

ESM 438 Week Two

Storytelling and Outlining Presentations

Instructor: Alex Phillips



UC SANTA BARBARA

Bren School of Environmental
Science & Management

By the end of this class you will have a completed 10-15 minute presentation

Lecture

Lab

| | |
|--------------------------------|--|
| General Public Speaking Skills | Movie Monologues & Elevator Pitches |
| <i>Outlining Presentations</i> | <i>Short Story & Introductions</i> |
| Slide Design | Powerpoint Roulette & Methods |
| Answering Questions | Conclusions with Q & A |
| Student Choice! | Full Presentations |

Meet the California giant sea bass, with and without a story



The California Sea bass (*Stereolepis gigas*) are the “kings of the kelp forest,” living up to 70 years and growing up to 7.5 feet long and 550 lbs. At ~30 years females reach sexual maturity and can release up to 60 million eggs during a single spawning event. Due to overfishing in the 1930’s, their population shrunk by 95% and the species remain critically endangered today despite conservation efforts.

Storytelling is a powerful mechanism for effective science communication



Communicating via stories has been found to:

- Increase likelihood of people remembering information
- Reduce disbelief and counter-arguing
- Make people feel the experience as if it was their own
- Be much more convincing than just data
- Increase science engagement to general audiences

You can use the ABT (And, But, Therefore) method for scaffolding short stories

100 years ago Lincoln made us a promise

and

some of it has been fulfilled

but

a century later most of the problems continue
for African Americans

therefore

we are here today on the mall to continue this effort

You can use the ABT (And, But, Therefore) method for scaffolding short stories

Cancer is a deadly disease

and

chemotherapy is one treatment option

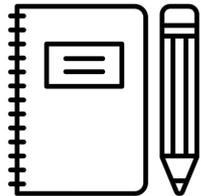
but

it comes with numerous side effects

therefore

in our research, we load these drugs into tiny carriers called nanoparticles, which help reduce adverse effects

Describe your research project using the ABT method



Take a few minutes to write about your current or past project using the ABT method. Think about how you would use tone, pitch, and posture during delivery.

Activity!

Share your example with the class.

**Good stories build narrative tension over time with
a distinct beginning, middle, and end**

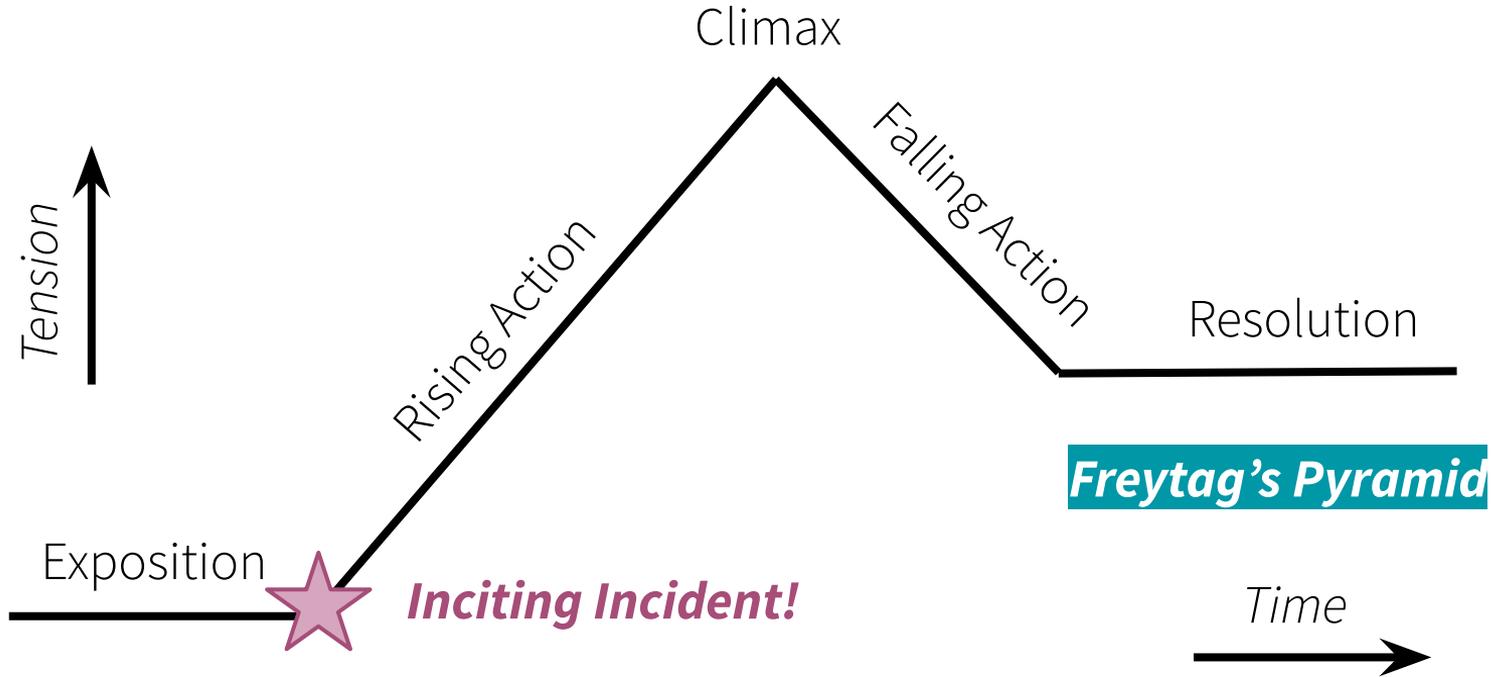
Tension

A vertical black arrow pointing upwards, indicating the direction of increasing tension.

Time

A horizontal black arrow pointing to the right, indicating the direction of increasing time.

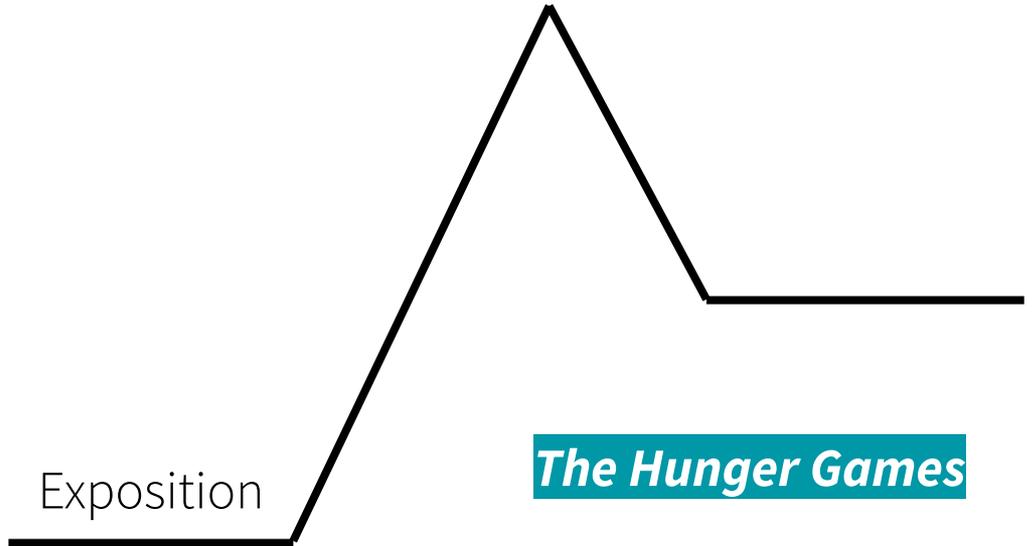
Good stories build narrative tension over time with a distinct beginning, middle, and end



Good stories build narrative tension over time with a distinct beginning, middle, and end



Katniss is a badass, dystopian life w/sister and Gale



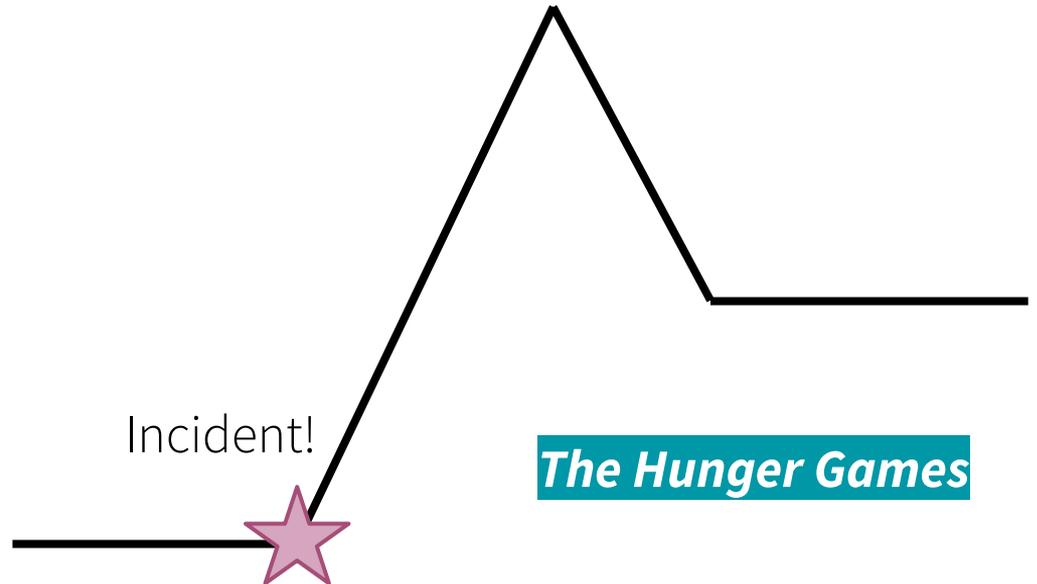
Exposition

The Hunger Games

Good stories build narrative tension over time with a distinct beginning, middle, and end



Katniss volunteers as tribute to save her sister



Good stories build narrative tension over time with a distinct beginning, middle, and end



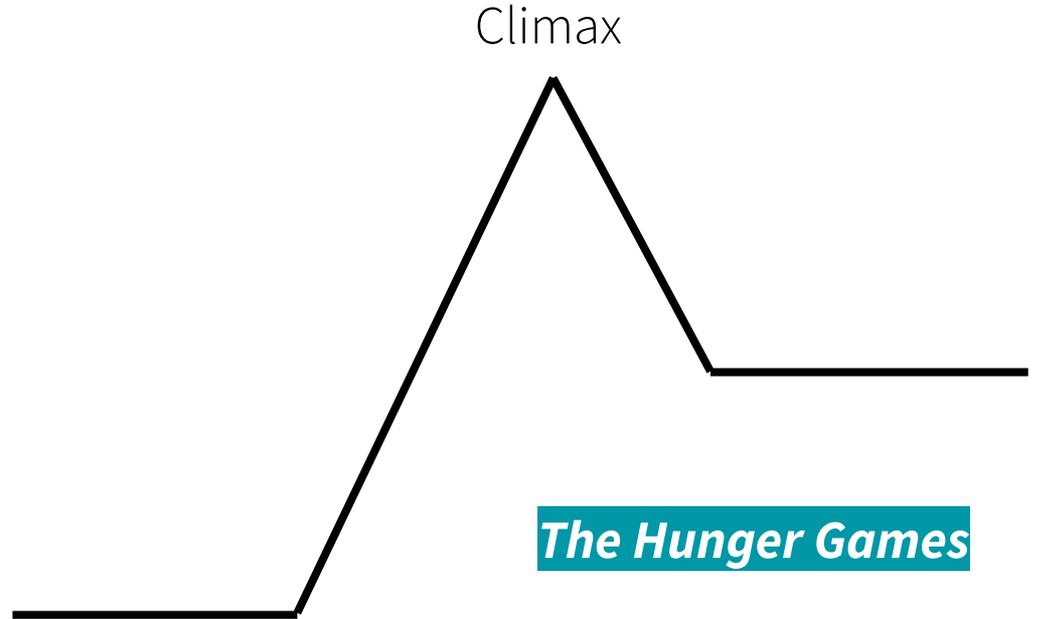
Romance vibes with Peeta, training, tension with Haymitch



Good stories build narrative tension over time with a distinct beginning, middle, and end



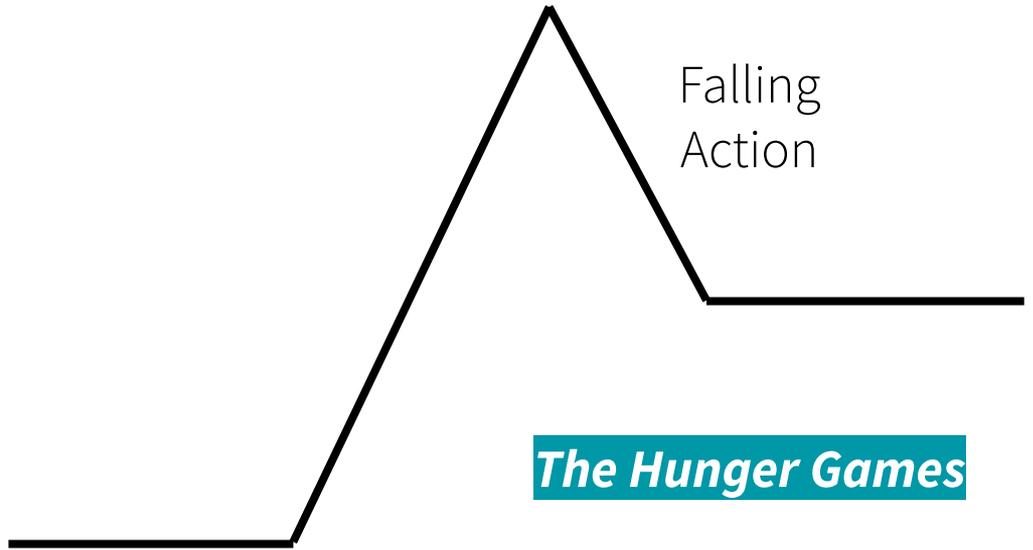
Katniss kills the biggest villain, forced to kill each other, berries!



Good stories build narrative tension over time with a distinct beginning, middle, and end



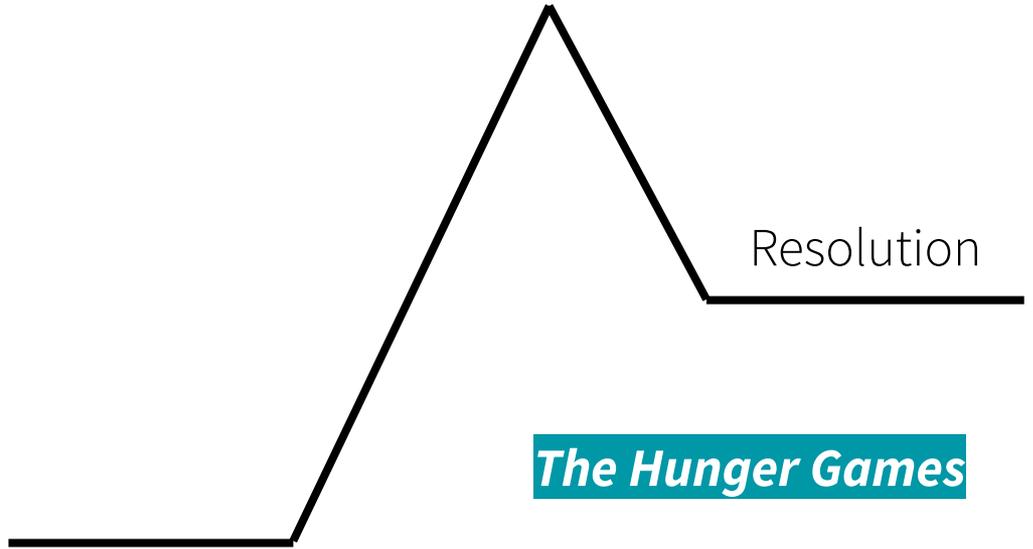
Immediate danger over, crowned victors, fake love



Good stories build narrative tension over time with a distinct beginning, middle, and end



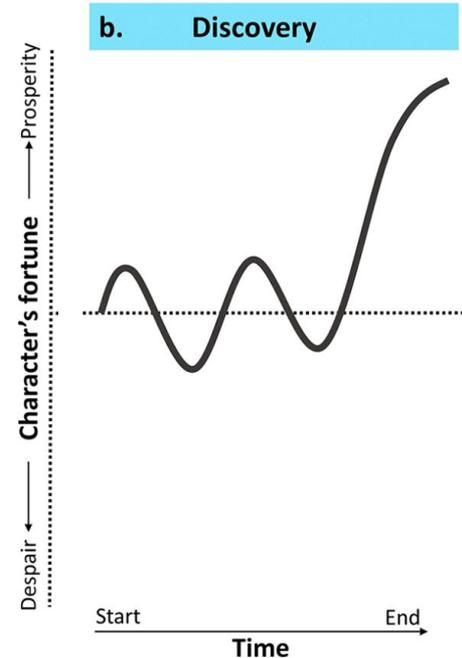
*Head home, tension is eased,
but life is different now*



Common variations for science stories include discovery, rescue, and mystery

Stories about *discovery*:

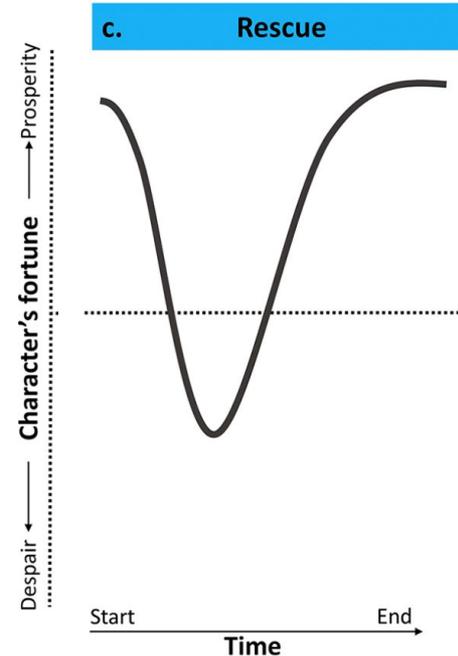
- Often puts scientists as the main character
- Create personal investment through ups and downs of field work, self discovery, analyses etc
- Builds tension as we get closer to a discovery
- Result is often unexpected, imaginative



Common variations for science stories include discovery, rescue, and mystery

Stories about *rescue*:

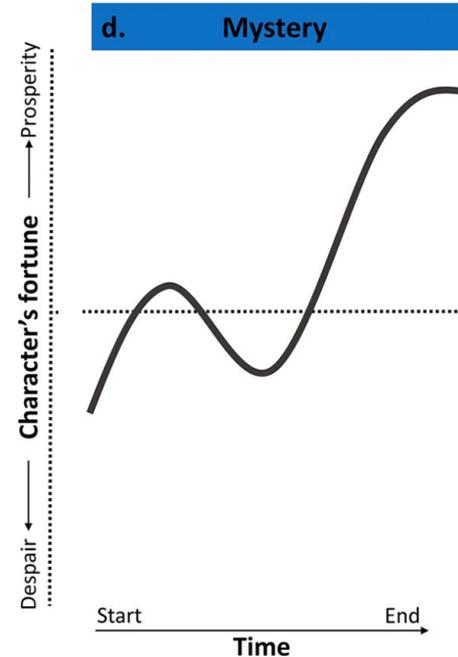
- Are often about science serving society, solving a major challenges we face
- Starts at a high point in the audience's fortunes, high potential to restore
- Then hope plummets around complications
- Ends with a recovery aided by science



Common variations for science stories include discovery, rescue, and mystery

Stories about *mystery*:

- Feature phenomena we can't explain and high stakes for understanding it for society
- Highlight scientists as “detectives” following leads and testing hypotheses
- Starts at low points and builds towards answer



How would you tell your science story?



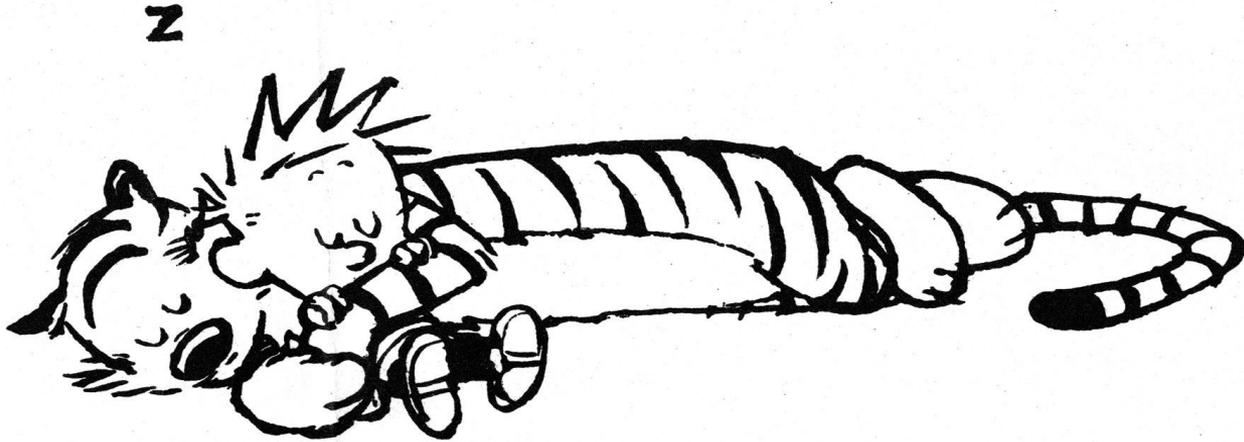
Take a few minutes to brainstorm about the presentation you are building towards. What story arc style might you be able to take? What is the source of tension?

Activity!

Find a partner and share your story idea to get feedback.

Break!

Take five to ten minutes for yourself



Once your framework is scaffolded, add embellishments to improve engagement



Story Add Ons:

1. Humor
2. Hooks
3. Metaphors
4. Characters

Adding humor to science presentations can enhance scientific credibility



Activity: Listen to this winning “Three Minute Thesis” competition presentation by Megan Pozzi:

- How did she use humor throughout her talk?
- How did it improve her story?

Share your thoughts with the class

Try adding small moments of humor by exaggerating project successes or failures

I was really excited to see these results.

Try adding small moments of humor by exaggerating project successes or failures

I was really excited to see these results.



With humor:

When I got the data back I was over the moon. It was even better than when I landed T swift tickets.

Try adding small moments of humor by exaggerating project successes or failures

This was a really big challenge to get these results.

Try adding small moments of humor by exaggerating project successes or failures

This was a really big challenge to get these results.



With humor:

After three months of no results, I was so defeated. I spent so much time in the mass spec lab that I was beginning to literally talk to the mass spectrometer.

Leverage your audience's emotions to find moments for natural humor

Scenario: you are presenting a very technical method or figure.

Leverage your audience's emotions to find moments for natural humor

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With humor:

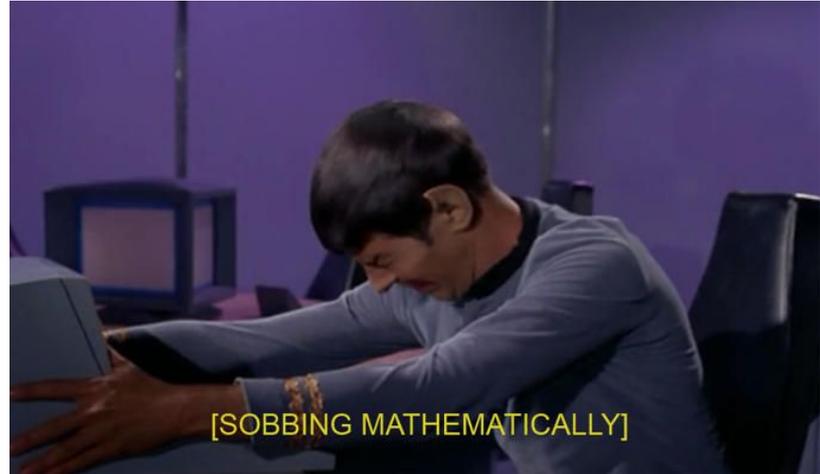
I know exactly what you're thinking... This is all super easy to follow and you're all experts at this now right?

The humor you use in your talk should match your personality



With humor:

“I know exactly how you’re feeling... This is all really overwhelming.”



The humor you use in your talk should match your personality

With humor:

“I know exactly how you’re feeling... This is all really overwhelming.”



A strong story hook sets the tone for high engagement with your audience

Classic “hooks”

I HAVE A HAMMER!



- What if I told you...
- Think about the last time you...
- How many of you...
- Imagine that...
- Take a look at...
- Did you know...

Good hooks inspire wonder, curiosity, humor, or other connecting emotions

I'm Alex Phillips, I'm a postdoc at NASA's Jet Propulsion Laboratory in Pasadena and today I'm going to talk to you about the oceanography of Titan.

Good hooks inspire wonder, curiosity, humor, or other connecting emotions

I'm Alex Phillips, I'm a postdoc at NASA's Jet Propulsion Laboratory in Pasadena and today I'm going to talk to you about the oceanography of Titan.



With a hook (wonder):

Imagine swimming in a vast ocean, but instead of water, that ocean is made up of super cold liquid ethane and methane. That's what it's like on Titan...

Good hooks inspire wonder, curiosity, humor, or other connecting emotions

I'm Alex Phillips, I'm a postdoc at NASA's Jet Propulsion Laboratory in Pasadena and today I'm going to talk to you about the oceanography of Titan.



With a hook (curiosity):

Did you know that Titan is the only other place other than Earth with clear evidence of liquid water? If we want to know about extraterrestrial life, that sure seems like the place to start.

Good hooks inspire wonder, curiosity, humor, or other connecting emotions

I'm Alex Phillips, I'm a postdoc at NASA's Jet Propulsion Laboratory in Pasadena and today I'm going to talk to you about the oceanography of Titan.



With a hook (humor):

I'm here today to tell you one thing. It's a weird, wet world in our Universe. Let's get started in exploring the strangest ocean's in our galaxy, starting with Titan.

Metaphors act as a bridge between complex science and everyday phenomena



Activity: Listen to this “Three Minute Thesis” competition presentation by Owen Gwydion James:

- How did his use of metaphors improve his story?
- How did he carry the metaphor throughout? Did that work?

Share your thoughts with the class

You can use metaphors to improve connections or visualizations for the audience



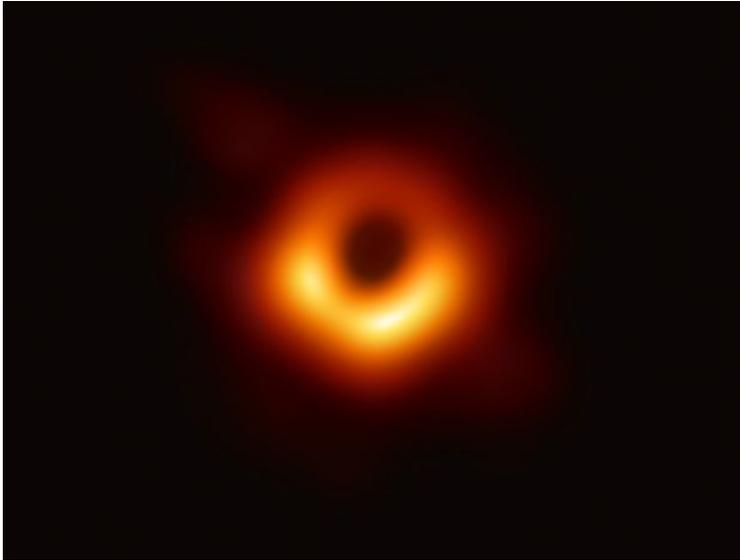
“In the midwest, it’s 7°F warmer in the winter since 1974. That’s the difference between wearing long underwear and not wearing long underwear.”

You can use metaphors to improve connections or visualizations for the audience



“We were able to measure whales by flying a camera high above them, essentially giving them a health check without them knowing we were there”

You can use metaphors to improve connections or visualizations for the audience



“Taking an image of Sgr A at 27,000 light-years away from Earth is akin to taking a photo of a single grain of salt in NYC using a camera in LA”*

Characters increase empathy in your audience, strengthening engagement



Activity: Listen to this “Three Minute Thesis” competition presentation by Matthew Thompson:

- How did he use characters throughout his talk?
- How did that impact you as a listener?

Share your thoughts with the class



With a character (emotion):





With a character (humor):

Rat liver membranes contain a 120 kDa glycoprotein which serves as a substrate for the tyrosine kinases of the receptors for insulin and epidermal growth factor

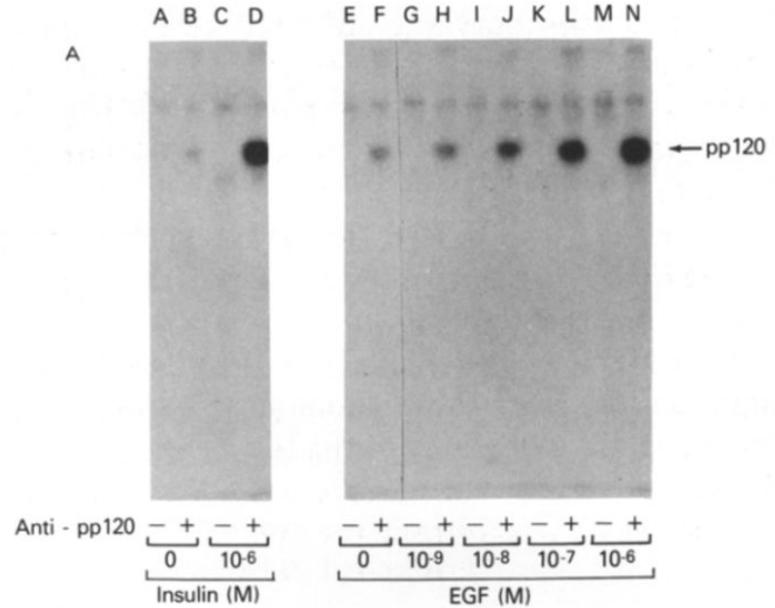
Susan A. Phillips, Nicola Perrotti and Simeon I. Taylor

Biochemistry and Molecular Pathophysiology Section, Diabetes Branch, NIDDK, National Institutes of Health, Building 10, Room 8N-250, Bethesda, MD 20892, USA

Received 20 November 1986; revised version received 15 December 1986

The receptors for insulin and epidermal growth factor possess tyrosine-specific protein kinase activity which may play a role in mediating the biological actions of these two peptides. We have identified a 120 kDa glycoprotein (pp120) in rat liver plasma membranes which can be phosphorylated by the insulin receptor in a cell-free system and in intact cultured hepatoma cells. In the present report, we have demonstrated in a cell-free system that solubilized epidermal growth factor receptors can phosphorylate tyrosine residues in pp120.

Insulin receptor; Epidermal growth factor receptor; Tyrosine kinase; Protein phosphorylation





With a character (humor):

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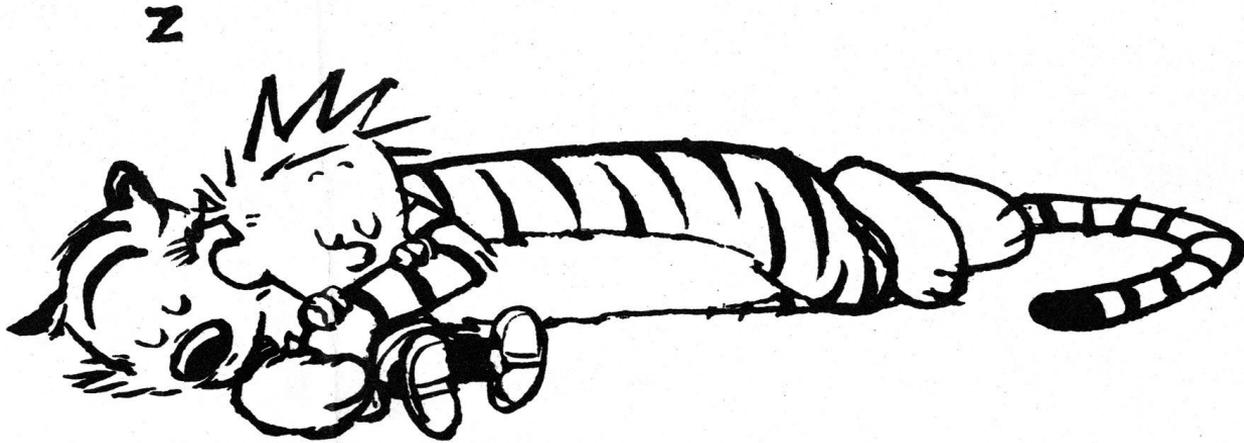
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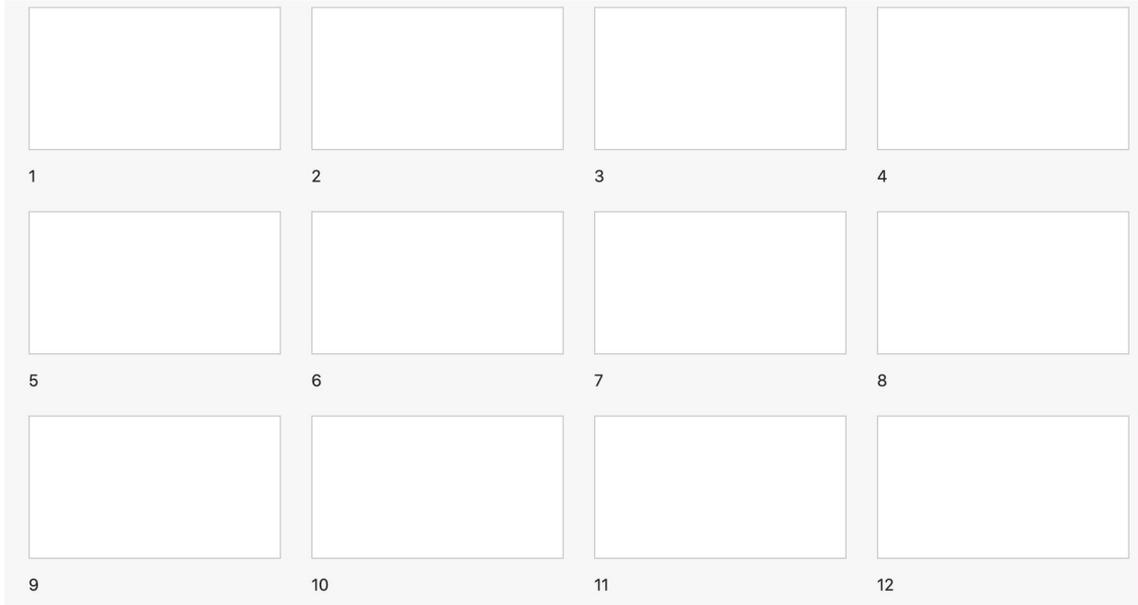


Break!

Take five to ten minutes for yourself



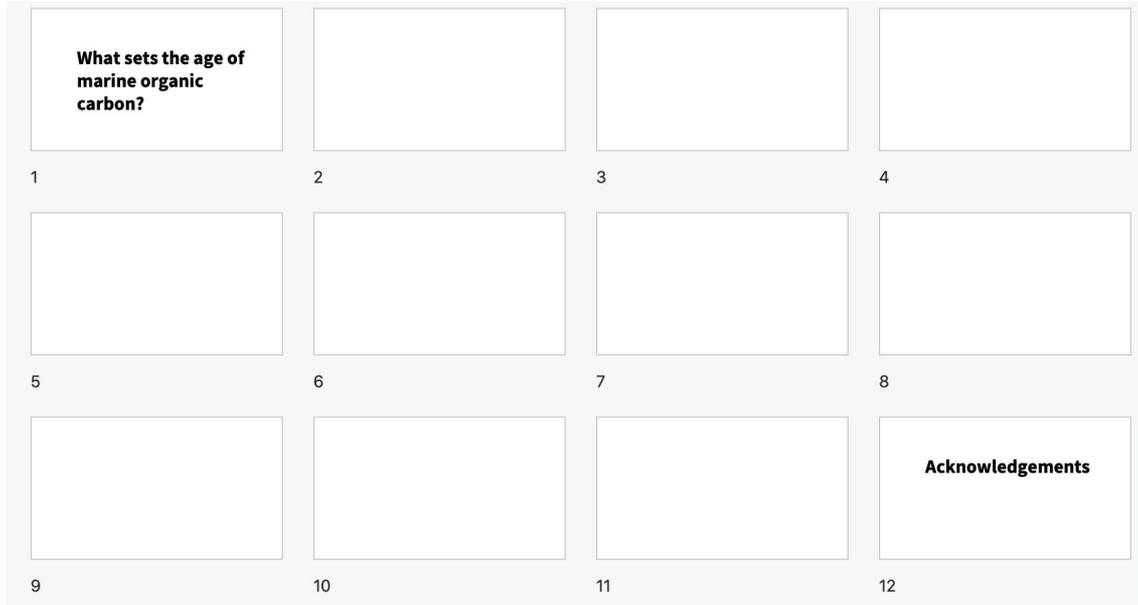
How to turn a story into a presentation:



Step One:

Open a blank powerpoint or google slides document and add as many blank slides as minutes in your talk.

How to turn a story into a presentation:



Step Two:

Reserve the first slide for your title and your last slide for acknowledgements.

How to turn a story into a presentation:

| | | | |
|---|--|--|--|
| 1 What sets the age of marine organic carbon? | 2 The ocean is an important carbon pool for global climate | 3 We don't know why some marine carbon persists for so long | 4 Some people think reactions with sulfur let carbon age |
| 5 | 6 | 7 | 8 |
| 9 | 10 | 11 Sulfur is not the answer to the ocean's long lived carbon | 12 Acknowledgements |

Step Three:

Start filling in descriptive slide titles with full sentences. Each slide should have just one idea.

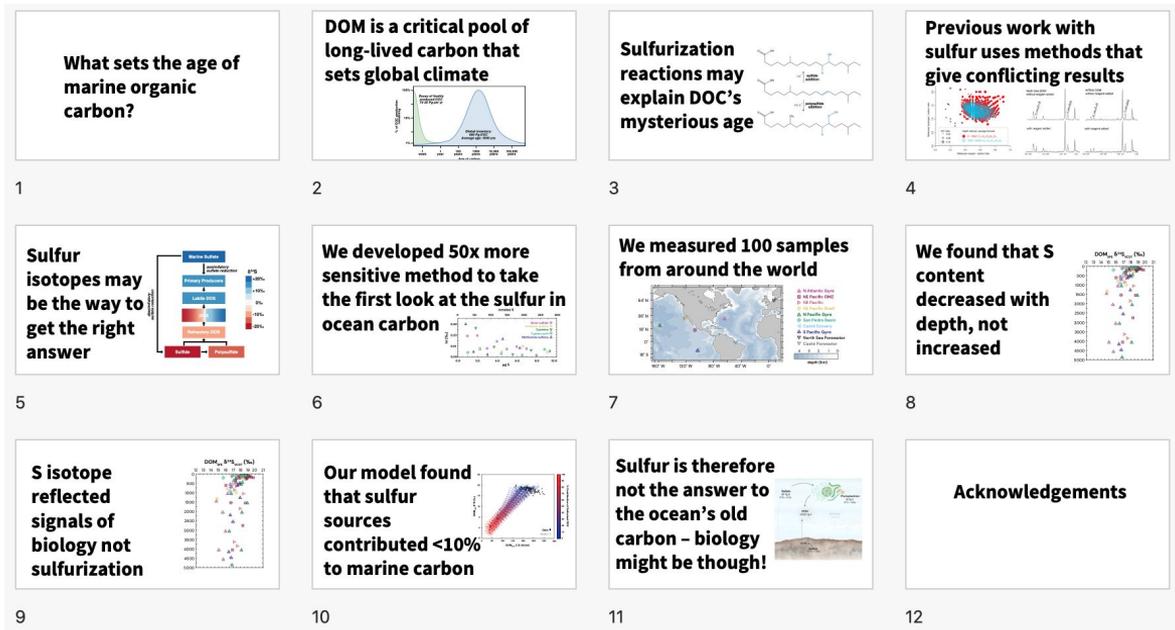
How to turn a story into a presentation:

| | | | |
|--|---|---|---|
| 1 | 2 | 3 | 4 |
| What sets the age of marine organic carbon? | The ocean is an important carbon pool for global climate | We don't know why some marine carbon persists for so long | Some people think reactions with sulfur let carbon age |
| 5 | 6 | 7 | 8 |
| We developed a new method to take the first look at the sulfur in ocean carbon | Our method was 50x more sensitive, needing just 5 L of water | We measured 100 samples from around the world | We found that S content decreased with depth, not increased |
| 9 | 10 | 11 | 12 |
| Our model found that sulfur sources contributed <10% to marine carbon | Sulfur is therefore not the answer to the ocean's long lived carbon | Instead, biology in the surface ocean sets the age of marine carbon | Acknowledgements |

Step Four:

Keep going, editing content until your titles read to say the rough outline of the story you are trying to tell.

How to turn a story into a presentation:

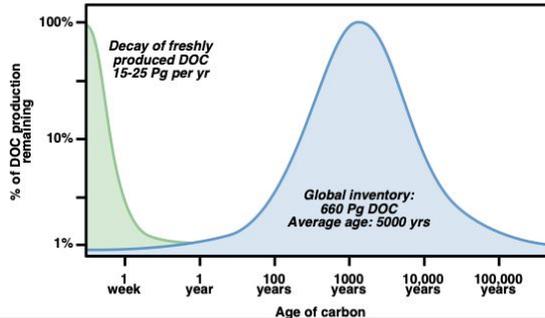


Step Five:

Add in supporting data from your work or others that you want to cover, don't worry about format. This may change things!

How to turn a story into a presentation:

DOM is a critical pool of long-lived carbon that sets global climate



Step Six:

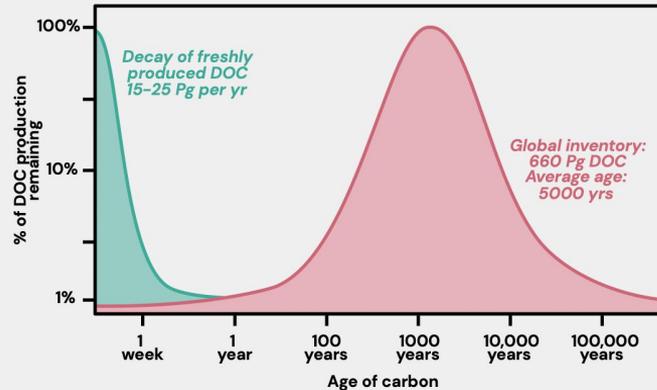
Refine! Add imagery, typography, icons, updated graphs, quotes, nicer data, etc.

How to turn a story into a presentation:

MARINE DOM IS A CRITICAL RESERVOIR OF LONG-LIVED CARBON THAT HELPS SET GLOBAL CLIMATE

“Deep oceans contain as much C in the form of DOM as the planet’s atmosphere contains in the form of CO₂... it was likely a major player in global climate over geological time scales. Evidence suggests that sequestering DOC in the deep ocean may have helped bring the planet back from past warming episodes”

Hansell and Carlson 2015



Step Six:

Refine! Add imagery, typography, icons, updated graphs, quotes, nicer data, etc.

How to turn a story into a presentation:

MARINE DDM IS A CRITICAL RESERVOIR OF LONG-LIVED CARBON THAT HELPS SET GLOBAL CLIMATE

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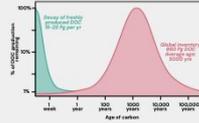
MARINE DDM IS A CRITICAL RESERVOIR OF LONG-LIVED CARBON THAT HELPS SET GLOBAL CLIMATE

"Deep oceans contain as much C in the form of DDM as the planet's atmosphere contains in the form of CO₂. It was likely a major player in global climate over geological time scales. Evidence suggests that sequestering DDM in the deep ocean may have helped bring the planet back from past warming episodes"

Hansell and Carlson 2015

"Deep oceans contain as much C in the form of DDM as the planet's atmosphere contains in the form of CO₂. It was likely a major player in global climate over geological time scales. Evidence suggests that sequestering DDM in the deep ocean may have helped bring the planet back from past warming episodes"

Hansell and Carlson 2015



Step Seven:

Add any slide animations or fillers with pictures - basically add or subtract content until the timing is right!



Using descriptive titles will help you outline and present talks of all lengths

Benefits of descriptive titles:

- Allows you to work on slides out of presentation order
- Easier for managing group work on talks
- Forces you to think about your overall story
- Lets you filter what to include or not include
- Provides an anchor point during talks
- Once you feel confident with this method, you can deviate!

Work on creating your talk's outline from your story idea



Task: Using paper, notecards, or a computer, start the process of outlining your talk with descriptive title slides. Focus especially on setting up the story you want to tell with tension.

Activity!

If there's time: share with a partner to get feedback.

Lab one (AM only!) will include an activity on storytelling and practicing your introduction



Assignment One

Tell us a story about anything! It should be less than 3 minutes and use at least one embellishment.



Assignment Two

Prepare the introduction of your talk, focusing on a strong opening that sets up the story you want to tell.



Any questions?

Next class: slide design and data