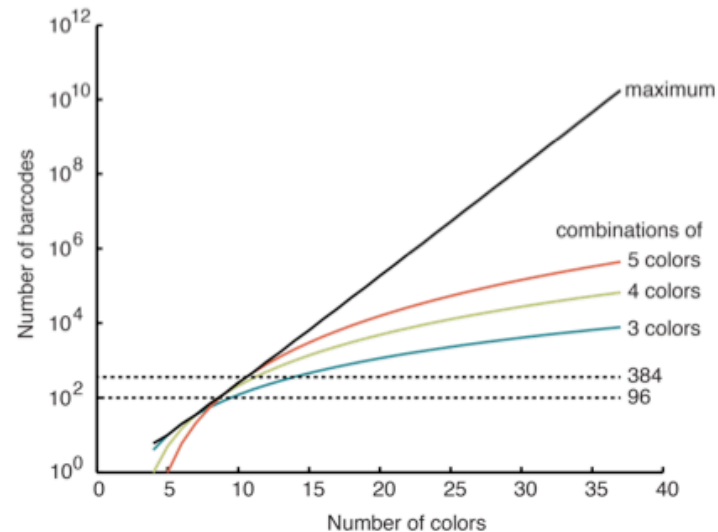
Use all parts of your slide to support your message.

The **title** conveys the “so what”

Optical barcoding scheme is easily scalable to ultrahigh library complexity (>384 combinations)

One message per slide: only include data that supports that message

No unnecessary content: only figures you discuss



Only 9 colors needed for library of 96
Only 11 colors needed for library of 384

Text supports the message, not a script (make sure font size is large enough!)

Avoid light or bright colors and tiny fonts

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Templates are visual noise.

My name - Today - Where we are



PowerPoint basics: 3. Style

Don't drown the audience with data.

Less is more.



Susan McConnell (Stanford),
Designing effective scientific presentations
<https://youtu.be/Hp7ld3Yb9XQ>

Activity:

How would you improve your slide(s) for Figure 2?

Think about the tricks we just discussed!

3. Present your story clearly

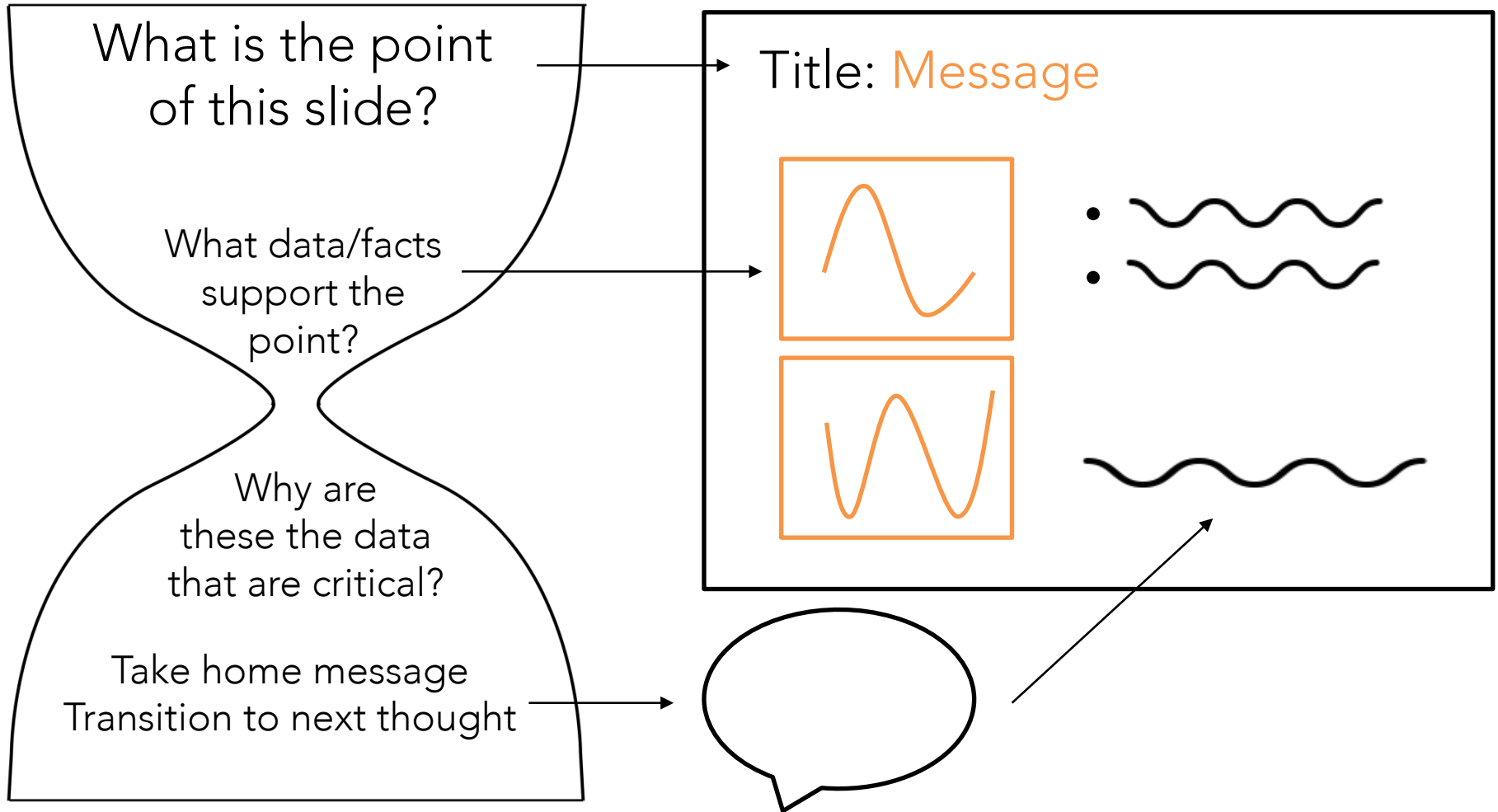
We're a friendly audience, so help us out



- **Practice** the take-home messages and transitions
- **Record yourself** for **10-minute** timing
- If you're **not** going to talk about it, **take it out**

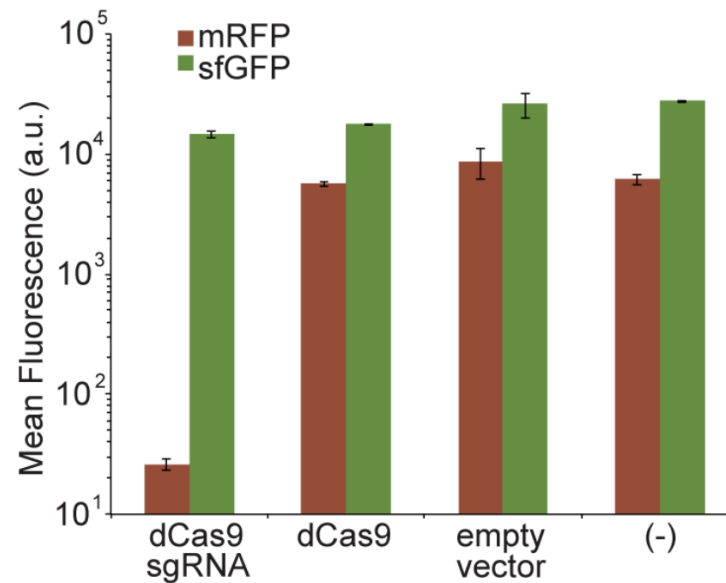
We'll ask you about **METHODS**

Think about what you'll say with each slide!

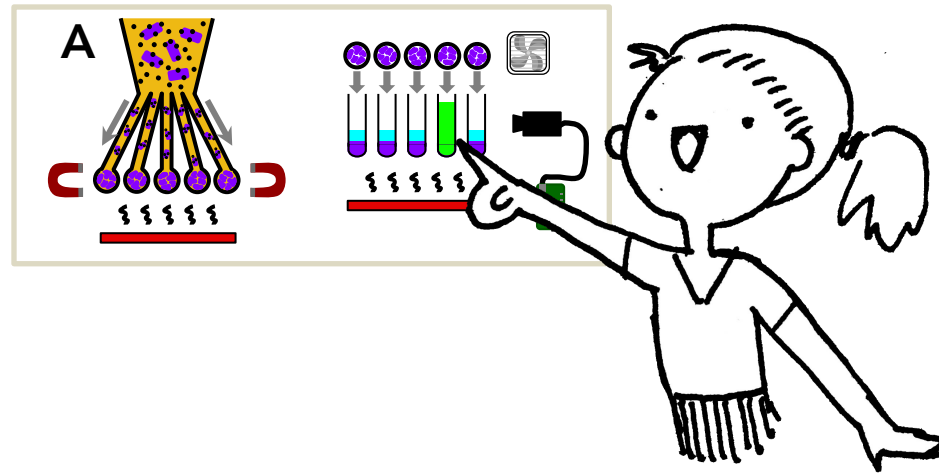


How would you present this slide?

Conjugation of the CRISPRi plasmid allows for specific suppression of mRFP

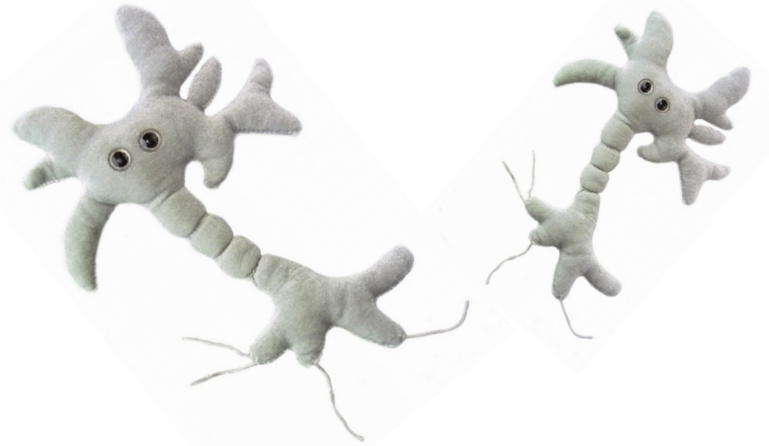


You can also use gestures to guide the audience through complicated data.



Manage nerves by accepting them

Who doesn't get nervous?



Reframe it:

*"I'm nervous because I'm **excited** to present."*

Channel the feeling, don't fight it.

steady belly breathing

eye contact

Be **kind** to yourself.

We have questions, you have answers

Q&A is a critical part of presentations.

Let the questioner finish.

Give yourself time to think.

Make sure you understand the question.

Do your best, use reasoning, but don't guess.

(What goes on the screen?)

Avoid common pitfalls

DON'T

Start so late you don't have time to digest the paper

Be exhaustive
List experiments chronologically

Lose points for time (9.5-10.5 min)

Forget to cite the paper

Say "we did this"

Use illegible labels

DO

Give yourself time to read the paper
2-3 times

Be selective
Tell a story

Practice until you know you can hit the time limit

Include citation in your title slide

"The authors did this"

Use ≥ 20 pt font
Make your own figure labels if helpful
Use legible font colors

Getting help is a sign of strength!

Ask us if you are unsure or have a different idea

Practice your presentation with a Comm Fellow
<http://be.mit.edu/becommunicationlab>

Watch the rest of

Designing effective scientific presentations
<https://youtu.be/Hp7Id3Yb9XQ>

Susan McConnell, Stanford