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# Science Not Communicated is Science Not Done: Present Your Science Powerfully

Melissa Marshall

*Melissa Marshall Consulting LLC, melissa@presentyourscience.com*

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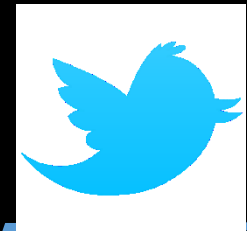
# Science Not Communicated is Science Not Done: Present Your Science Powerfully

**Melissa Marshall**

Principal, Melissa Marshall Consulting LLC  
Melissa@PresentYourScience.com

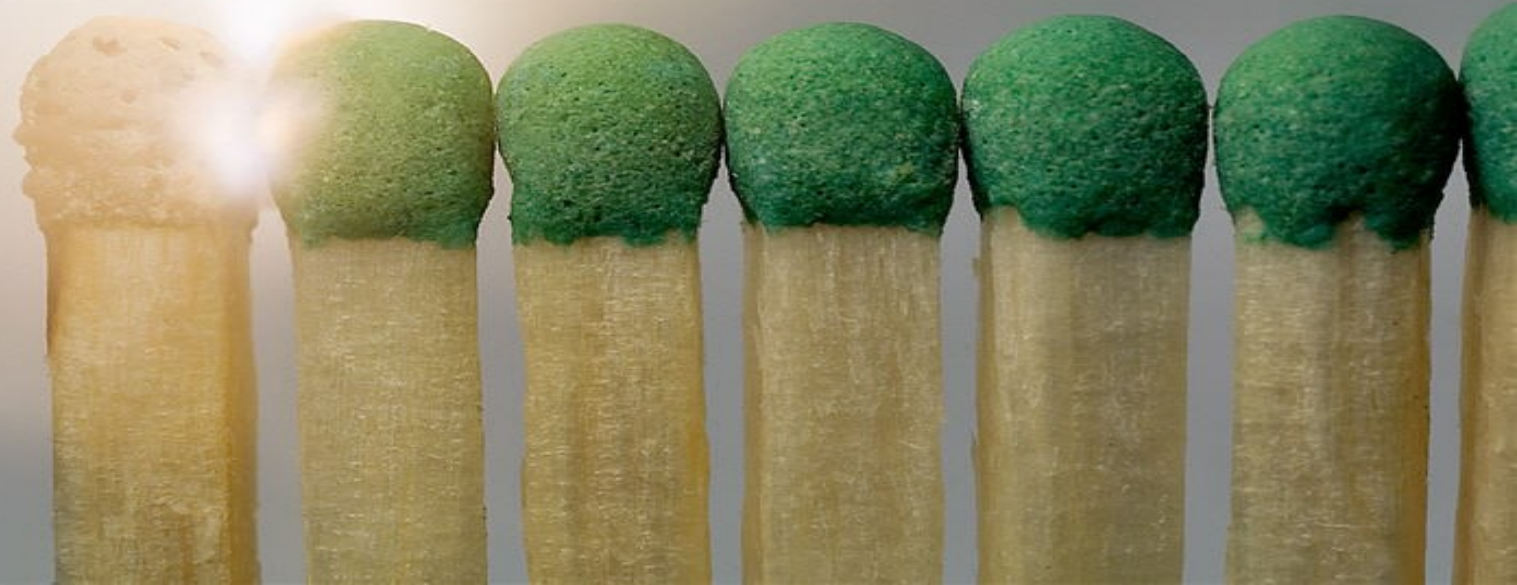


[www.PresentYourScience.com](http://www.PresentYourScience.com)



@MMarshallSpeaks

Great communication **ignites** a chain reaction

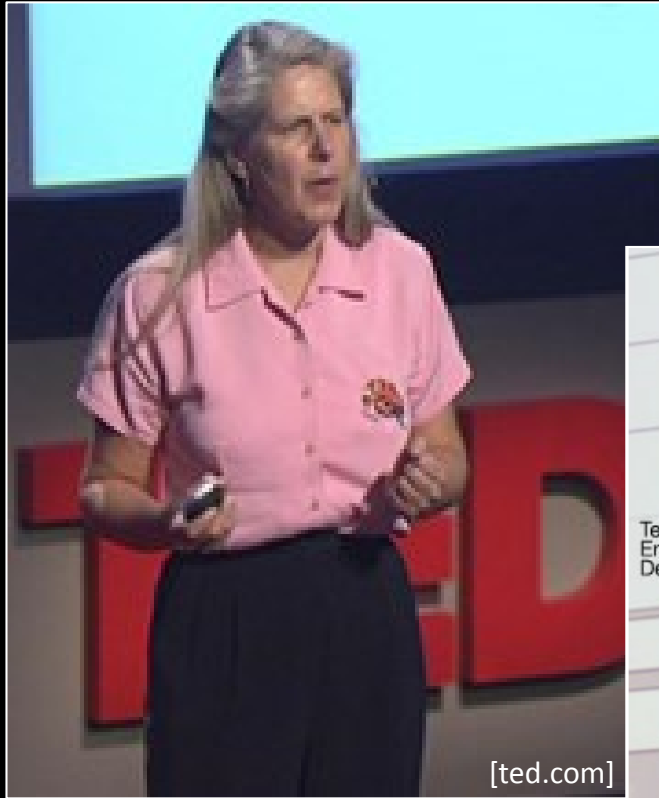


**Discussion:** Identify the best presenter of science that you have seen  
that you have seen

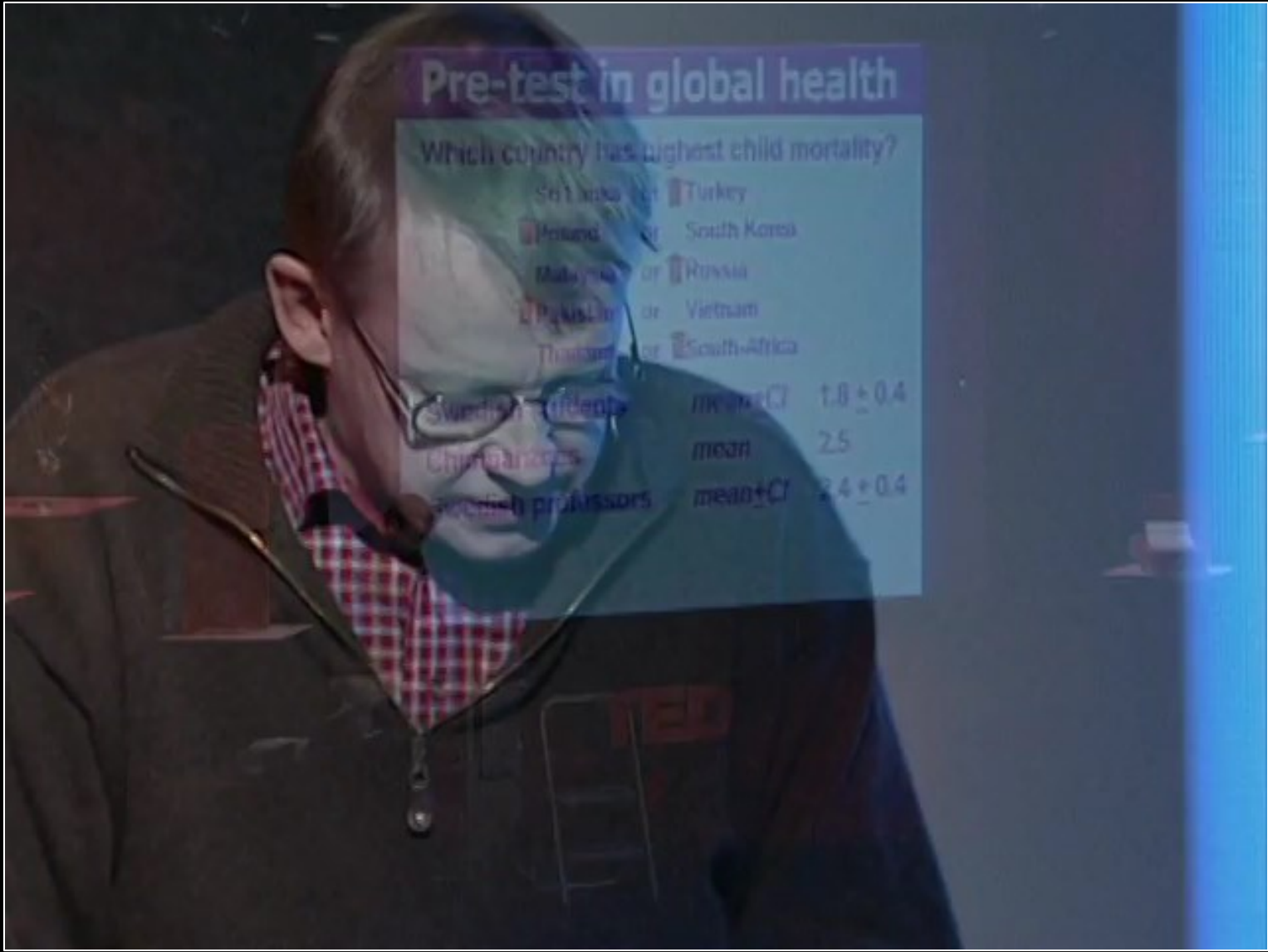


What made that speaker so effective?

**To excel in your presentations, you will need content, passion,**

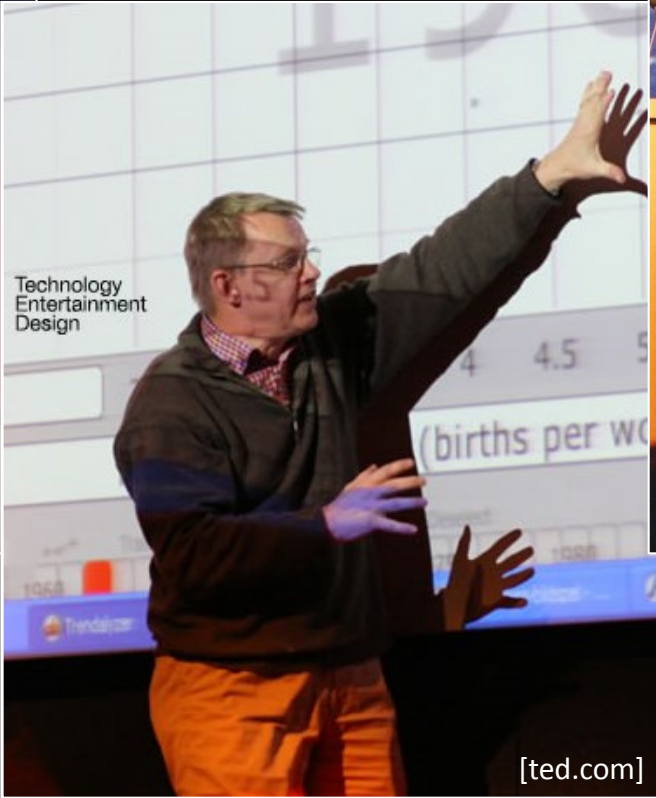






[Dr. Hans Rosling, TED.com]

# To excel in your presentations, you will need content, passion, and a sharp sense of the audience

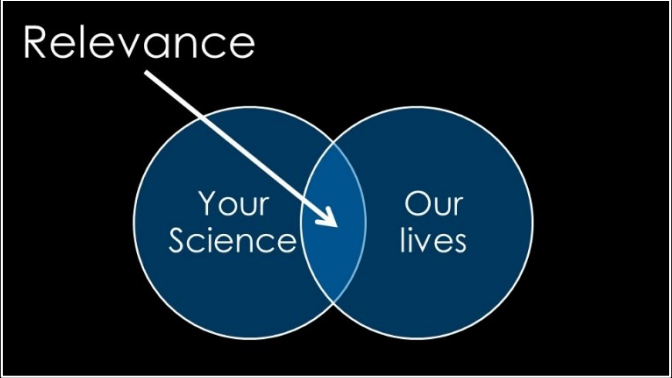


**Science not communicated  
is science not done.**





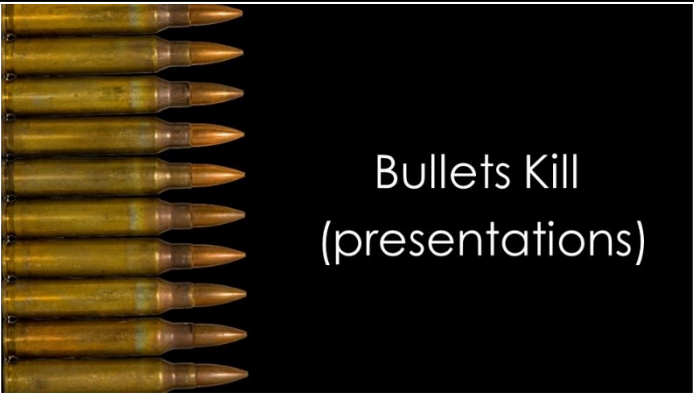
# Presenting your science powerfully requires mastery of three skills



**Be Audience Centered**

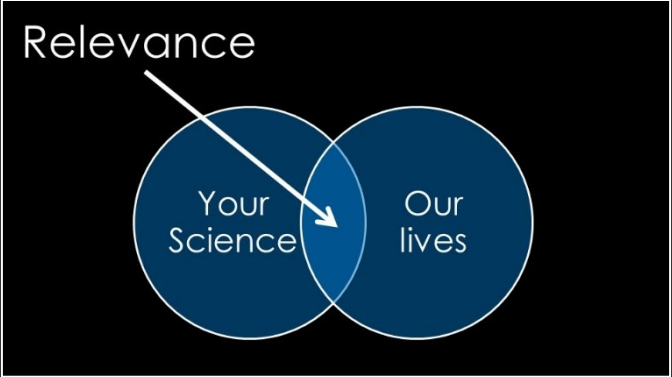


**Filter and focus**



**Show your science**

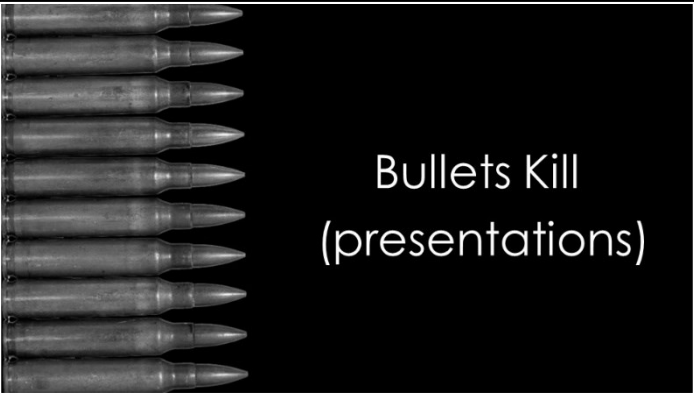
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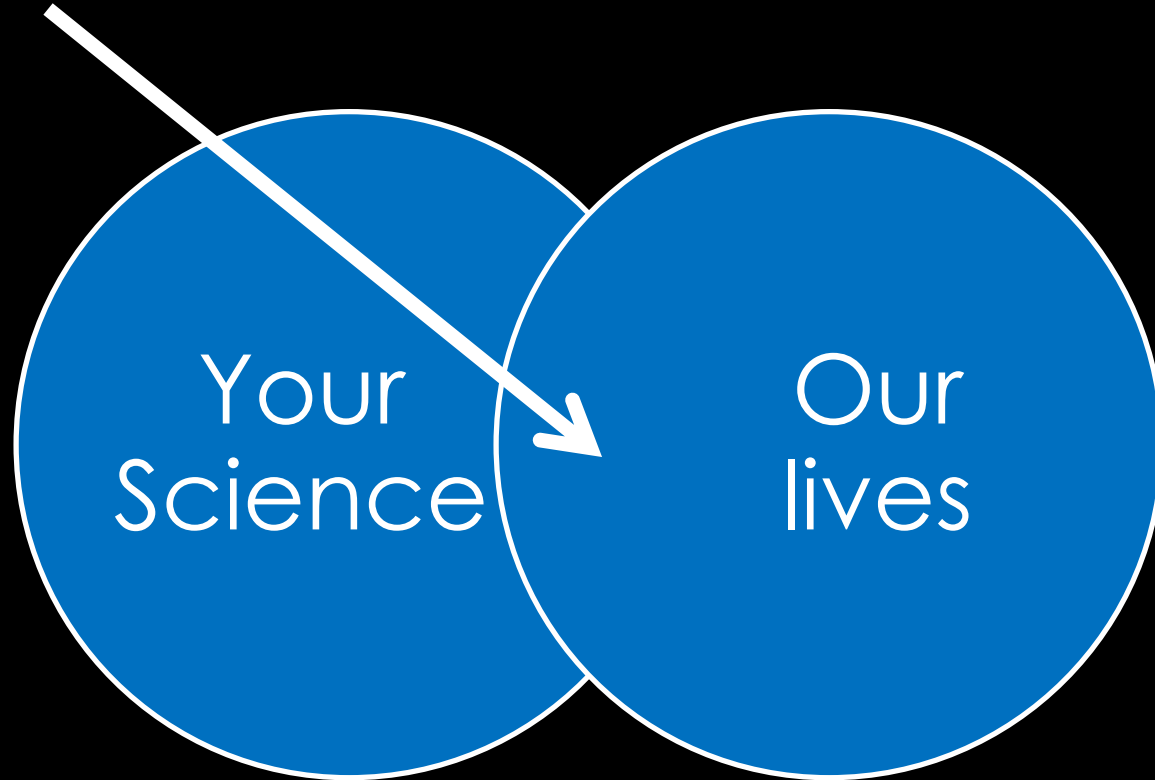


**Filter and focus**



**Show your science**

# Relevance

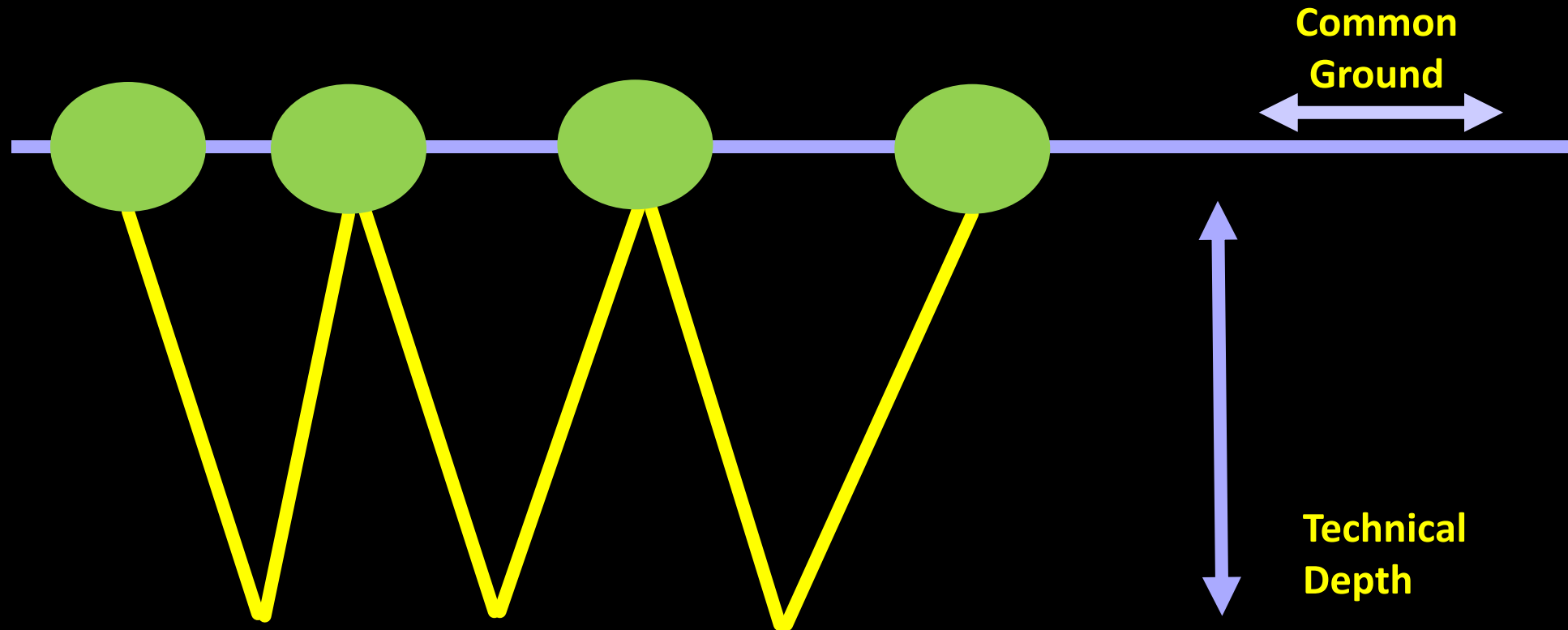


Becoming an **audience focused speaker** is one of the most powerful skills you can adopt

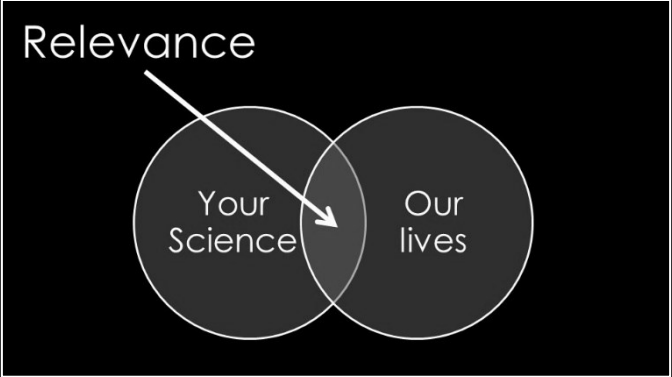




**Returning to points of common ground satisfies audiences of different technical backgrounds**



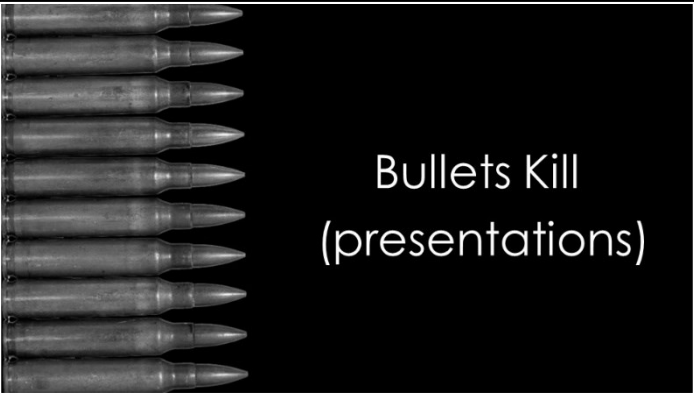
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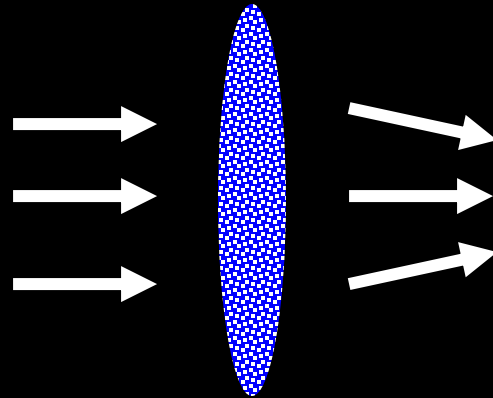


**Filter and focus**



**Show your science**

**Successful technical presentations require you to filter your details for your audience**





**Focus your content by considering first the most important message for your audience**

**New methods are needed to detect plastic explosives in airline baggage**

**Conventional methods cannot effectively detect plastic explosives**

**Plastic explosives pose a serious threat to air travel**





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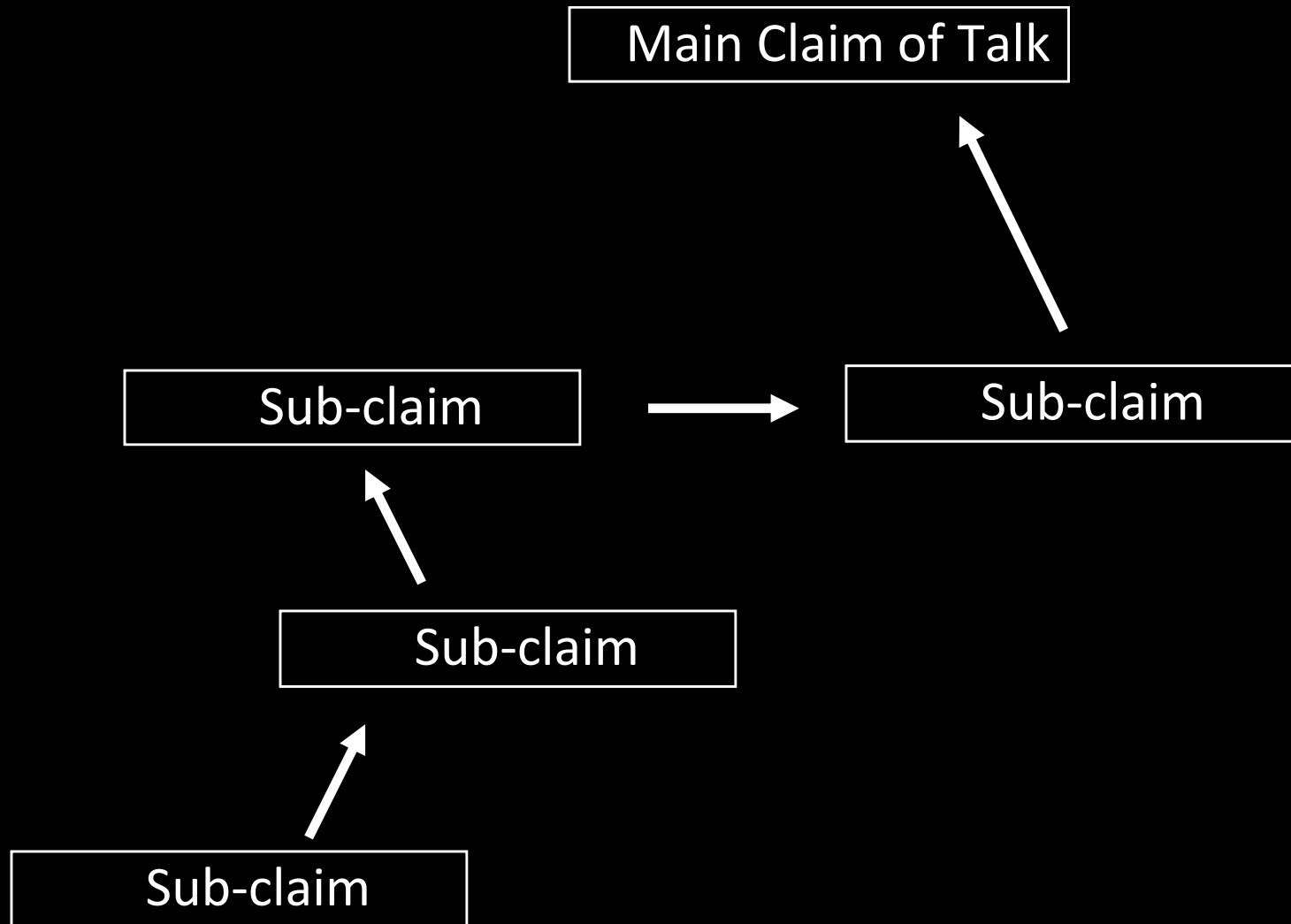
**To identify critical points for the talk, first consider the view you want the audience to have at the end**

**Main message you want the audience to leave the room with**

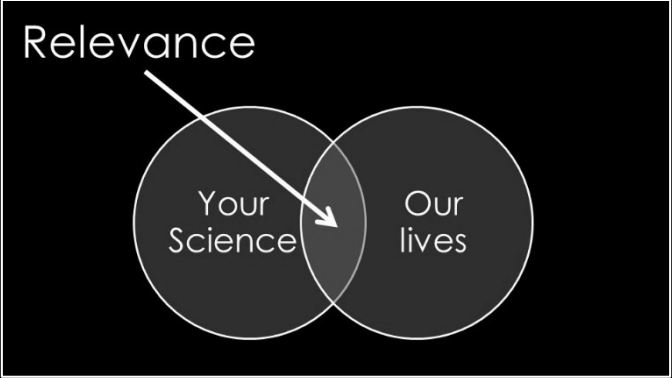


**What does the audience need to know in order to reach the point above?**

**A good planning technique for filtering detail is to consider where you want your audience to end up and build the path from there**



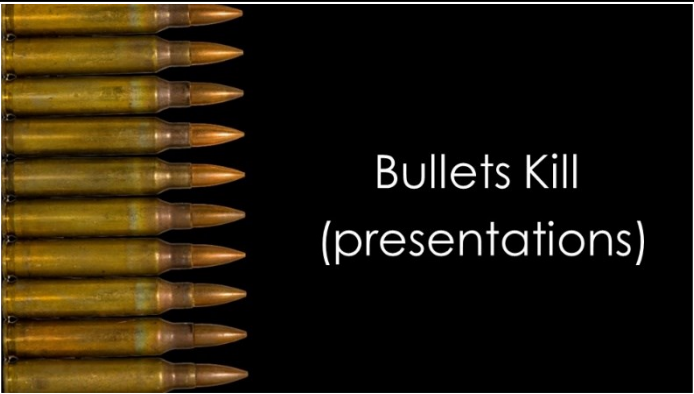
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**Be Audience Centered**



**Filter and focus**



**Show your science**

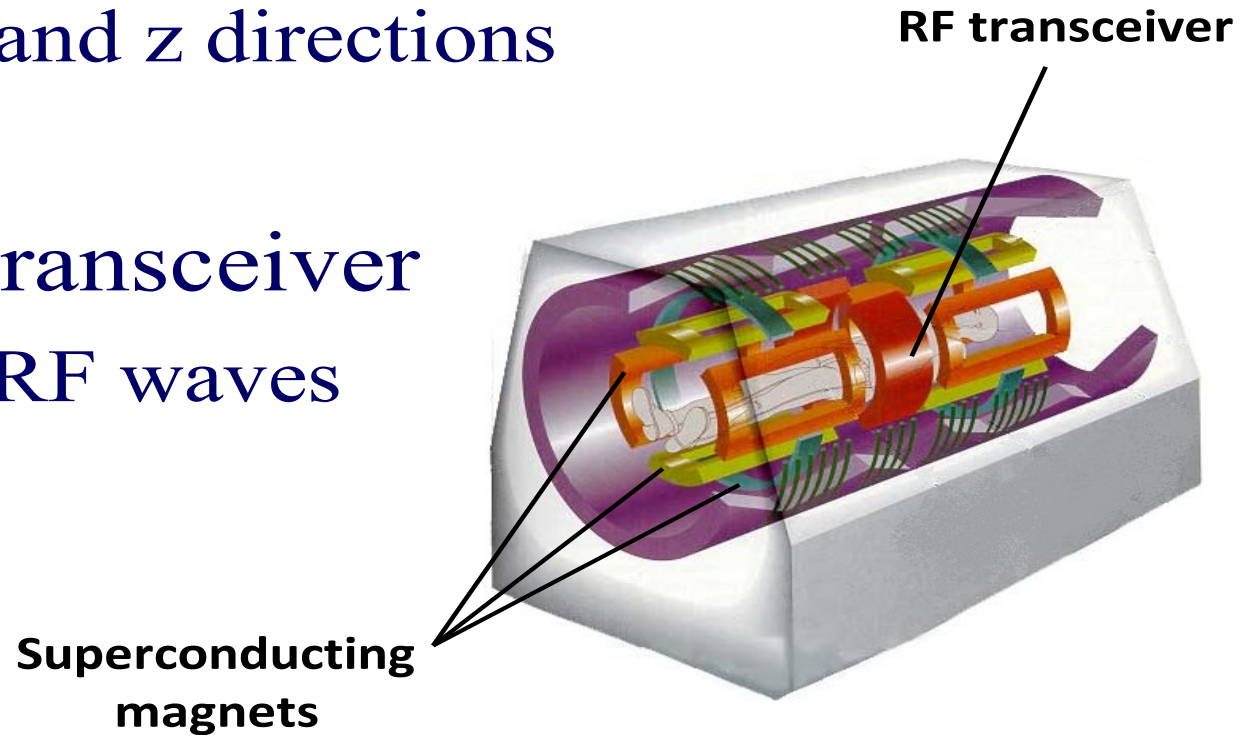




**Bullets Kill  
(presentations)**

# Main Components of MRI

- Superconducting magnets
  - Magnetic fields in x, y, and z directions
  - Allow for 3-D images
- Radio frequency (RF) transceiver
  - Transmits and receives RF waves



# What sets our company apart?

- Global reach
  - We have established partnerships on five continents
    - Gives us the business and regulatory relationships that will speed product to market
    - Access to key markets that would require significant investment to penetrate using other channels
    - Offices in 19 countries and the best talent across departments around the world
- Superior technology
  - Our broadband system is 2x faster than our closest competitors – and costs no more than theirs!
    - Also have the network relationships to enable rapidly expandable capacity
- Most experienced team
  - All of our senior management and lead technology team members have more than 20 years' experience in the field
    - More than half our leadership team owns several patents
    - VP Ops helped develop the core technology for US DOD, still used by military!



# Who is Doing What Well?

## Green Buildings

- Energy-efficient buildings proved their worth (TI, Intel, Cymer, etc.)
  - Energy savings
  - Better resource use
  - Increased value at sale
- Metrics for credits?
  - Carbon storage
  - Energy generation
  - Selling wastestream
- ASTM E06 committee
  - Buildings first
  - Products next
- ANSI EPA Off to Races

## Green Products

- SEMI members– many “one-attribute” standards to use
  - S23-0708 (Energy efficient)
  - S16-0307 (End of Life)
  - GRI G3 Guidelines
- ANSI “sustainable” SDOs in high-tech arena
  - ASTM – Products Next
  - IEEE – Ad hoc 2/09 Sustainability + Earth-monitoring network
  - Leonardo Academy - SCS-002 “LCA label”
    - Gives 25% of seat to environmentalists
    - Accreditation challenged



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- Click to edit Master text styles
  - Second level
    - Third level
      - Fourth level
        - Fifth level

Click to edit Master title style

Title Area for AutoLayouts

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      - Fourth level
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Object Area for AutoLayouts

<date/time> Date Area

<footer> Footer Area

<#> Number Area

**1987 Master Template**

Click to edit Master title style

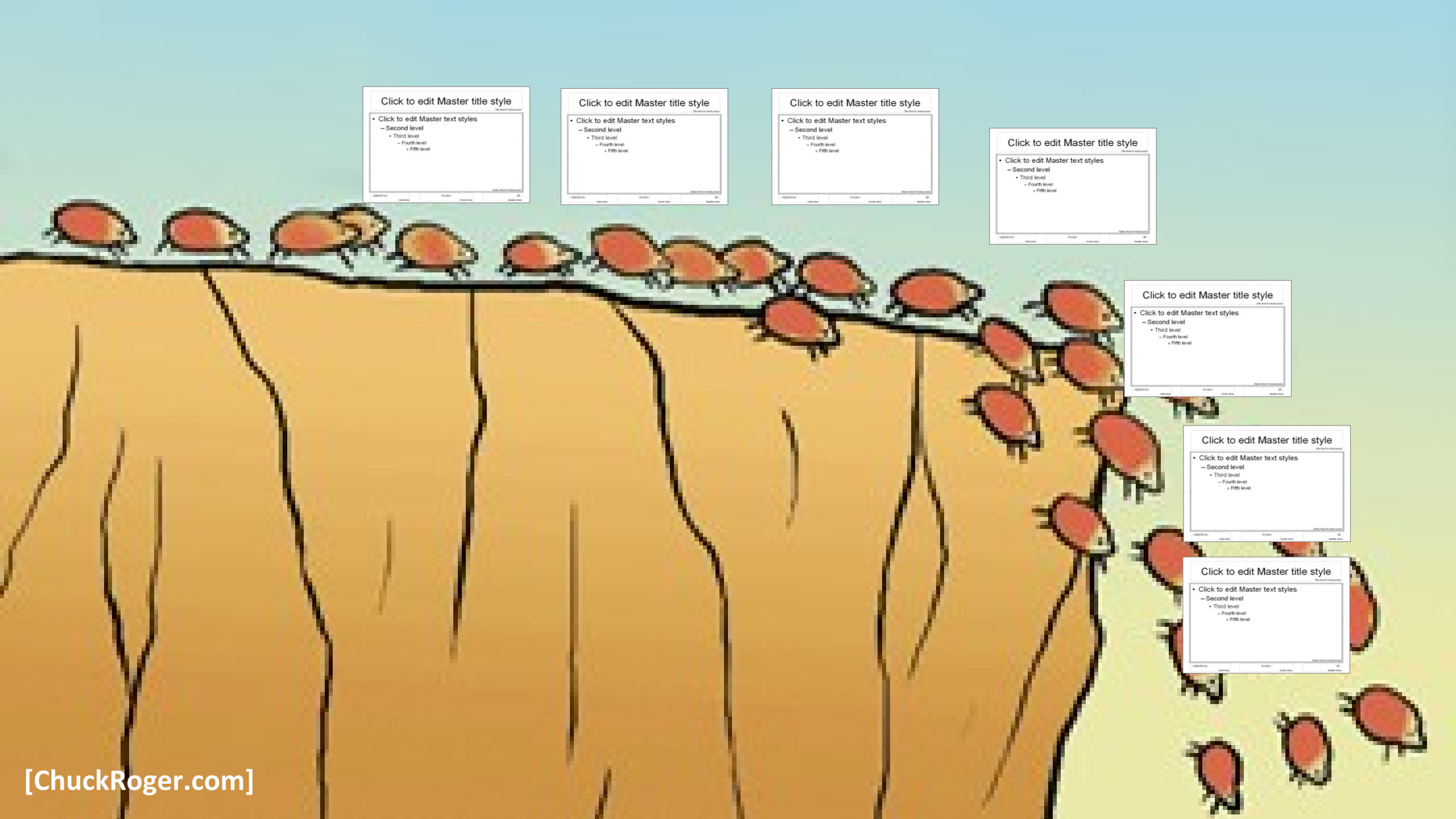
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3/19/2015

Footer

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**2013 Master Template**



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## Pedagogy for New Learners

- Incorporating **technology is a must**
- Technologically savvy teachers are too!
- **Enable co-creation** and social learning
- Faculty become **learning managers**, integrating coaching, counseling into teaching formats
- **Greater partnerships** with instructional partners, like Microsoft, game mfgs., etc.

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Leadership and Quality Assurance in Applied Science,  
Computing, Engineering, and Technology Education

Yada, yada, yada,  
yada, yada, yada,  
yada, yada,  
yada...



**If audiences try to process too many words simultaneously, cognitive overload occurs**



[John Sweller, 2005]



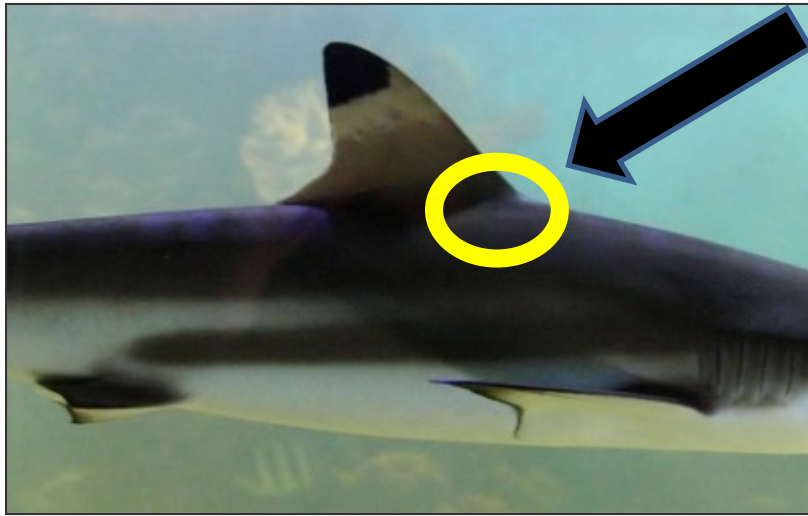
# Fillets

## Fluid mechanics

- Helps an object to move through a fluid
  - Used by engineers
- Inspired by nature (shark)
- Seen on submarines and on blades in a jet engine

**Fillets reduce drag on an object moving through fluid...**





**Fillets reduce drag on  
an object moving  
through fluid...**





**People learn much more deeply from words  
and relevant images than from words alone**



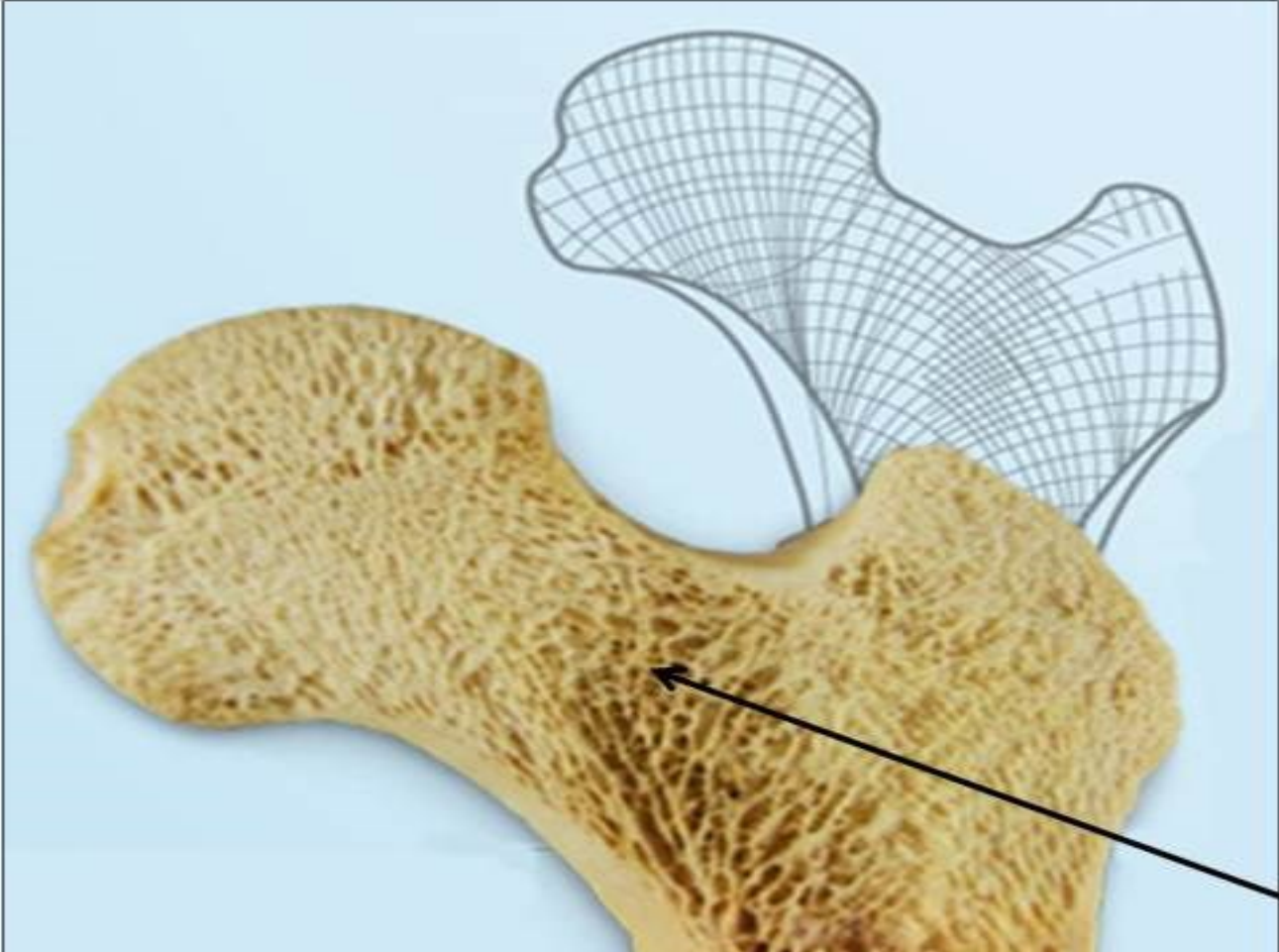


# TRABECULAE

- ▶ Cancellous bone
- ▶ Anastomosing bony spicules
- ▶ Mathematically precise alignment
  - Strength during tension/compression
- ▶ Discovered in 1850s
- ▶ Inspired Eiffel Tower design

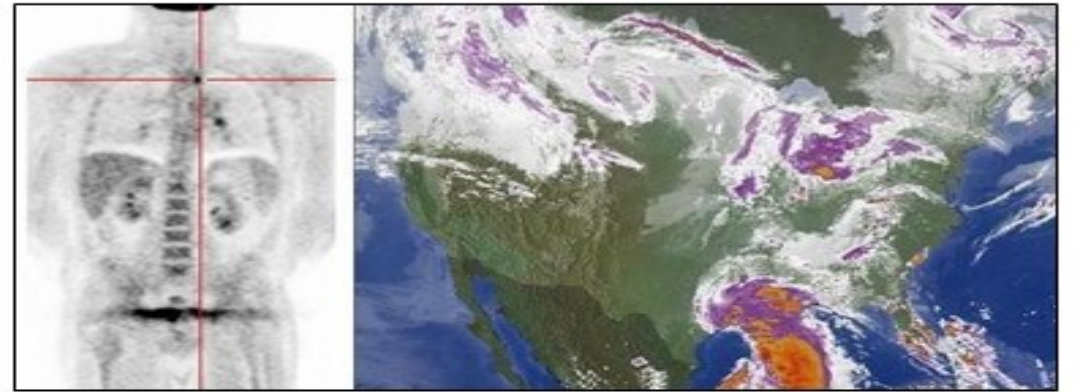


# Trabeculae reduce a bone's weight while giving it maximum strength against multiple forces



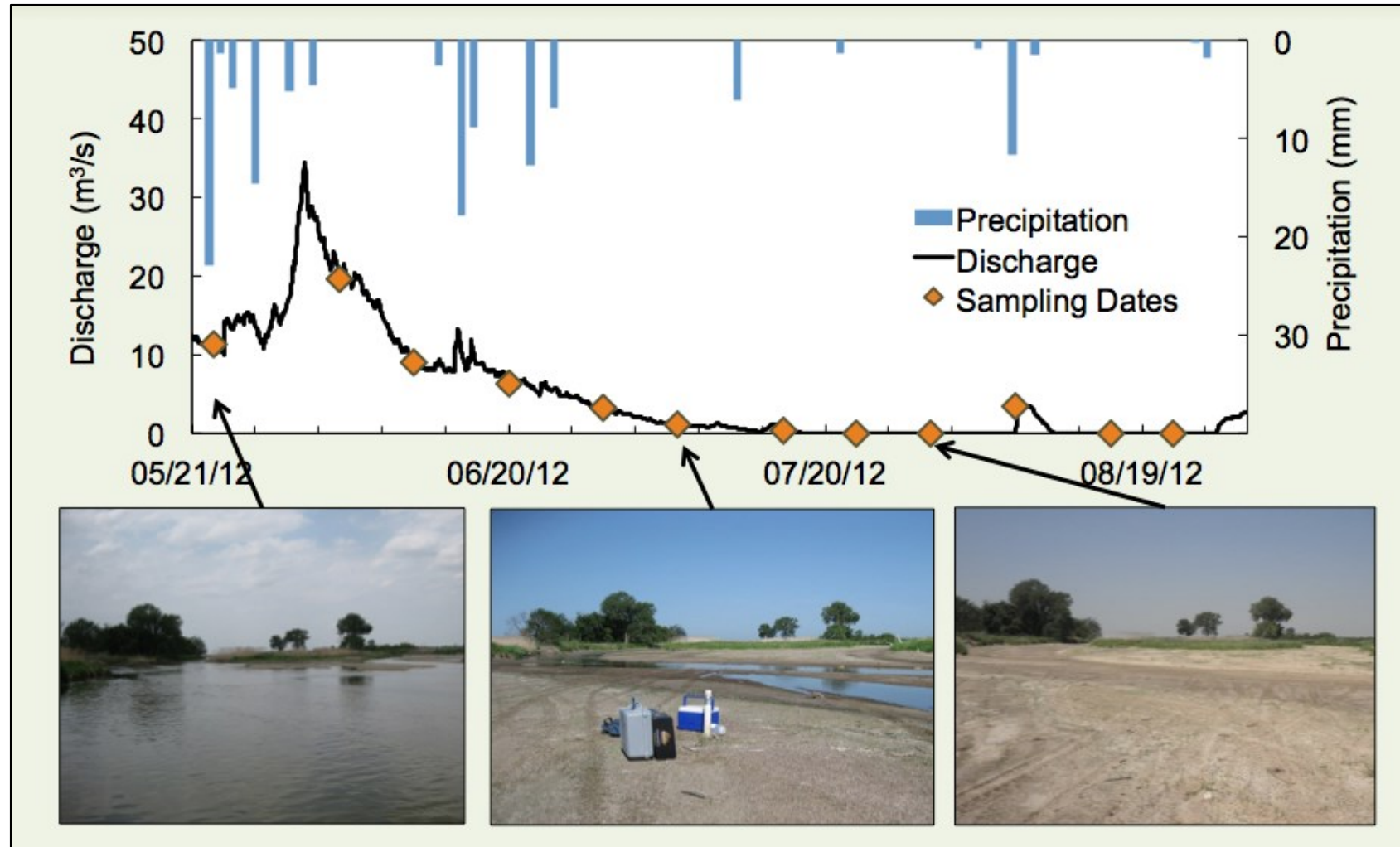
**Trabeculae**

**A CT/PET scan images like a weather map where the boundaries and activity are displayed simultaneously**





**The 2012 drought disconnected the river from underlying groundwater for approximately 2 months.**

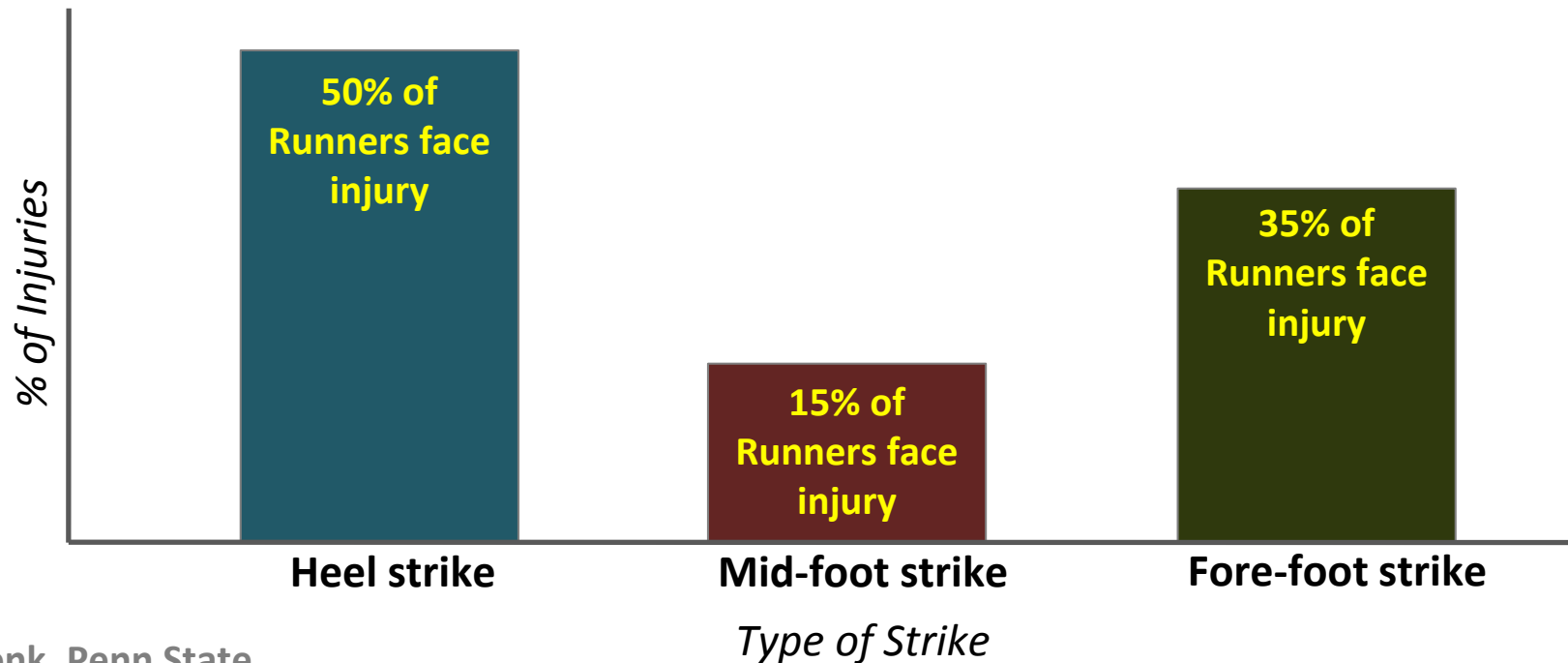


**Platte River, central Nebraska, USA**

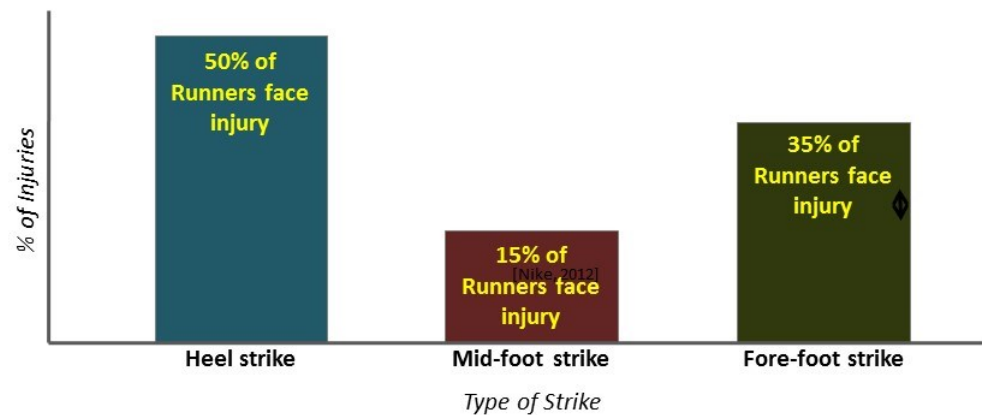




# The difference in height between heel and toe is directly related to the number of injuries.

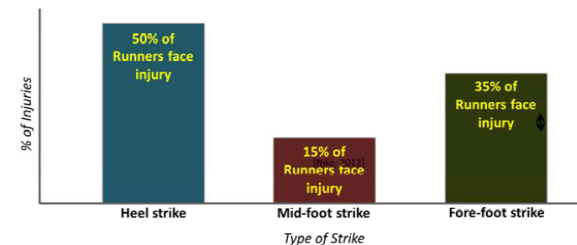


The difference in height between heel and toe is directly related to the number of injuries.



Slide presented during live talk

The difference in height between heel and toe is directly related to the number of injuries.



2. The difference in height between heel and toe is directly related to number of injuries.

1. We learn from barefoot running that by lessening the height difference, we are forced too run on our midfoot (cite Runners World).
2. Explain why midfoot running is advantageous.
3. Talk about Daniel Liebermans research at Harvard
  1. How changing the heel-to-toe drop reduces injuries. Talk about statistics

**Transition:** Lessening the impact is important, but we also need to give the arch support and keep it from collapsing.

WILLEY, D. (2012). A Big Step Forward. Runner's World, 47(3), 10.

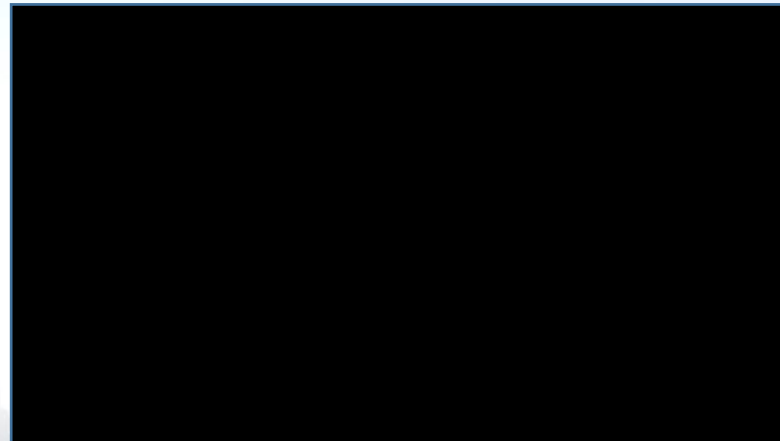
Running Barefoot: Home. (n.d.). Retrieved November 14, 2014, from <http://www.barefootrunning.fas.harvard.edu/>

[Image of Nike Shoe] Retrieved on March 19, 2012. <http://www.csneaker.com/wp-content/uploads/2010/05/08/Nike-Running-Shoes-Men-1.jpg>

Example of a PDF of notes pages  
Give as a handout after your talk



**Use primarily visual slides**



**Blank the screen**

The difference in height between heel and toe is directly related to the number of injuries.

Type of strike	% of runners face injury
Heel strike	50%
Mid-foot strike	15%
Fore-foot strike	35%

Slide presented during live talk

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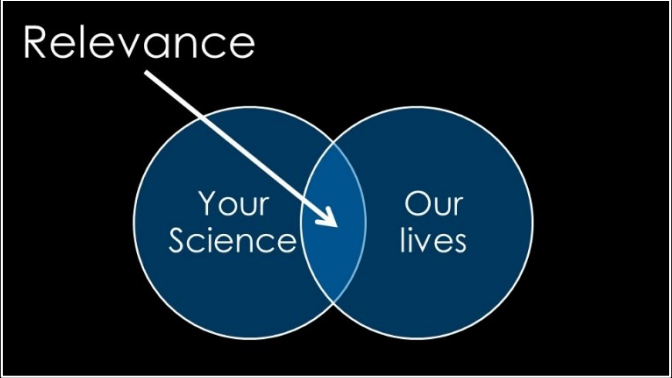
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**Example of a PDF of Notes Pages**

**Use a handout**



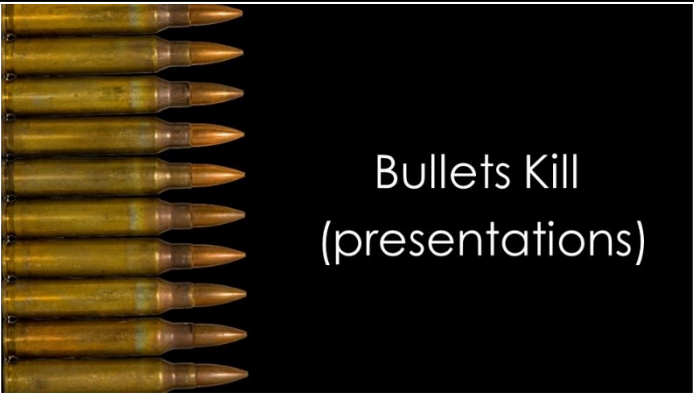
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**Be Audience Centered**



**Filter and focus**



**Show your science**



**“The fact is that many great ideas fail to reach fruition because they die with their first presentation.”**

**Larry Norton, M.D.**





**“In science, the credit goes to the [one] who convinces the world, not to whom the idea first occurs.” -Francis Darwin**

**Science not communicated  
is science not done.**

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[www.PresentYourScience.com](http://www.PresentYourScience.com)**



