Welcome to the introductory workshop for the MIT Research Slam / 3MT!

While we're getting set up, review the rules for the 3-Minute Thesis* competition. To ask questions, raise your hand/use the chat.

- **A single static PowerPoint slide** is permitted.
  No slide transitions, animations or 'movement' of any description are allowed.
  The slide is to be presented from the beginning of the oration.
- **No additional electronic media** (e.g., sound and video files) are permitted.
- **No additional props** (e.g., costumes, musical instruments, laboratory equipment) are permitted.
- Presentations are limited to **3 minutes maximum**.
  Competitors exceeding 3 minutes are disqualified.
- Presentations are to be **spoken word** (e.g., no poems, raps, or songs).
- Presentations must be submitted as **pre-recorded videos** (with slide embedded as an image in top right corner) through by March 11: bit.ly/3mt-mit-competition
  - Finalists' videos will be played during the April 17 Showcase, with commentary by judges.
  - Detailed video creation guide: `bit.ly/3mt-mit-resources`
  - Example judging rubric: `bit.ly/3mt-mit-rubric`

* We're calling it a Research Slam because we're including postdocs, too.

MIT SCHOOL OF ENGINEERING
COMMUNICATION LAB

Crafting a Compelling 3-Minute Talk

Dr. Jacqueline Goldstein,

Communication Lab Instructional Designer

Development Credit:

Dr. Jesse Dunietz

Dr. Diana Chien

MIT's 4th Annual

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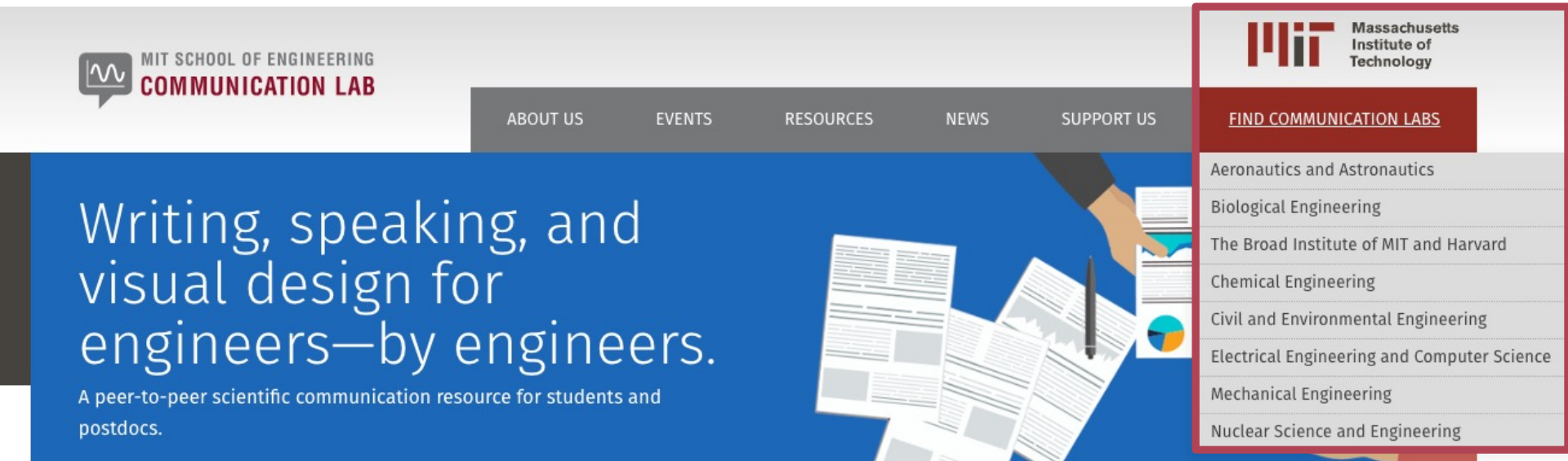
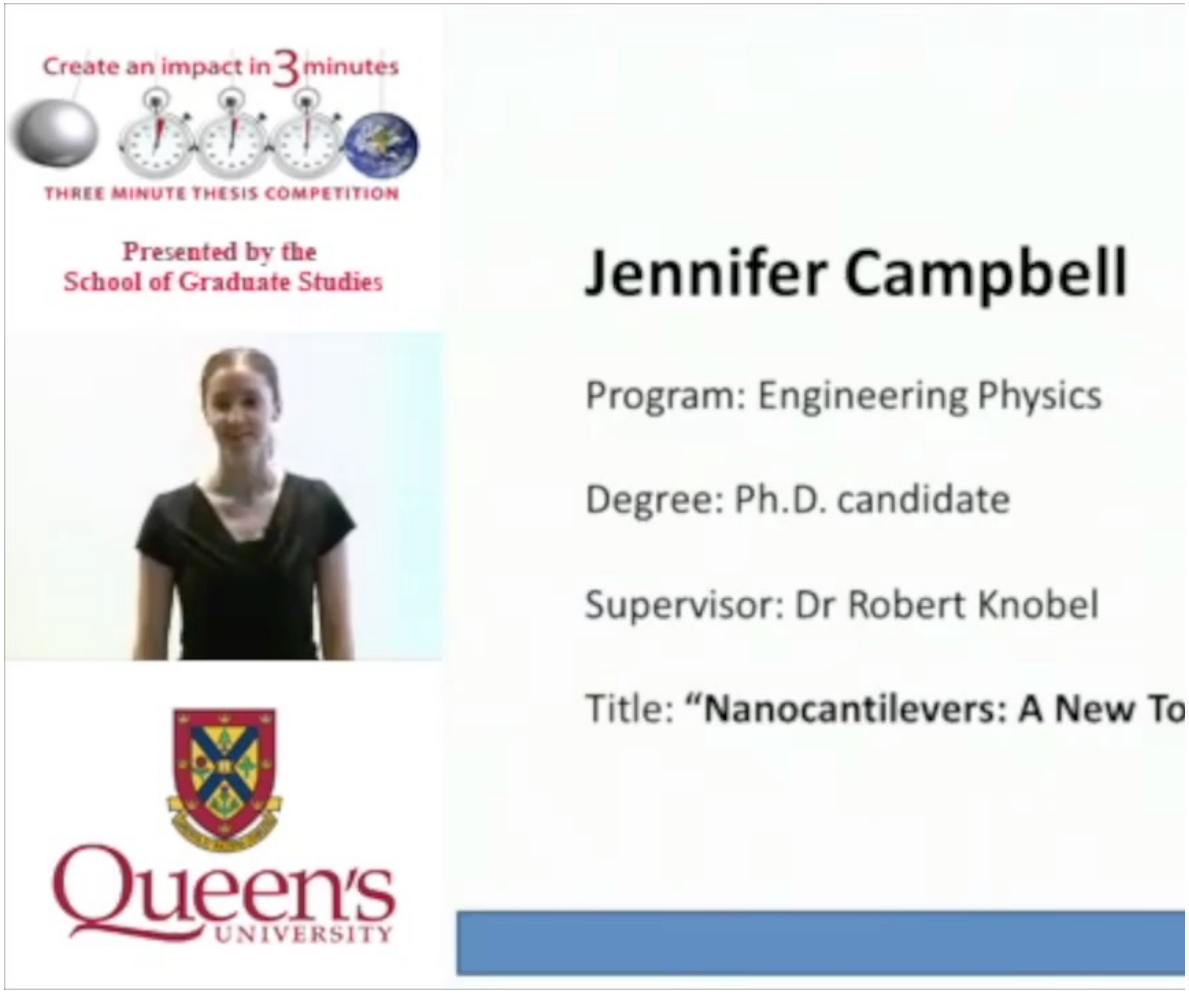


Introduction

Dr. Jac Goldstein (she/her)

- Comm Lab Instructional Designer
- Astronomy PhD (minor Sci Comm)
- Co-creator SciCommBites

Let's analyze a winning 3MT video together.



- How would you summarize the main message of the presenter's research in one sentence?
- What did they say to get that message across?
- What did they show to get that message across?

2012 Three Minute Thesis Winner, Queen's University

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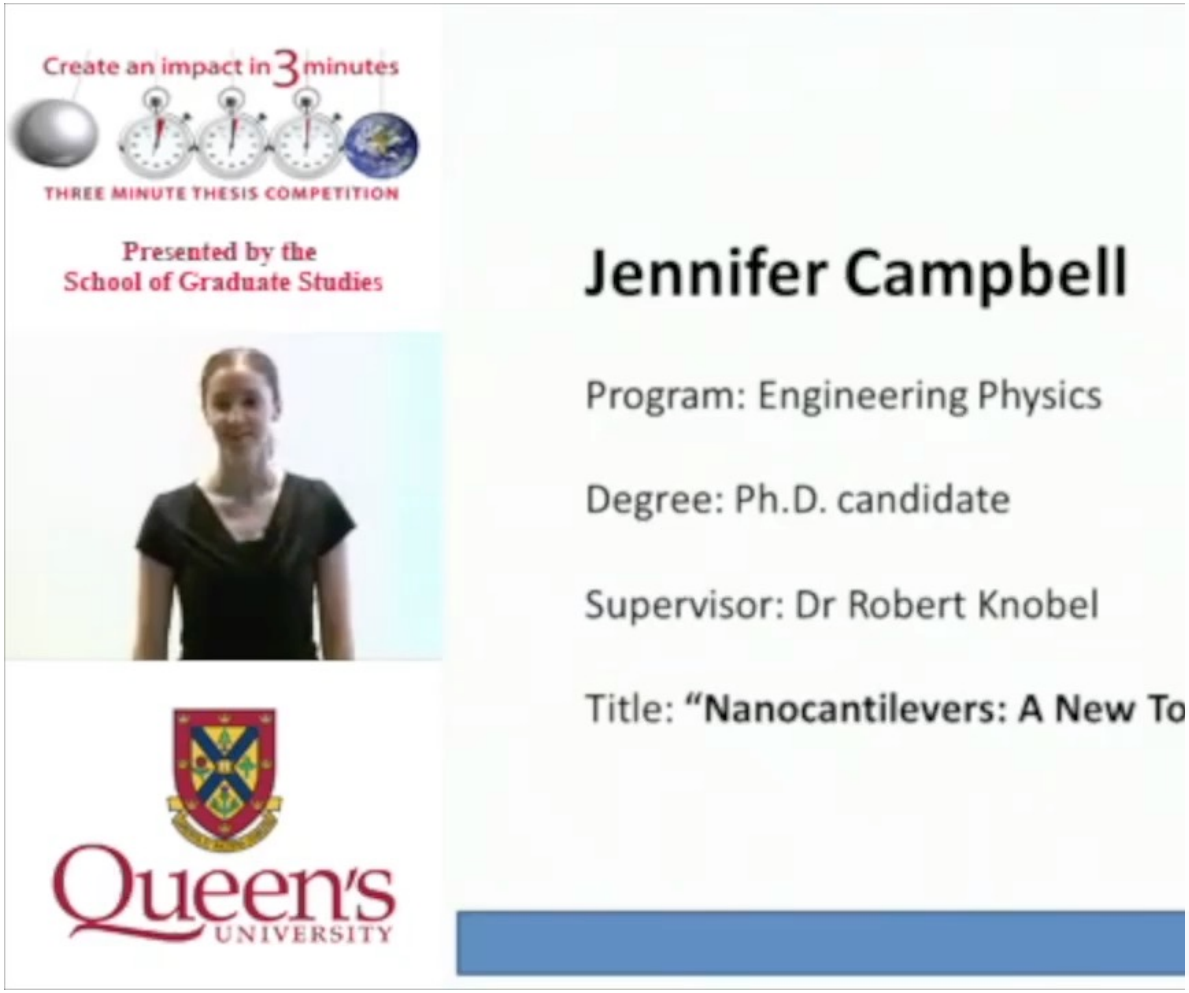

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2012 Three Minute Thesis Winner, Queen's University

By the end of this workshop, you will be able to…

1. Distill a central message from complex ideas about a research topic.

2. Structure an story that is memorable and engaging.

3. Sketch a visually appealing slide that supports your message & story.

Attend the next workshop:

Deliver to Win: How to Present Your 3-Minute Talk Effectively:

Wednesday, **February 21st; 3:30-5 PM** ET;
to work on your presentation delivery!

1. Distill a central message

2. Structure a memorable, exciting story

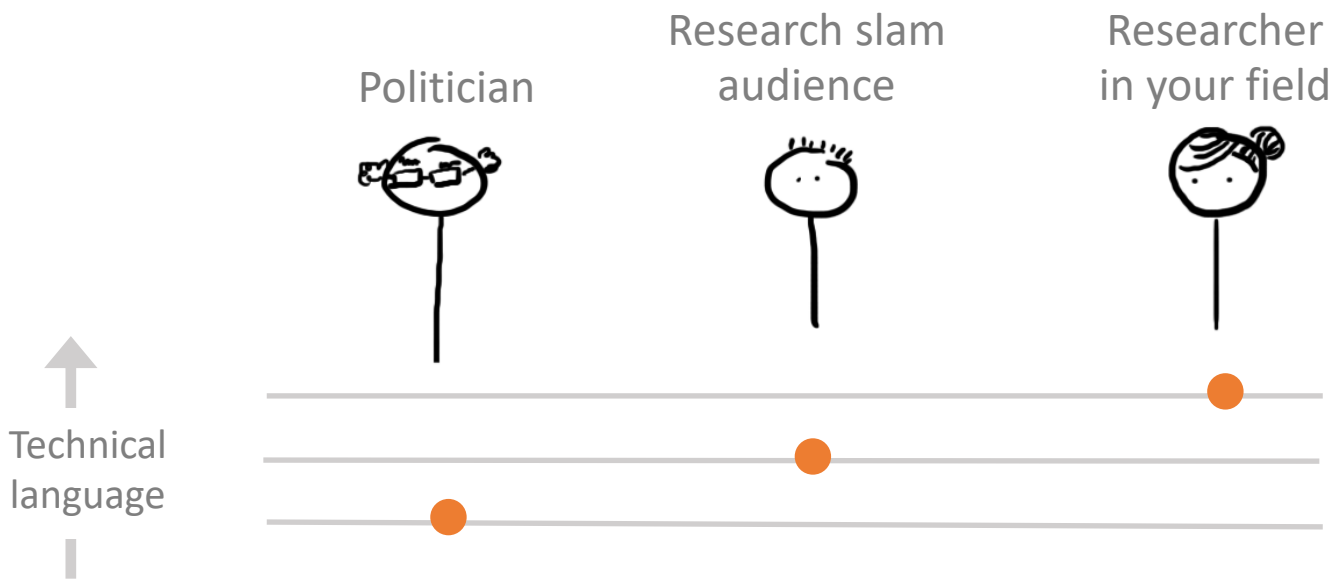
3. Sketch a visually appealing slide

With only 3 minutes,
you must focus your audience's attention
on a single take-home message.

What was Jennifer's Main Message?

Gold wires can improve the sensitivity of tiny devices that may allow doctors to diagnose disease painlessly through the breath.

To distill a main message, first consider: Who are you communicating with?



Courtesy Alison Takemura

To distill a main message, then consider: What impact do you want your message to have?

	Politician 	Research slam audience 	Researcher in your field 
Impact	Secure Funding	Provide inspiration.	Critique approach
Main Message	Funding for nanocantilever research could yield painless medical tests.	Nanocantilevers are an example of how basic physics can lead to real life applications.	The variable resistance in gold wires makes them ideal in nanocantilevers to increase measurement sensitivity.

Courtesy Alison Takemura

Worksheet

Half-Life Your Message

- You'll be paired with a partner in a breakout room.
- Partner 1 will practice saying their message in…
  - 60 sec
  - 30 sec
  - 15 sec
  - 8 sec
- Write down your favorite versions.
- Then it's Partner 2's turn!

Aurbach, E. L., Prater, K. E., Patterson, B., & Zikmund-Fisher, B. J. (2018). Half-Life Your Message: A Quick, Flexible Tool for Message Discovery. *Science Communication*, *40*(5), 669–677. https://doi.org/10.1177/1075547018781917

1. Distill a central message

2. Structure a memorable, exciting story

3. Sketch a visually appealing slide

A story is how we make sense of the world.

1. **Empathic** - We can relate to characters or events
2. **Engaging** - We are curious how the tension resolves
3. **Understandable** - We can follow and visualize events
4. **Meaningful** - We are changed by resolution

One structure for a story is an Hourglass.

There's a problem that's worthwhile to work on!

Establish significance:
A problem your audience cares about.

Describe the status quo:
What we currently know/do...

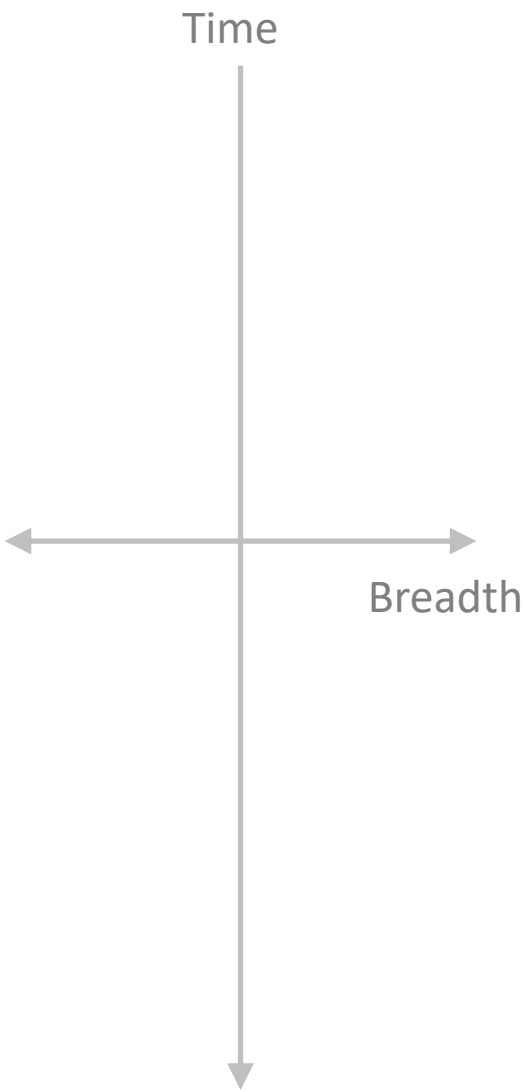
Identify a gap:
We need to know/do...

Your work is addressing the problem!

What did you do?
In order to know/do...

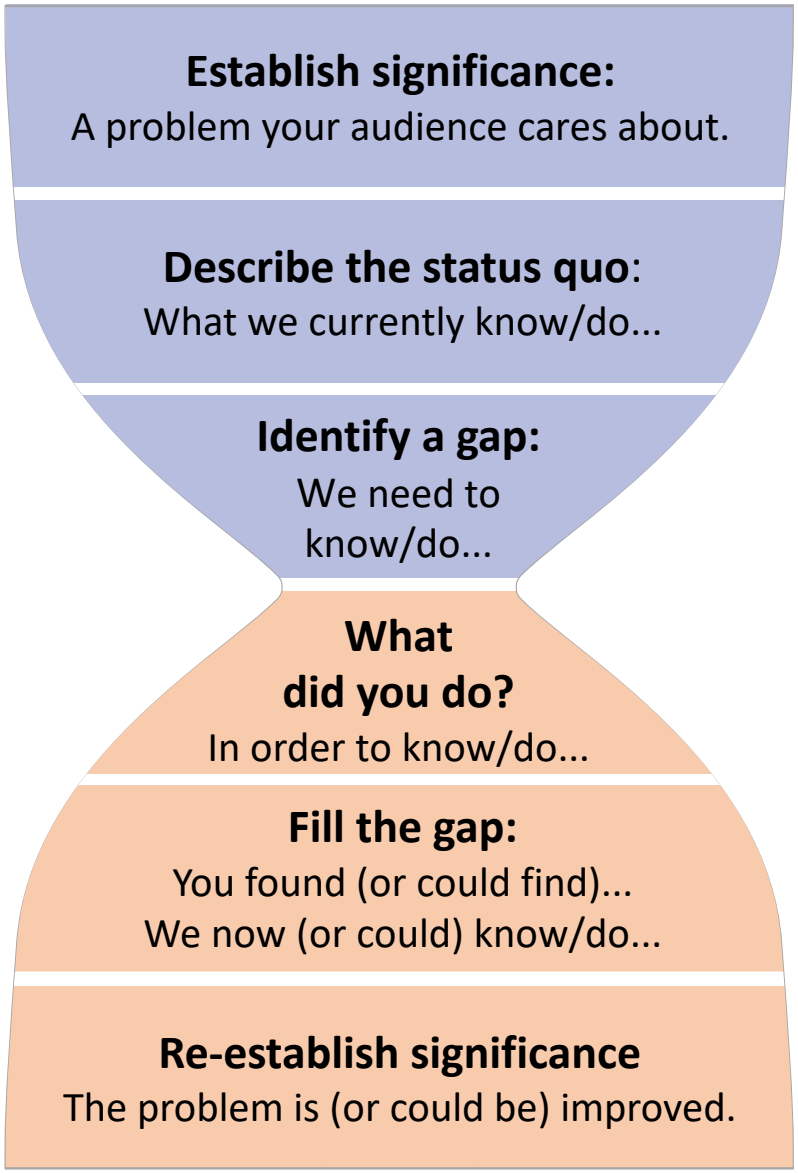
Fill the gap:
You found (or could find)...
We now (or could) know/do...

Re-establish significance
The problem is (or could be) improved.



Based on work by Scott Olesen (BE Communication Lab) & Carnegie Mellon U.'s Global Communication Center

The Hourglass is a way to outline your talk.



Medical tests at the doctor can be painful for people.

Devices can test for molecules through breath, but are large and expensive.

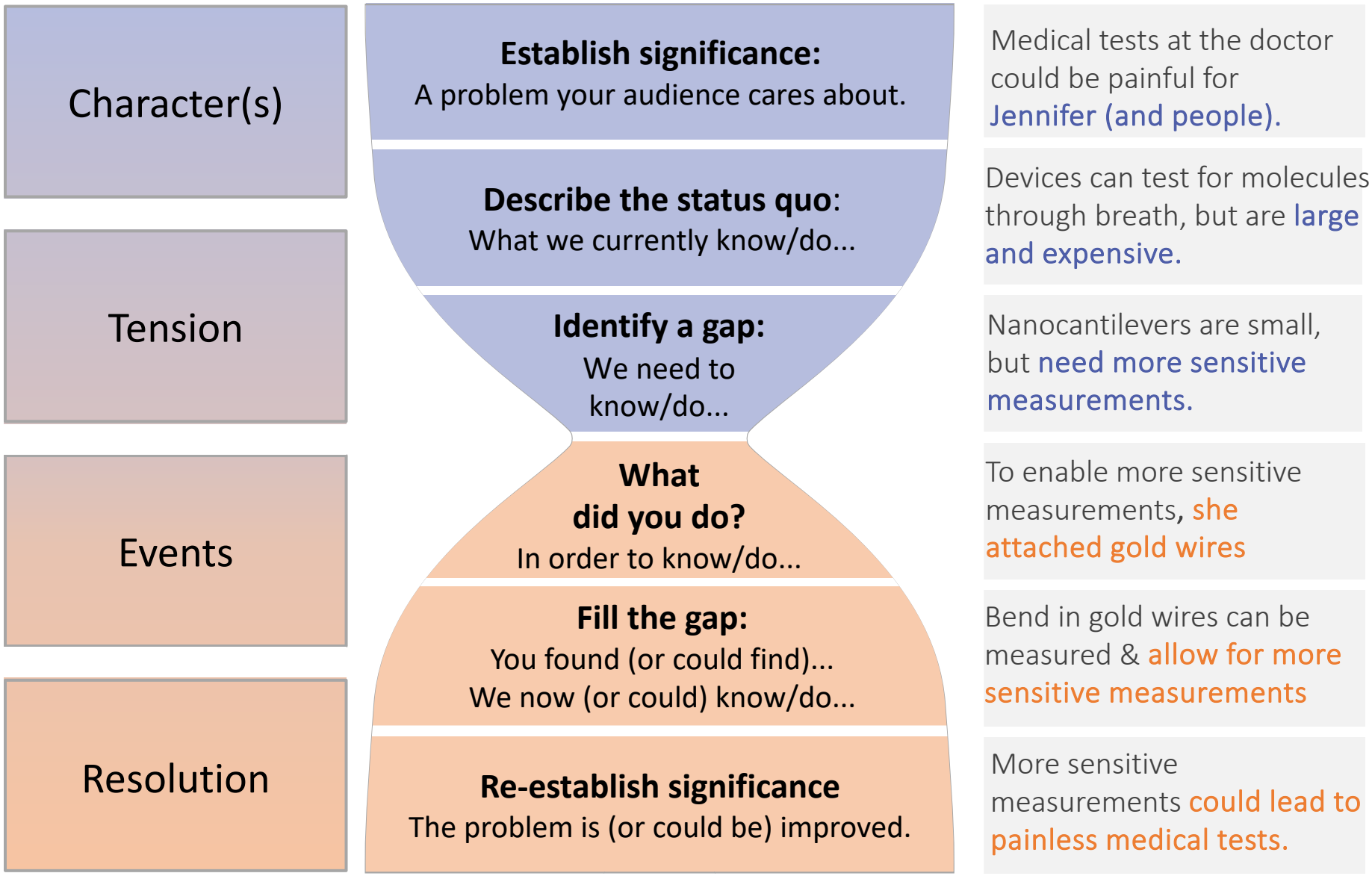
Nanocantilevers are small, but need more sensitive measurements.

To enable more sensitive measurements, she attached gold wires

Bend in gold wires can be measured & allow for more sensitive measurements

More sensitive measurements could lead to painless medical tests

Story elements align with the Hourglass



A research story can be about your process of discovery…

Character(s)	You, the researcher(s)
Tension	How will you solve the problem?
Events	Things you do, or that happen to you, as you solve the problem.
Resolution	Your research solves the problem!

…or a research story can be about your impact on humanity…

Character(s)	Humanity (or a specific representative)
Tension	A challenge that could lead to a suboptimal future.
Events	How the world will evolve with/without your work.
Resolution	Your research leads to a better future!

…or a research story can be about your object of study.

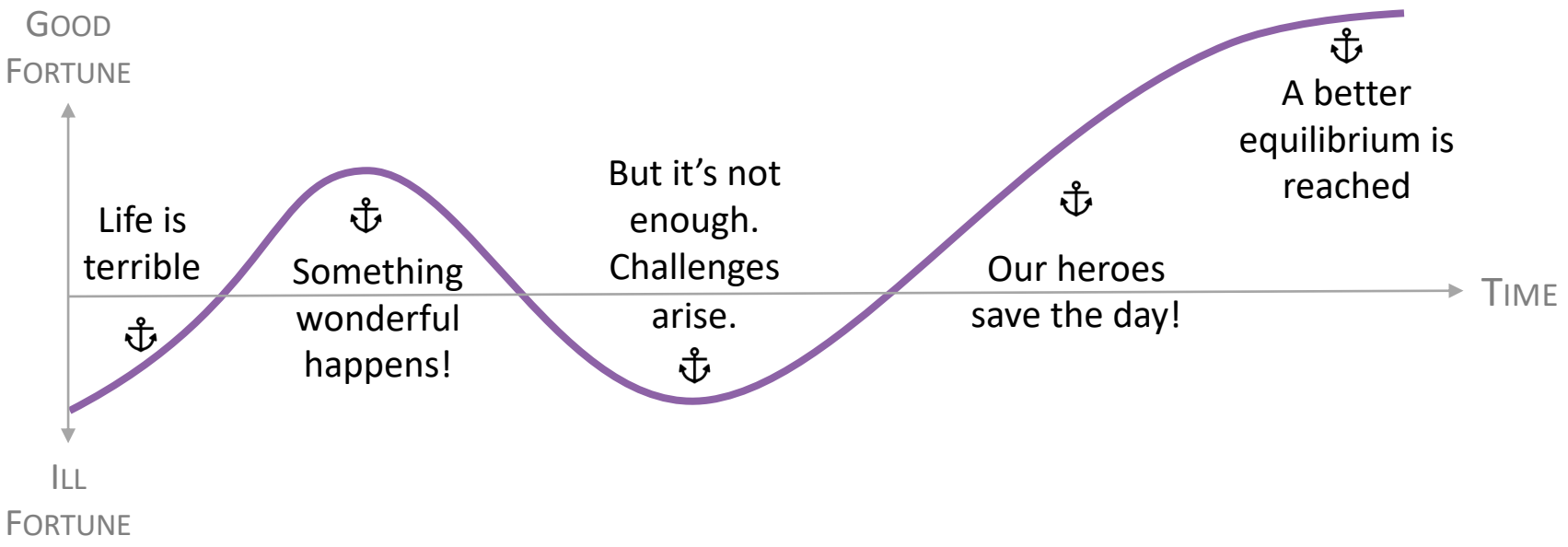
Character(s)	Object(s) of study
Tension	The object can't do what it wants to / what we want it to
Events	What happens to that object (+ how your work changes it)
Resolution	Your research helps the object!

Worksheet

Draft your Hourlgass: 1 bullet point per box.

Stories follow a few common narrative arcs.

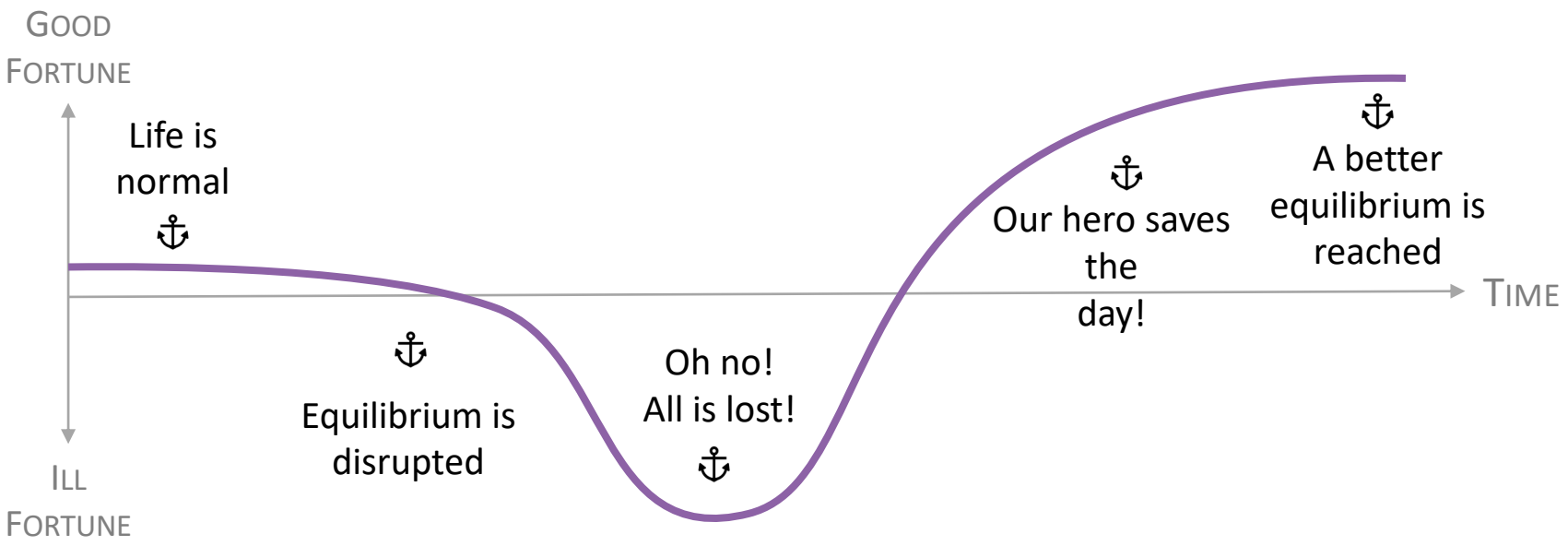
Rise-fall-rise



Medical tests at the doctor can be painful, like through needles.	Devices can test for molecules through breath, but are large and expensive.	Nanocantilevers could measure molecules in breath, but we need more sensitive measurements.	To enable more sensitive measurements, she figured out a way to attach gold wires to nanocantilevers	Bend in gold wires can be measured electrically, and allows for more sensitive measurements	More sensitive measurements could lead to painless medical tests through breath.

Stories follow a few common narrative arcs.

Fall-rise



Power electronics have been getting smaller and more efficient thanks to better switches.

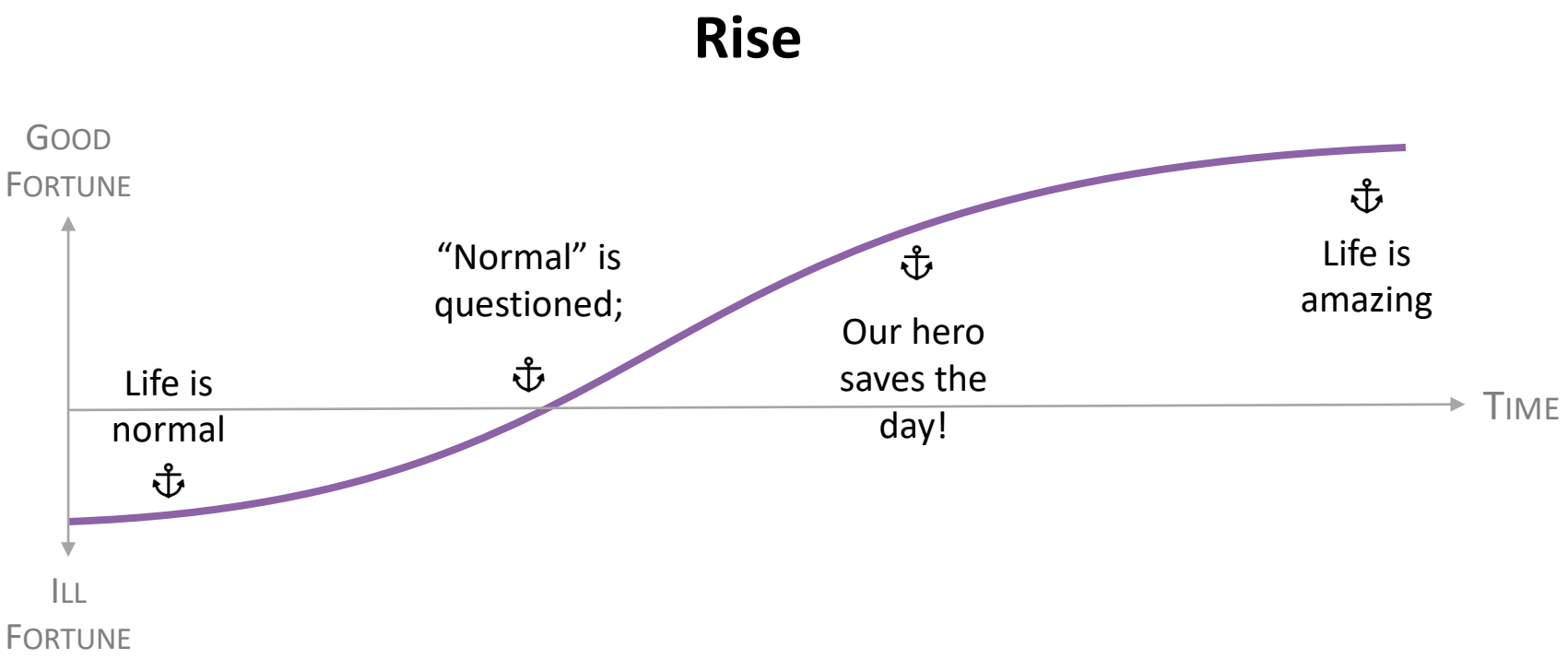
But size/efficiency are now limited not by switches, but by magnetic components.

Designing small, efficient magnetic components is hard!

We developed a new magnetic structure that has excellent performance.

Power electronics have a new way forward.

Stories follow a few common narrative arcs.



"We all know that if you drop your cell phone, bad things happen."

"But why? What if we could toss our phones around with impunity?

<Insert research on flexible electronics... >"

"Unbreakable phones! Flexible solar panels! The possibilities are endless!"

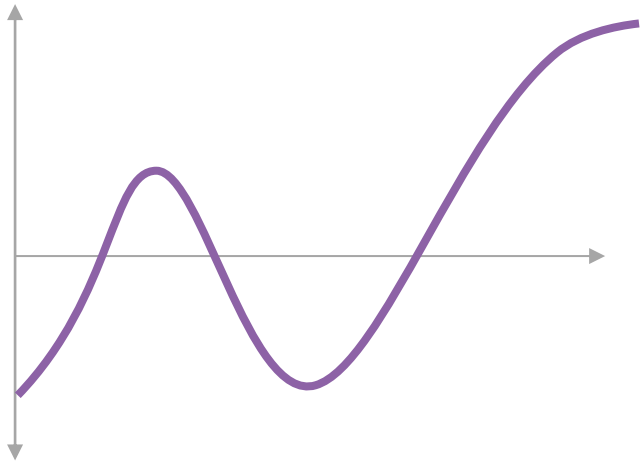
Worksheet

Choose your narrative.

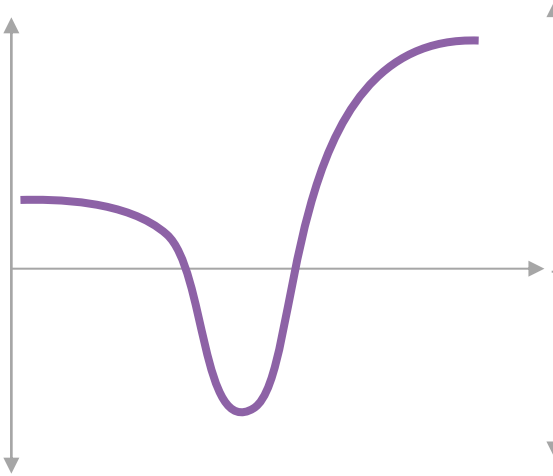
1. Decide who the **character(s)** for your story will be.

2. Choose + fill out a narrative arc using your Hourglass outline.

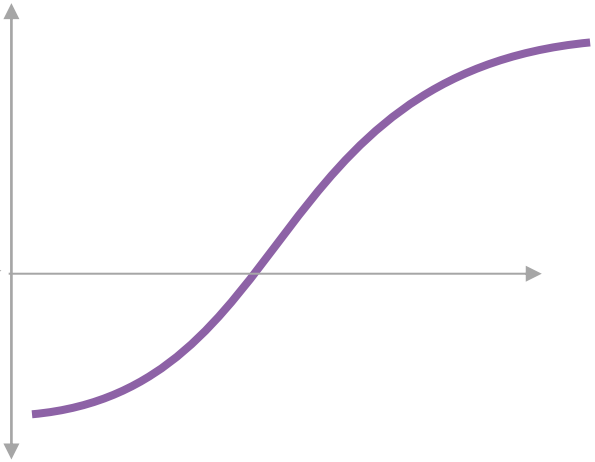
Rise-fall-rise



Fall-rise



Rise



A story has a beginning, a middle, & an end.

- Beginning:

  Grab attention!

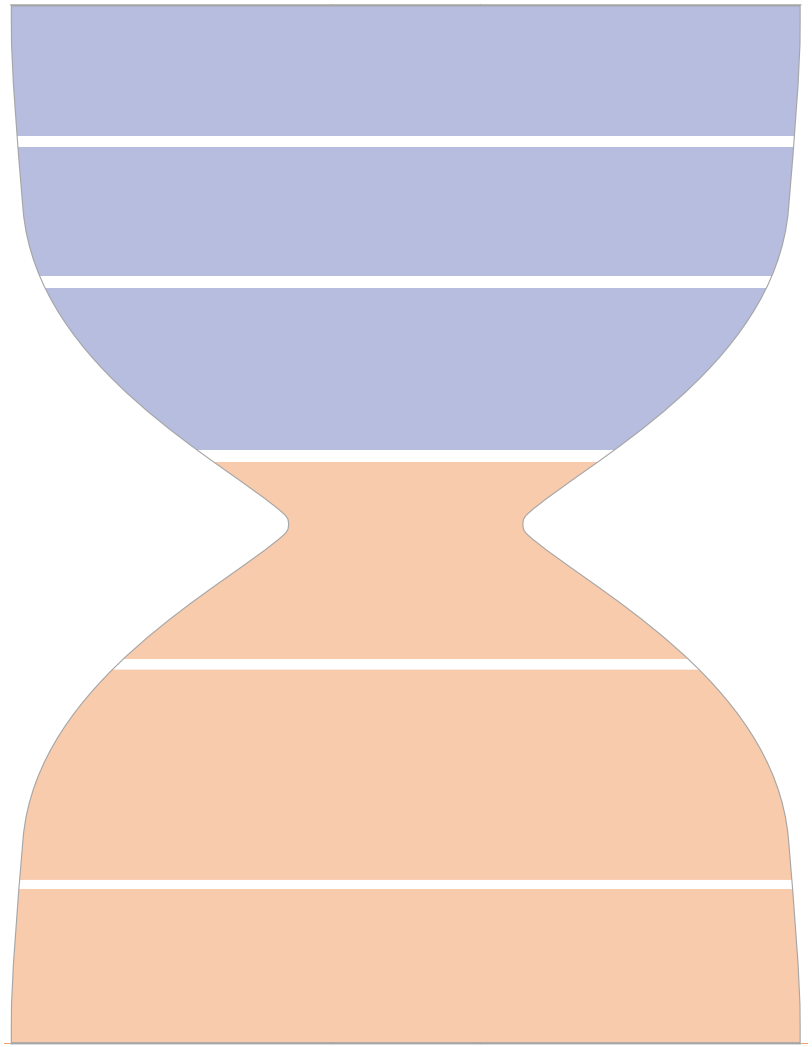
- Middle

- End

  Create satisfaction

  Create optimism

  Create curiosity



You can grab the audience's attention with a set of standard beginnings (hooks).

Grabber (startling/surprising)

"Why is it so hard to kill a zombie? If you've ever watched a zombie movie, you've noticed that they're pretty tenacious. Well, unfortunately for us, some cancer cells act just like zombies." Inspired by Trinh Hua

Back to the beginning

"This tool will let drug companies find these 'cancer zombies.' Because as Sun Tzu famously said, 'to defeat your enemy, you must know your enemy.'"

Inspired by Trinh Hua

Quote

"'It's like every time I take a breath, someone's forcing me to breathe through a straw.' That's how Cassie, a patient in western Massachusetts, describes living with cystic fibrosis." Inspired by Amanda Bordin

"Ultimately, we can help Cassie here breathe a little easier."

Inspired by Amanda Bordin

You can grab the audience's attention with a set of standard beginnings (hooks).

Immersive scene or image

"Imagine a crystal clear lake, the water as still as glass. You can see fish, birds, and beautiful, vibrant colors. You just know that life in and around this lake thrives. Unfortunately, every day this image gets further and further away from reality." —Mariam Elmarsafy

Back to the future

And 10 years from now, your community could be living in the middle of a thriving oasis.

Ask a question

"I want to start with a story about Susie. Susie has just finished her shift…feeding meals to the homeless. On her way home, she comes across a wallet…with [fifty dollars] inside. What happens next?" —Sophie Cameron

So the next time you find some money (likely in a gift card), ask yourself 'What happens next?'

Worksheet

Draft your opening & closing lines.

Opening Techniques

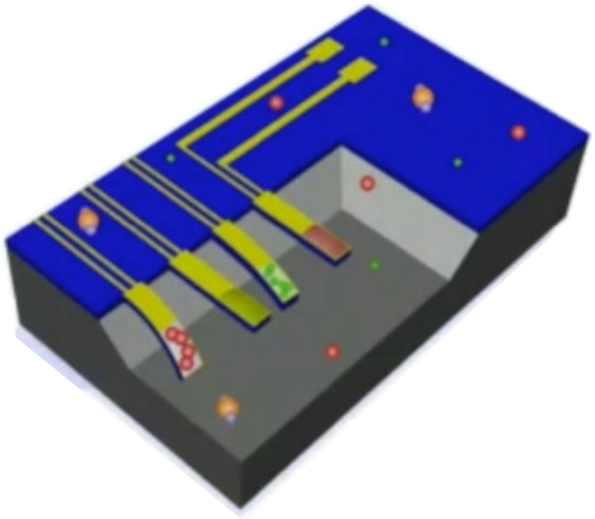
- Grabber (startling/surprising)
- Quote
- Invite audience to do something
- Immersive scene or image
- Anecdote
- Point out something on your slide

Closing Techniques

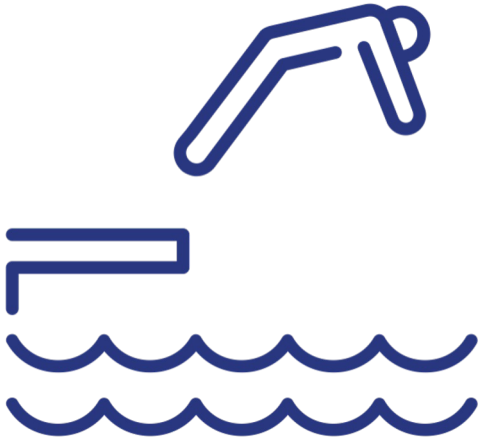
- Restate significance
- “Bookend” (circle back to start)
- Forward-looking prediction
- Quote
- Humor or pun
- Call to action

Stories often have metaphors, which can connect what the audience doesn't know to what they do know.

A nanocantilever…



…is like a diving board



Created by Symbolon
from Noun Project

Guiding principles for metaphors:

1. Keep them accessible.
2. Stick to a small number of consistent metaphors.
3. Map the metaphor back to the technical domain.
4. Test-drive metaphors on multiple audiences.

1. Distill a central message

2. Structure a memorable, exciting story

3. Sketch a visually appealing slide

Visuals should be simple and illustrative.

- < 5 Images
- Large font (or none)
- Simple versions of technical figures

Worksheet

Sketch your slide.

To support your story,

- Sketch a title that communicates your main message.
- Sketch 1-3 simple and illustrative images.
- (Optional: Draft 1-3 accompanying bullet points)

In this workshop you…

1. Distilled a central message from complex ideas about a research topic.

2. Structured a story that is memorable and engaging.

3. Sketched a visually appealing slide that supports your message & story.

Attend the next workshop:

Deliver to Win: How to Present Your 3-Minute Talk Effectively:

Wednesday, **February 21st; 3:30-5 PM** ET;
to work on your presentation delivery!

Any questions? Next steps to remember:

- Presentation delivery workshop on Feb 21, 3:30-5:00pm
- Get 1:1 coaching to develop + practice your talk:
  - Communication Labs
    mitcommlab.mit.edu/find
  - CAPD:

    Grads → Career Advisors capd.mit.edu/services/appointments

    Postdocs → Dr. Simona Rosu srosu@mit.edu
  - Writing & Communication Center
    cmsw.mit.edu/writing-and-communication-center
- Deadline for submitting your talk as a video: March 11
  - Video submission guide: bit.ly/3mt-mit-competition
  - Video creation guide: bit.ly/3mt-mit-resources
  - Example judging rubric: bit.ly/3mt-mit-rubric
- Showcase: April 17