Engaging in Science Communication

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LIGO Hanford Observatory

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DCC: LIGO-G2500089

What do you think Science Communication includes?

Go to www.menti.com and use the code:

4935 4235

https://www.mentimeter.com/app/presentation/alkr9gfo7hdu8h2a23izc4hhww2dgimc/edit?source=share-modal
From Parallel Session Attendees at CUWiP 2025

ABOUT US

STRATEGIES

UP-GOER FIVE

AUDIENCES

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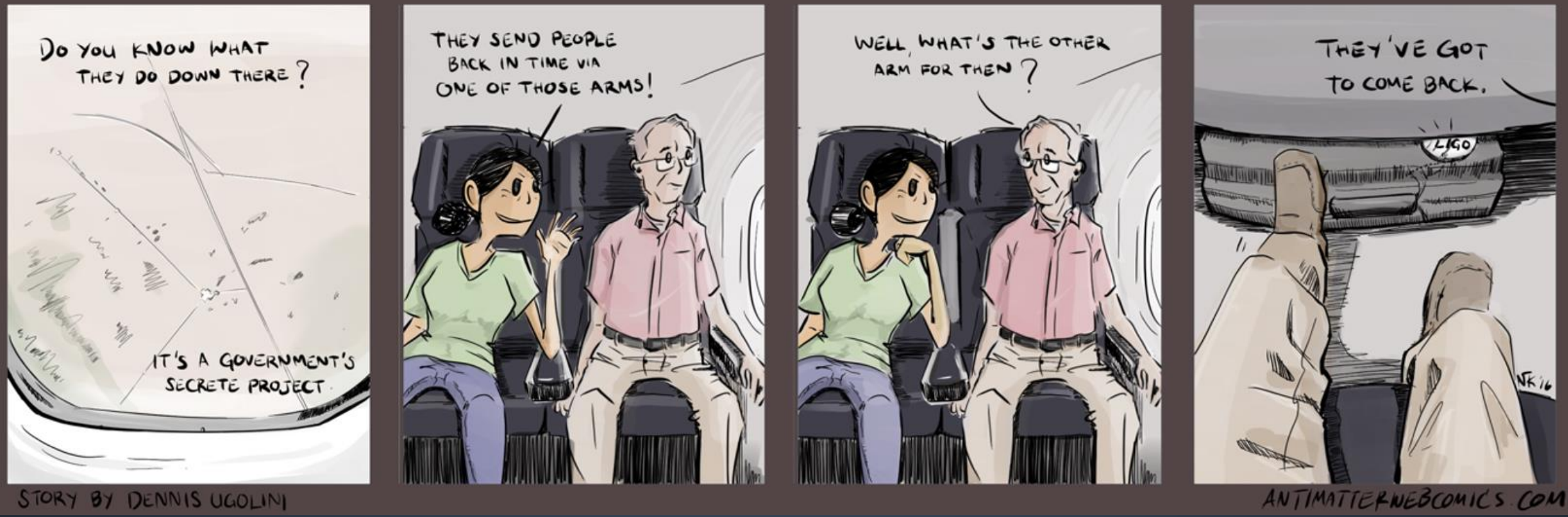
AUDIENCES

About Us

Camilla Compton & Maggie Jensen
LIGO Hanford Observatory



LIGO –
Laser Interferometer Gravitational-Wave Observatory

Camilla Compton: Detector Engineer

ABOUT ME

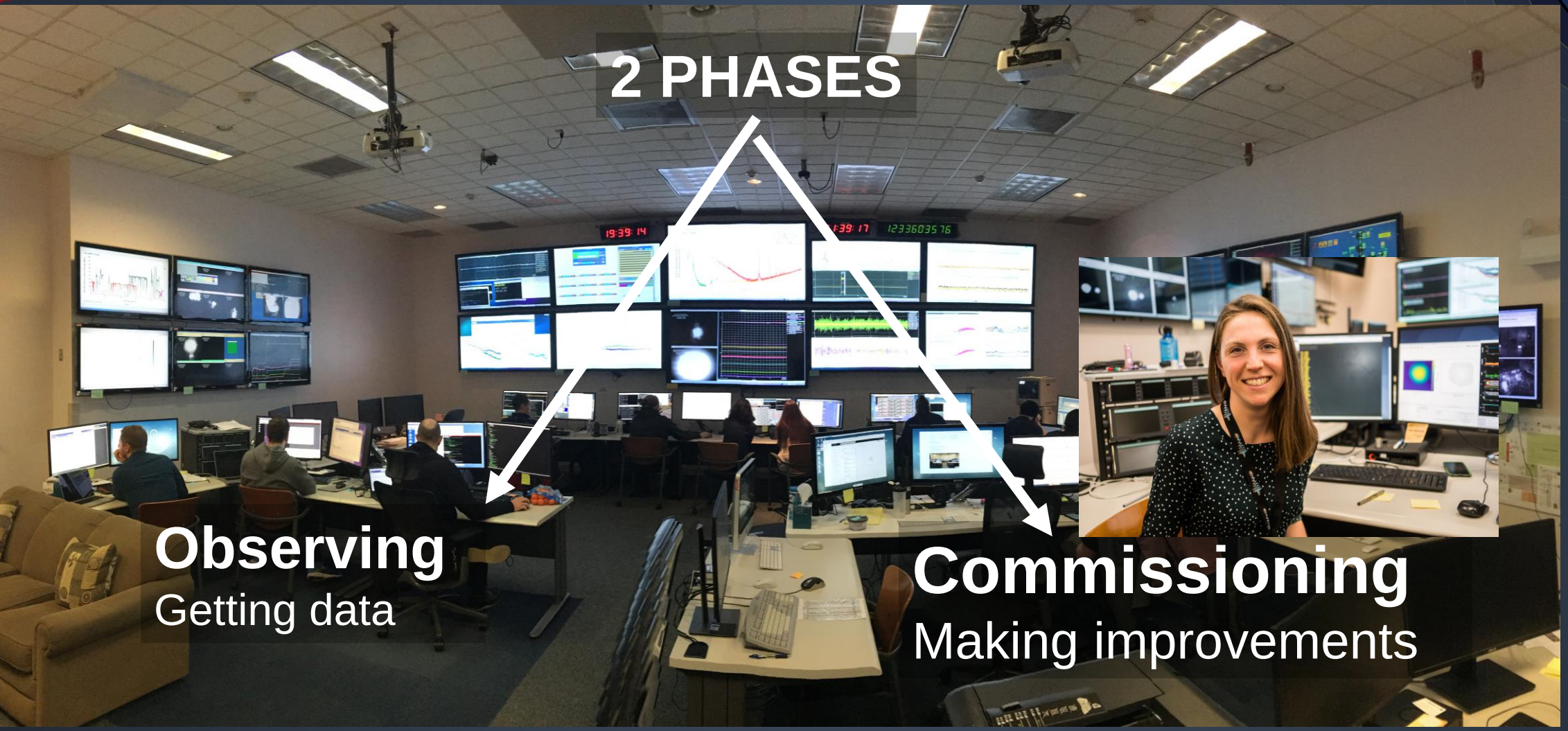
Name: Camilla Compton
Age: 31
Hobbies: Running, Climbing, Skiing
Major: Physics MSci
Job: Detector Engineer
 # Internships: 3

until 2018

2016, 2019-now

2018-2019

The LIGO Control Room



Everything must be clean to retain vacuum

Maggie Jensen – Science Educator

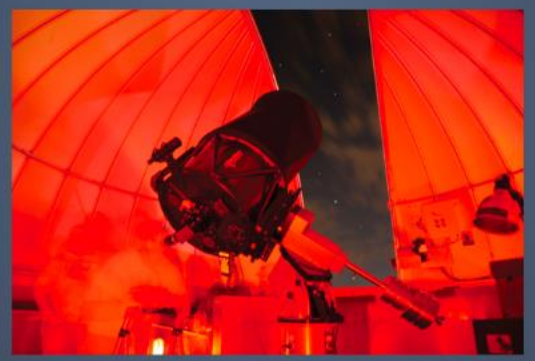
BS in Physics

Undergraduate Astrophysics Research
LAB TA, Tutor, Supplemental Lecturer, Instructor
Public Observing Nights & Science Unwrapped

MS in Science Education

Physics Education Research
Saturday Morning Astrophysics
Studied Curriculum Development
& Informal Science Education

"What do I have to do to talk about space every day?"



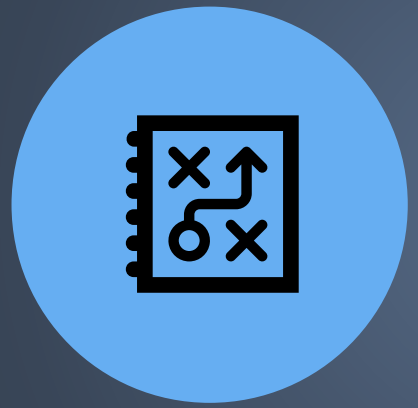
Teacher - 8 Years

Physics
Chemistry
Astronomy and
Aerospace Engineering

G2500089

Maggie Jensen – Science Educator

ABOUT US



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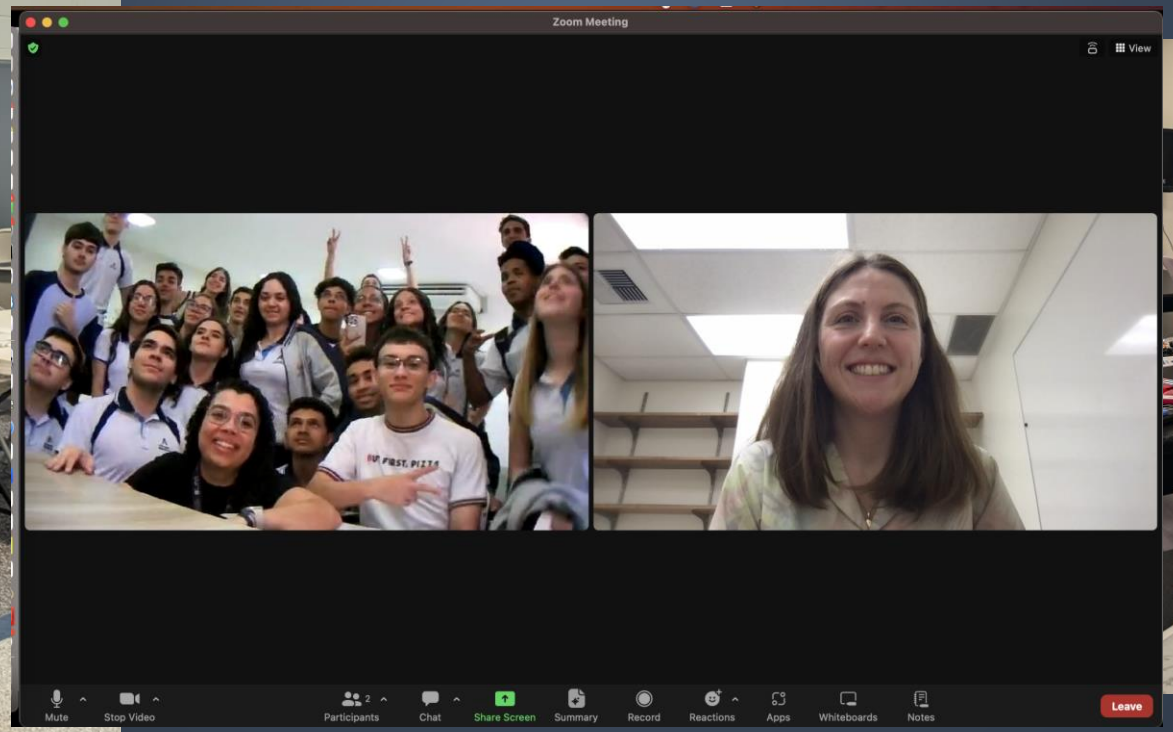
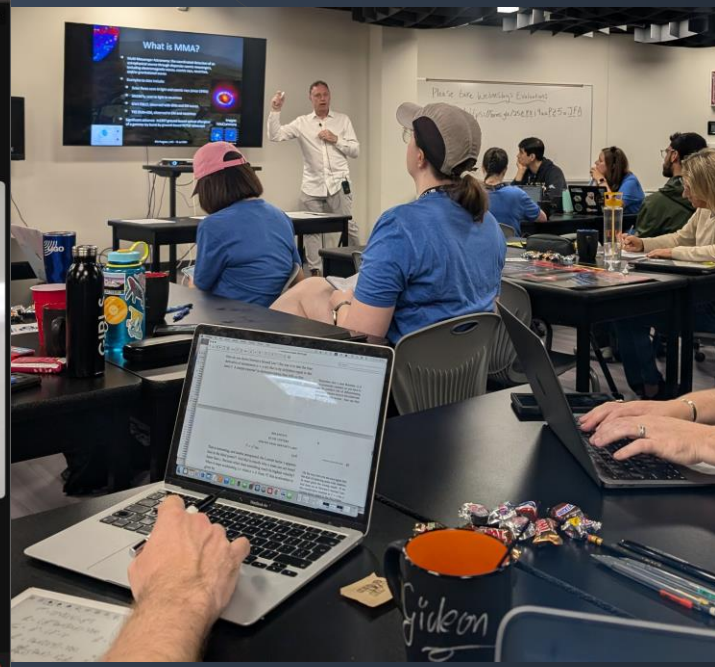
Who Is Doing Science Communication and Outreach?

Physicists engage with the public to varying degrees at different stages of their careers.

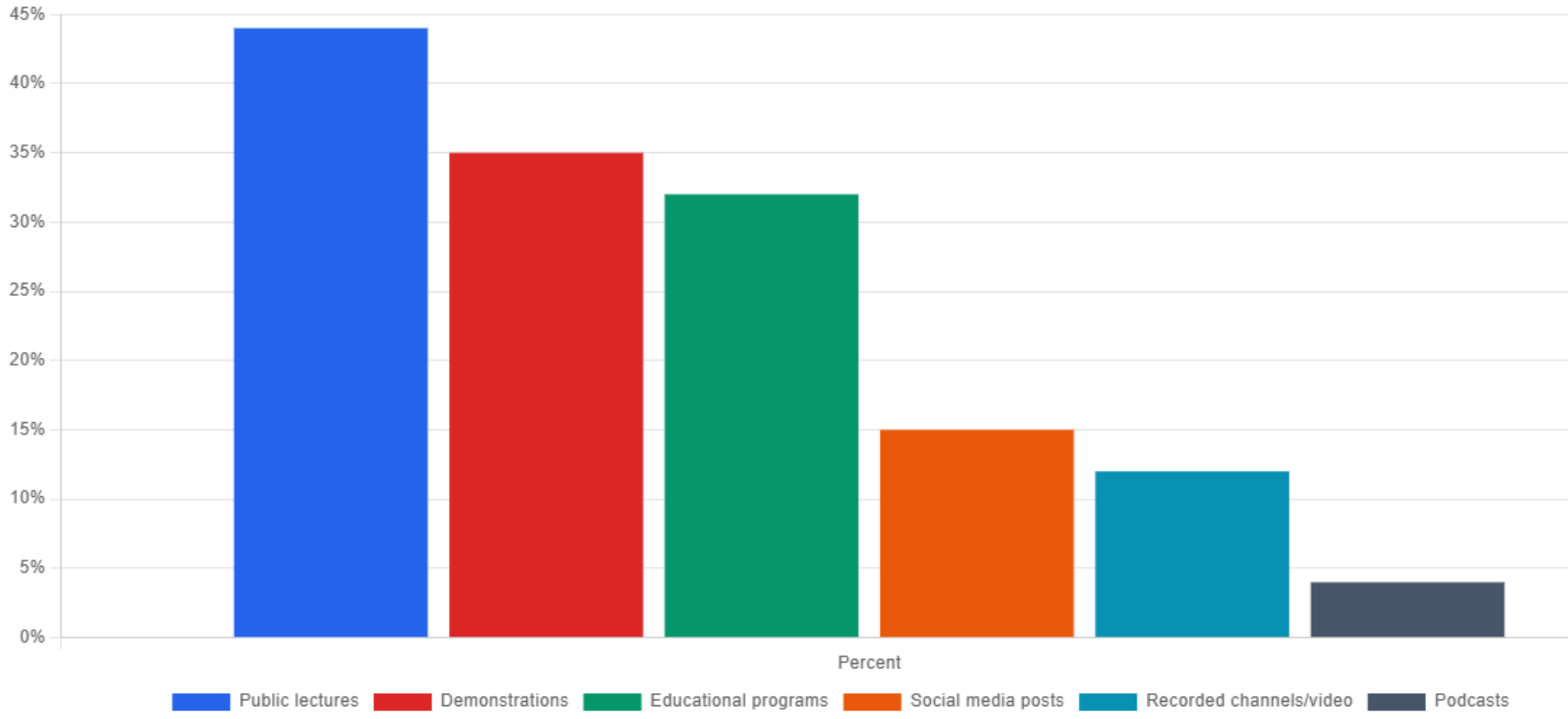




2022 APS Public Engagement Survey –2,208 respondents from all career ranges

Participation in public engagement

Over 68% of APS members report engaging with the public and use a variety of formats to do so.



Why Should Scientists Engage In Science Communication And Outreach?

- Inspire Curiosity, Create that Spark!
- Networking
- Funding
- Promote Good Physics, and Combat Misinformation
- Challenge Stereotypes
- Renew Your Passion!
- Become A Better Expert By Communicating At Different Levels

- What is your “Why”?

Things to consider when doing Outreach

- Create A Goal: -What do you want to be the outcome?
  - Type Of Interaction? -Lecture? Activity? Social Media Post?
  - Audience? –Experts? Novices?
- 3 Key Take Aways - You Can’t Explain Every Aspect Of A Topic. Pick 3 Things You Want Them To Walk Away With.
- Jargon?

Jargon- Major Categories

- Technical Terms
  - These are not well known or universal
- Words with Multiple Definitions
  - Words that mean different things in the field vs everyday
- Words That Are Bigger Than Necessary
  - These create barriers

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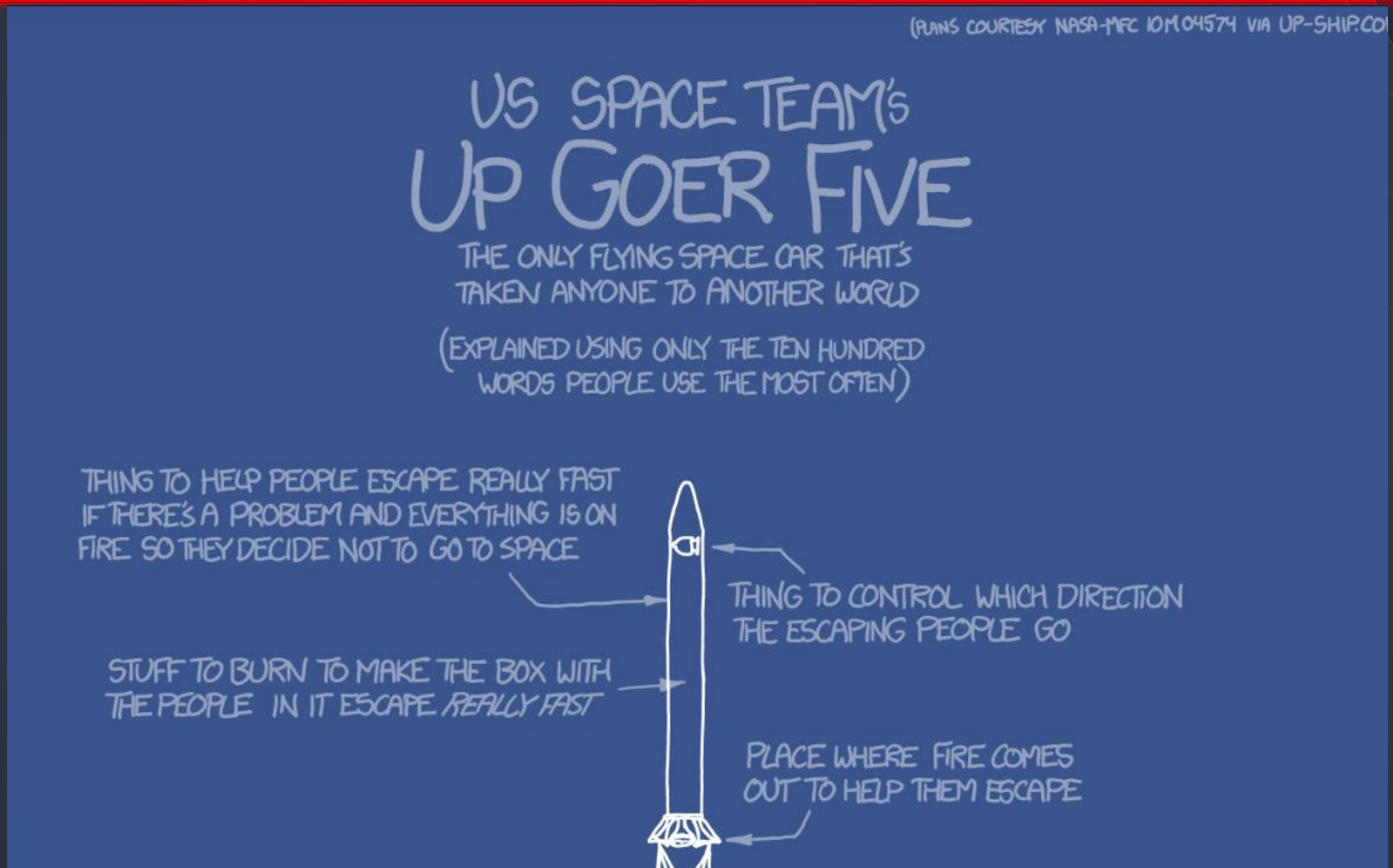
Jargon Activity



https://splasho.com/upgoer5/

Think of your favorite physics phenomenon, or your own research topic.

HINTS TOP LATEST LIBRARY RANDOM

THE UP-GOER FIVE TEXT EDITOR

CAN YOU EXPLAIN A HARD IDEA USING ONLY THE TEN HUNDRED MOST USED WORDS? IT'S NOT VERY EASY. TYPE IN THE BOX TO TRY IT OUT.

https://splasho.com/upgoer5/

LIGO-

“We look for waves made by big black stars joining in space. We use a light and mirrors to find changes in how long space-time is. We can find changes as short as one in a hundred hundred hundred hundred hundred hundred hundred hundreds.”

Jargon

- Noise
- Destructive Interference
- Space-time
- Gravitational Waves
- Interferometer
- Mega-Parsec

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Audiences

Audiences Scientists Speak With On A Day-to-day Basis

- - Scientific colleagues
- - Scientists in other disciplines
- - Students
- - Administrative staff
- - Family and friends
- - Visitors to a science center
- - People in line at the grocery store or in the next seat on a plane

- Speaking To Multiple Audiences Requires Flexibility In Word Choice

How do I get involved?

Ask your mentors, colleagues, collaborators

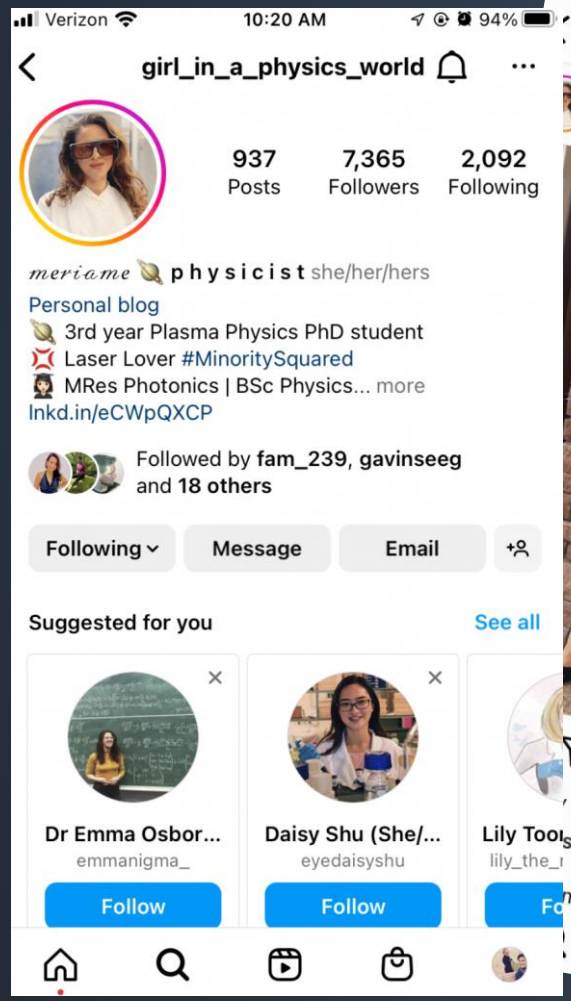
Look for programs sponsored by your department or institution

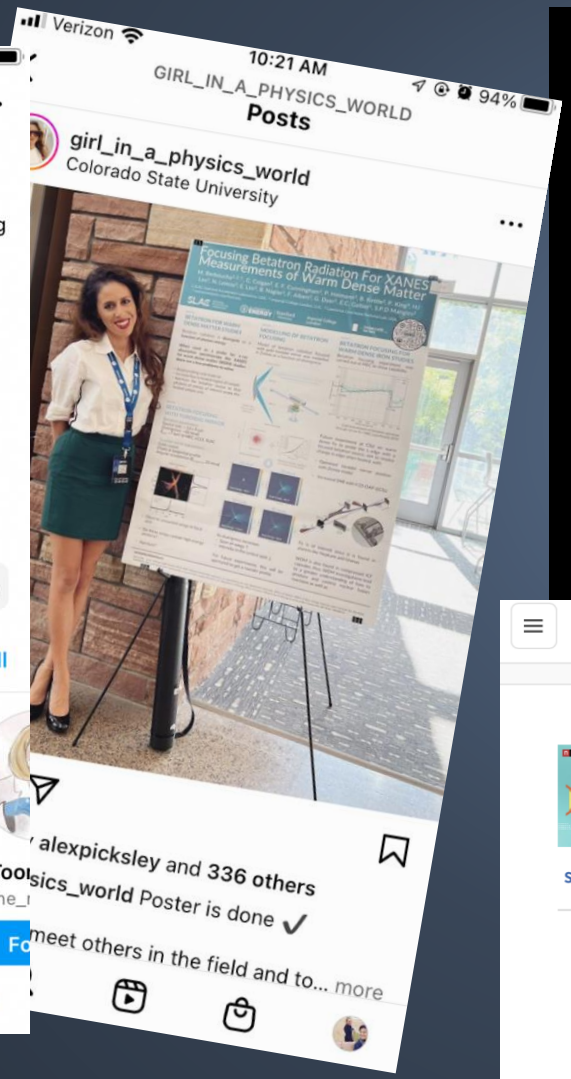
Connect with programs already working in your community

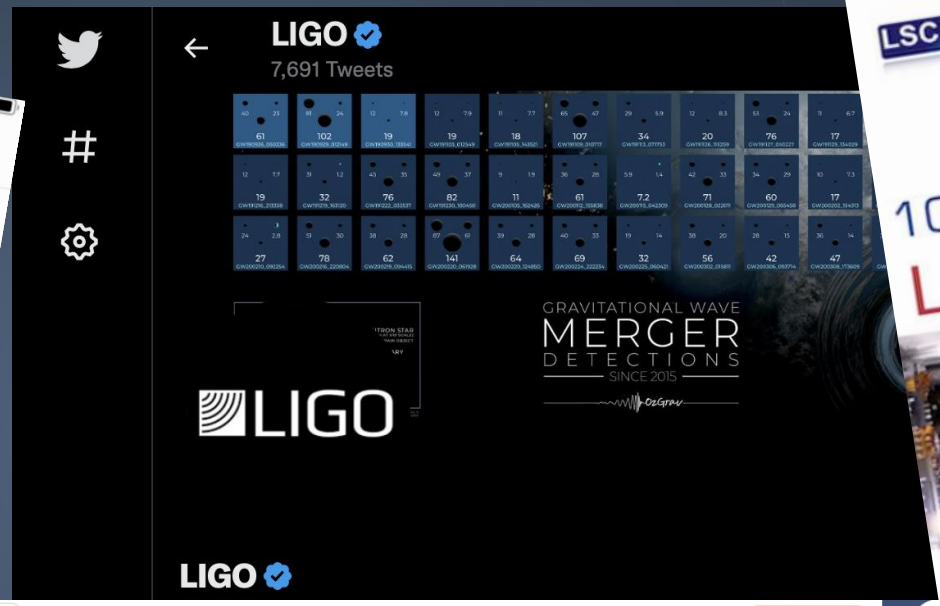
Seek out a partner: schools, kids' museums, libraries, educational organizations

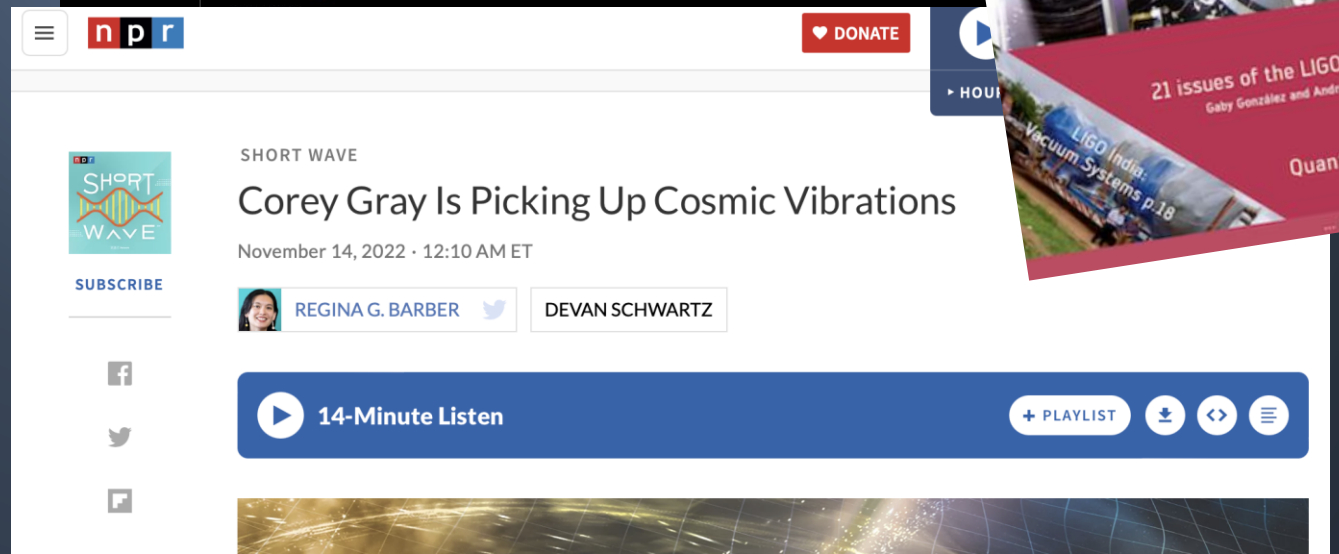
Use the web to find activities – don't reinvent the wheel

Social Media, Podcasts, Magazines, Books







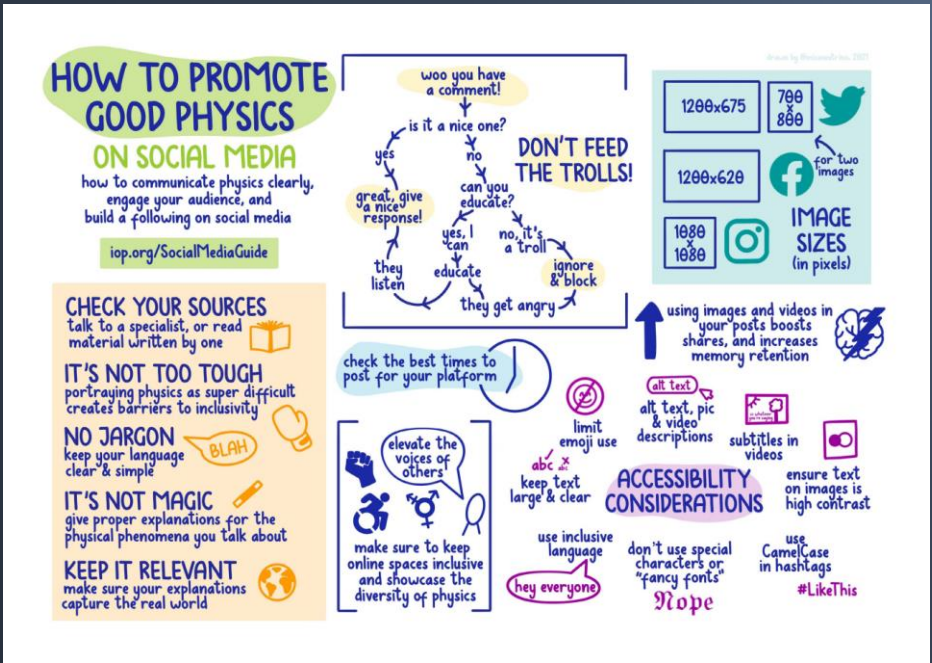


Resources For Improving Science Communication

Portal to the Public –Implementation Manual -Practice

IOP.org – Limit-Less Resources (Especially Social Media)

AAS Astronomy Ambassadors – Resources

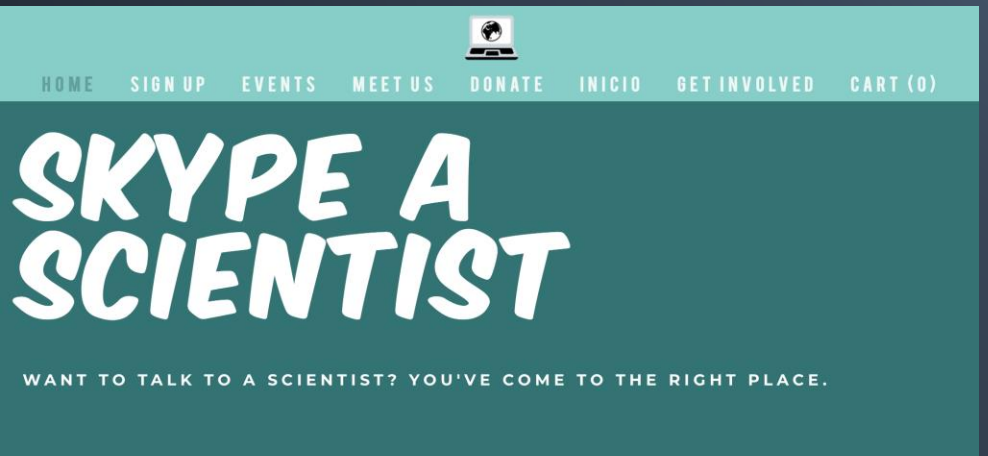


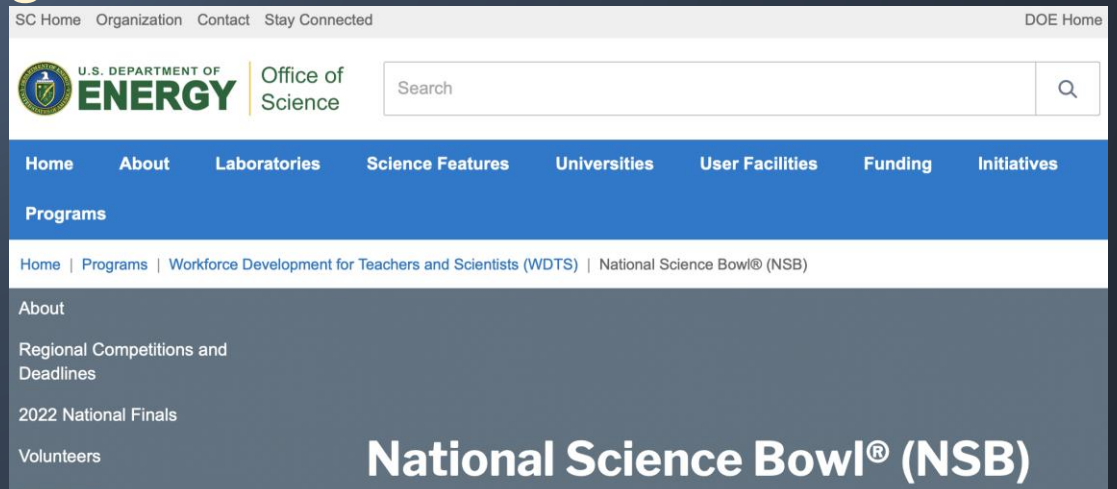
I. C. GENERAL PRESENTATION TECHNIQUES FOR OUTREACH

- **Better Conference Talks** (an excellent web page by Emily Lakdawalla of the Planetary Society)
- **Communicating Science: Tools for Scientists and Engineers** (a basic tutorial website from the AAAS)
- **Communicating Science: Giving Talks** (a booklet full of practical tips on public speaking to a variety of audiences, from the Burroughs Wellcome Fund)
- **Eight Attributes of Highly Successful Postdocs**, C. Holden, *Science,* 3 Sep. 1999, p. 1527
- **How to Write a Boring Scientific Paper** (hints by a biologist that apply to all scientific writing and presentations)
- **Talking Science with Journalists**, J. Bardi & C. Meyers, *Physics Today,* May 2015, p. 66
- **Understanding Science** (a nice site about explaining the scientific method to the public by the University of California Museum of Paleontology — but applicable to all science outreach)
- **What Makes an Astronomy Story Newsworthy** (concise, useful list by Rick Fienberg)

Attending Events and Volunteering

- Science Bowl
- Give tours
- Physics and Astronomy Clubs
- After graduation: Skype a Scientist Sessions
- Get involved with local Youth Groups like Girl Scouts
- Science Fair Judging
- Give talks or have booths at the local Library
- National STEM foundation- STEM Like Me!
- Attend and get involved with Astronomy on tap
- FIRST –Robotics Competition Judges and research assistants





Why are Activities Important?

Students generally retain 26% of what they hear compared to 90% of what they say and do

[2] Richard M. Felder, (1988), 'Learning and Teaching Styles In Engineering Education,' North Carolina State University, Engineering Education, Vol 78 (7), pages 676–680.

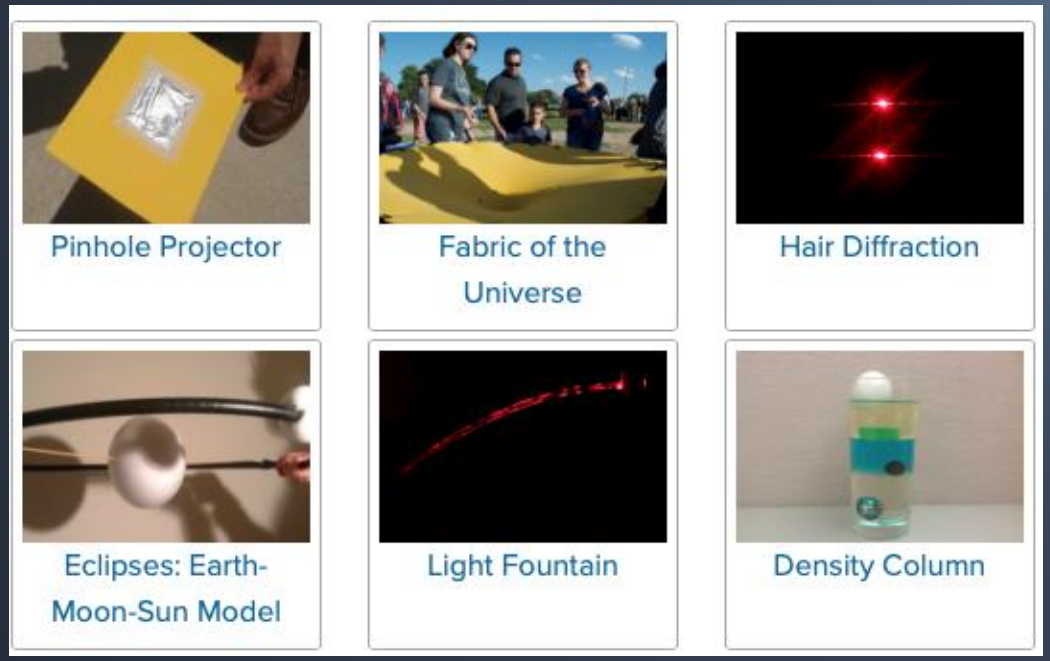
[3] James Stice, (1987), 'Using Kolb's Learning Cycle to Improve Student Learning,' Engineering Education, vol. 77 (5), pages 291-296.

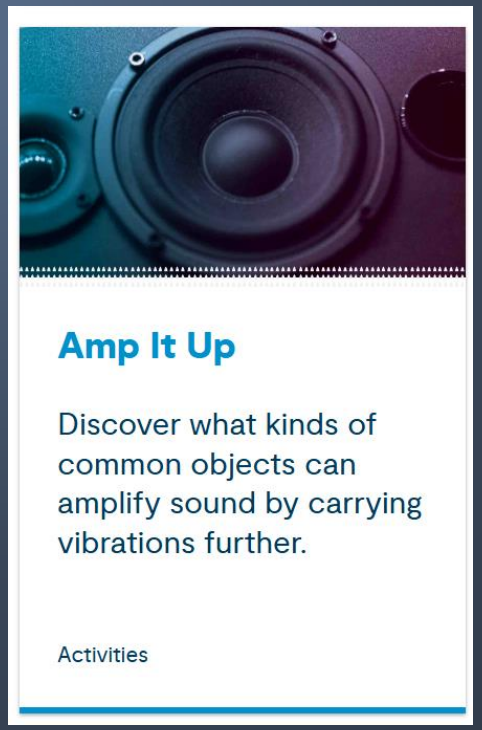
Resources For Physics Activities

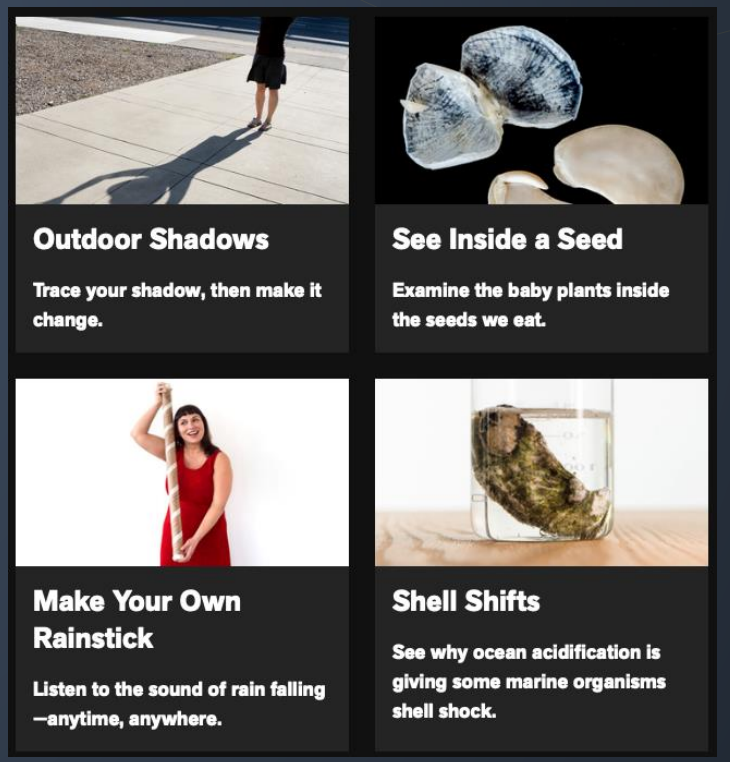
Society of Physics Students – Demos and Activities

Exploratorium.edu - Science Snacks, Teaching Support

Pacific Science Center– Activities







Thank you!

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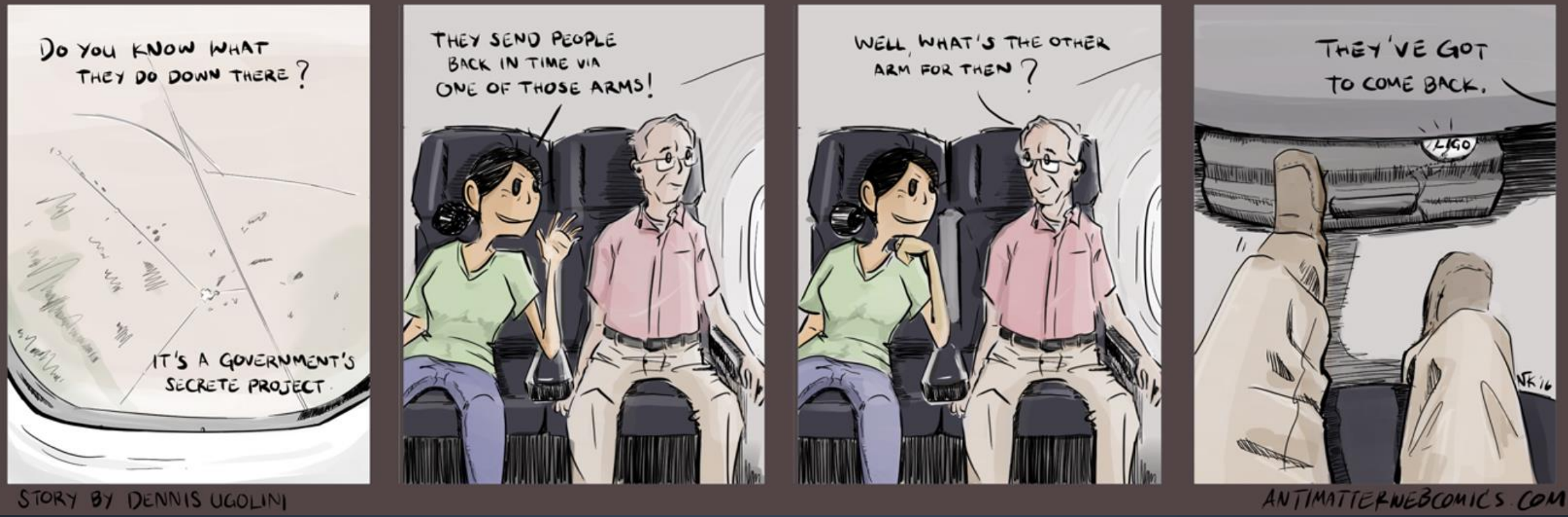

LIGO Scientific Collaboration

~1600 members, ~139 institutions, 22 countries