



# Communicating Ocean Sciences to Informal Audiences

## Session 2: Nature & Practices of Science

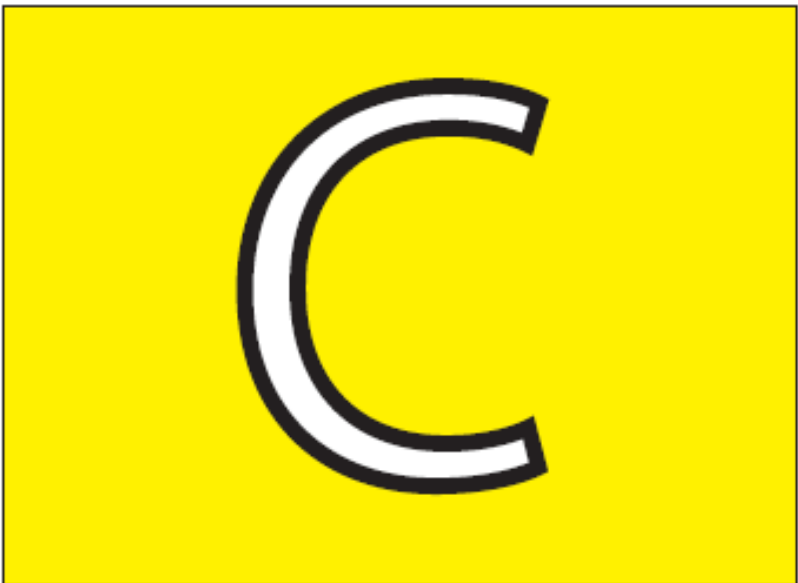
# Quick Write – answer one of the following questions

- Reflect on the 6 strands of learning you read about.
  - Briefly describe the six strands of informal learning, providing the name & description
  - Which two strands specifically address learning in informal environments?
- What are the 5 commitments that support learning in informal science environments?
  - Describe each in enough detail to show your understanding
- Describe the viewpoint that science is a cultural and social enterprise.
  - Provide examples from the text
  - What do you think about these ideas?

# Where are we headed?

- 1) Discuss what is science and how it works and then engage in a couple of activities and a reading to think about and try out your ideas about how science works.
- 2) Engage in an activity that can be used as a model to learn about the Greenhouse Effect, while also teasing apart what is science and how it works.
- 3) Consider why your and the public's understanding of what is science and how it works is helpful and necessary when communicating about science with the public.





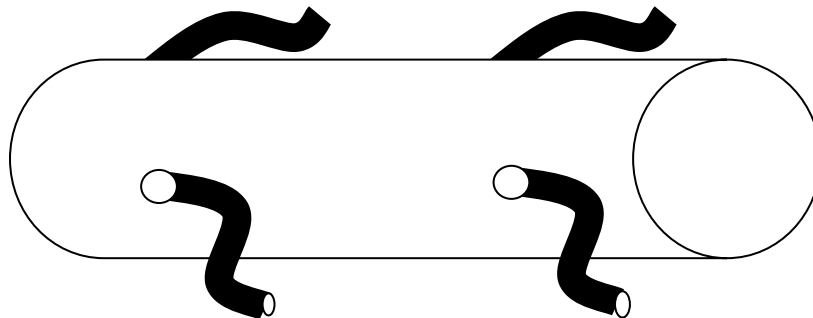
# Think-Pair-Share

- What is science?
- How does science work?

# Mystery Tubes Activity

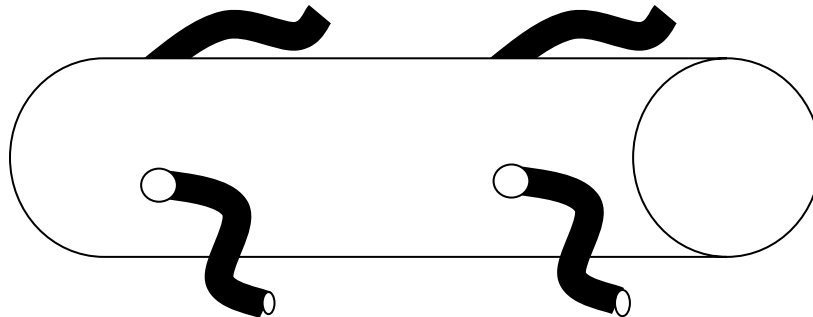
- Work in two's or three's to explore the mystery tube and share ideas.
- Your goal is to determine what the interior construction of the tube looks like and to draw a diagram to model your hypothesis.

*You cannot open the tube to look inside.*



# Mystery Tubes Activity

1. Share your model with another group.
2. What would you say if you were going to publish your findings right now?
3. Make sure to comment and ask questions about each other's models.

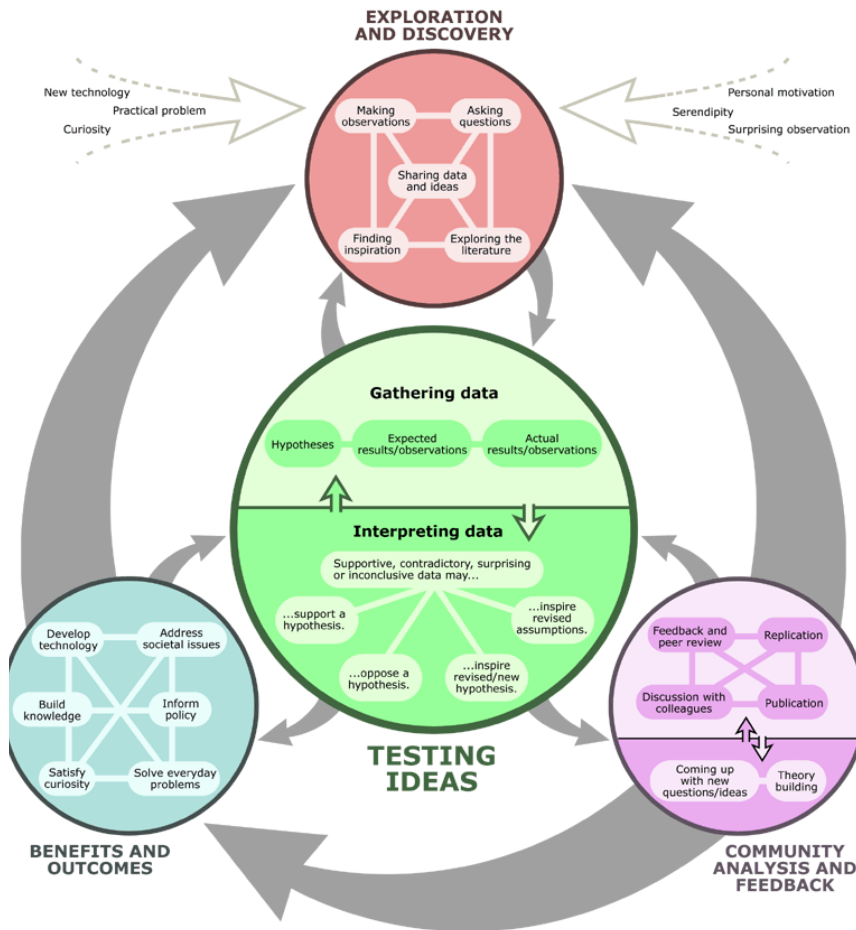


# Activity Debrief

- Were you doing science?
- What were you doing that is similar to what scientists do?



# How Science Works Flowchart



- What was the first thing you did in the activity?
- Where does it fit on the flow chart?
- Put a #1 in that section of the flow chart.
- Place numbers on the flow chart in the appropriate places.

# How Science Works Flowchart

- What do you notice about your pathway through the flowchart?
- How does this differ from how you were taught about the science process in school?
- Which part(s) did we not address?
- Which part(s) do you think are most/least often addressed in informal environments?  
Why do you think that is?

# Activity: Sorting Statements

Discuss each statement about science and determine if it is an:

**“Accurate”** statement about science and scientific practices; or an

**“Inaccurate”** statement about science and scientific practices.

Place them into piles...

*The exact “right” answers are not the point of the activity.*

*The purpose is to create an opportunity to discuss and think about what science is & what it is not.*



# University of California Museum of Paleontology

<http://undsci.berkeley.edu/teaching/misconceptions.php>

# Research Discussion

- Individually read through the Key Ideas from the Literature handout.
  - Pick 1-2 of the statements that you find interesting, agree with or perhaps disagree with.
  - How do the ideas from the literature compare to what you thought and discussed about science?
- After a few minutes, discuss your thoughts with 2-3 others.
- Be prepared to share a few highlights with the whole group.

# Science Briefing



THE LAWRENCE  
HALL OF SCIENCE  
UNIVERSITY OF CALIFORNIA, BERKELEY



# What do you think?

- In communicating about climate change with the public, why would your and the public's understanding of what is science and how it works be helpful and necessary?
- In what ways do you think the nature and practices of science would come up in discussions with the public on climate change science?

# Turn & Talk

- Part of the challenge of communicating climate change with the public is that there is disparity between what scientists and non-scientist public think and know about climate change.
- Why do you think there is such a disparity?





About half of Americans (51%) say they are “somewhat” or “very worried” about global warming, a 7% decline in worry since Fall 2012.

**51%**

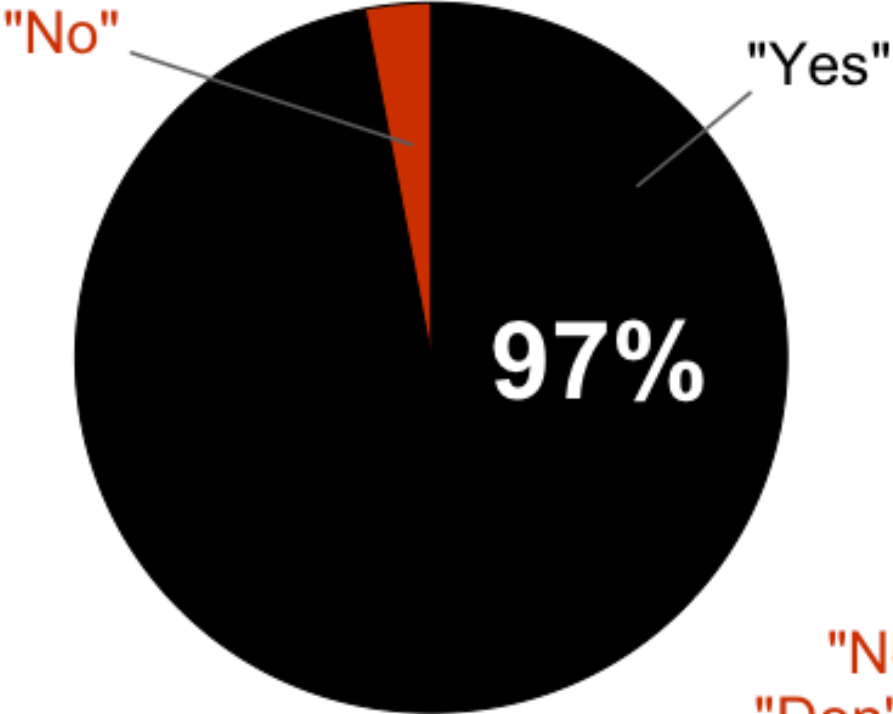
# of Americans that think global warming is a threat to:

- them & their communities – 4 in 10
- other people elsewhere – 5 in 10

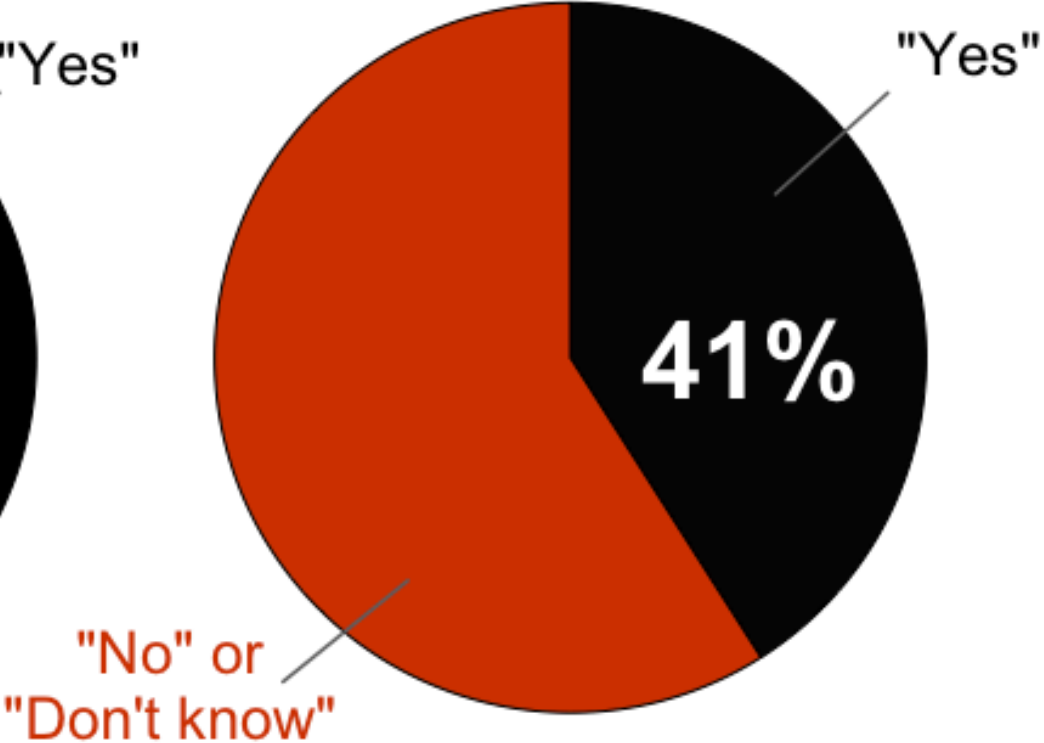


# Say Climate Change is Happening and Human Caused

## Climate Scientists



## American Public



# 6 Americas

Alarmed Concerned Cautious Disengaged Doubtful Dismissive

2008  
n=2,129



2010  
n=1,001



Sept.  
2012  
n=1,058



Highest Belief in Global Warming  
Most Concerned  
Most Motivated

Lowest Belief in Global Warming  
Least Concerned  
Least Motivated

# Public's understanding of climate change



Climate change as a set of physical phenomena interacting with human causes & consequences is inherently difficult to understand.



Scientists & non-scientists have different ways of understanding & talking about these phenomena, which makes divergence of beliefs possible.



Ways in which climate change is framed in communications to the general public influence the public's perceptions, attitudes, and behaviors.

# Reflection

- What are some things you did or learned today that affected how you might like to communicate with the public?
- What is the muddiest point for you from today's class?

# Homework

- Task
  - Start thinking about a partner
  - Informal environments worksheet due 2/6
  - Science concept paper due 2/27
- Reading
  - Crowley, K., & Jacobs, M. (2002). Building islands of expertise in everyday family activity.
  - Peruse the Understanding Science website:  
<http://undsci.berkeley.edu/>