

# Moving the needle on sustainability with **college students**

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# Framing the problem

## A climate scientist noticed:

- Students in his climate change courses were not understanding the science at the level that he thought they should as educated citizens.
- His students were concerned with talking about climate change with the public.

## A science educator noticed:

- Science students were not provided with opportunities to talk science with the public.
- Science professors did not know how to support their science students with meaningful outreach opportunities.

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# Our solution

A collaboration between climate scientists and science educators to design a college course that teaches:

- Fundamental concepts underlying climate change
- How to communicate science based on how people learn

# Our design for the course

*Climate science* include

1. greenhouse effect
2. carbon cycle
3. sea level rise
4. ocean acidification
5. solutions & sustainability

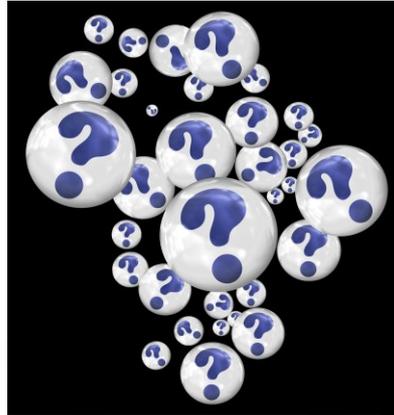
*Learning science* include

1. how people learn
2. designing effective learning experiences
3. learning conversations
4. how people make decisions
5. changing behavior



# Modeled the practices

**Minute Paper** to activate & revise prior knowledge, and to generate questions & explanations



**Hands-on activity** to explore phenomena, and to provide evidence for explanations

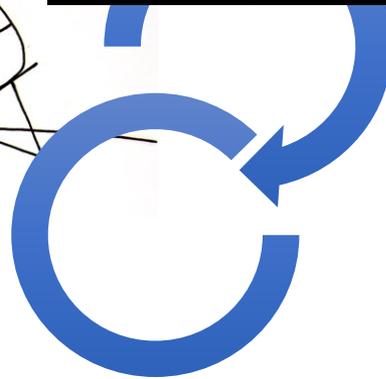
**Sea level rise:**

What is it?

What causes it?

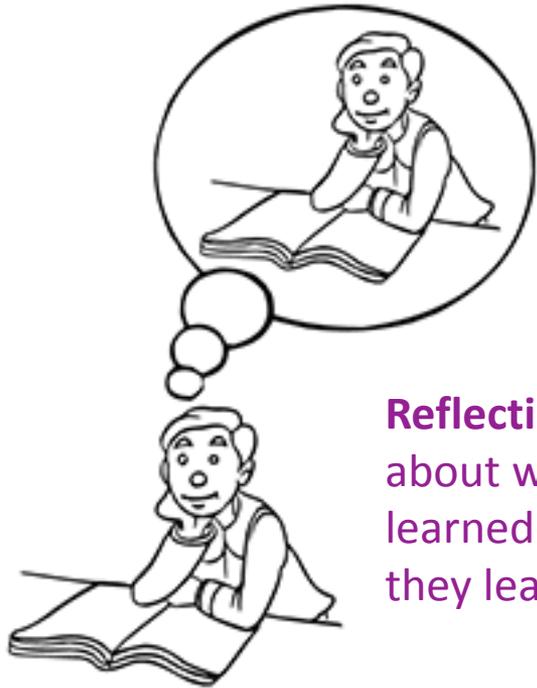
Who is affected by it & how?

What questions do you have about sea level rise?



**Interactive briefing** to elaborate on & explain relevant concepts, and to answer students' questions

# Juxtaposed learning & teaching



**Reflections** to think about what students learned and how they learned it

**Jigsaw readings** on learning to extend their thinking on how people learn and challenge their assumptions



**Analysis** of practices modeled to integrate ideas from research into activities experienced



# Apply the learning

**Experience** the activities to build their understanding of the climate change concepts



**Teach** the activities to integrate their understanding of the climate change concepts with learning sciences concepts

# Together, how have we moved the needle

Students have a deeper and more robust understanding of climate change, from both physical & social science perspectives.

Science students are comfortable & confident to talk about climate change with their peers & others.

Science professors have a college course that models good teaching practices.



# Next steps

- Course materials are available
- Use materials into *Reflecting on Practice*, new module on decision making and behavior change

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[www.reflectingonpractice.org](http://www.reflectingonpractice.org)



A professional learning program  
for informal science educators