A person stands on a rocky shore, looking out at a sunset over the ocean. The sun is low on the horizon, casting a long, bright reflection on the water. The sky is filled with colorful clouds, and the overall scene is serene and contemplative. The text is overlaid on the left side of the image, partially obscured by a dark diagonal shape.

From the South Pole to Galápagos - Teachers Modeling Exploration

Who are we? Where did we go?

MAPS



Jennifer Burgin

Elementary Educator
Oakridge Elementary

National Geographic + Lindblad Expedition Grosvenor Teacher Fellow
Galápagos, Ecuador
National Geographic Endeavor II
June 2 - 11, 2017

Kate Miller

Physics Teacher
Washington-Lee High School

PolarTREC Teacher 2016
IceCube Neutrino Observatory
Amundsen-Scott South Pole Station, Antarctica
January 9-28, 2017



TODAY:

Goals:

1. Share our own teacher-researcher experiences in Antarctica and the Galápagos.
2. Identify elements of real-life to bring back to your classroom.

Agenda:

1. Storytelling
2. Outside Exploration
3. Classroom Brainstorm



IceCube NEUTRINO Observatory



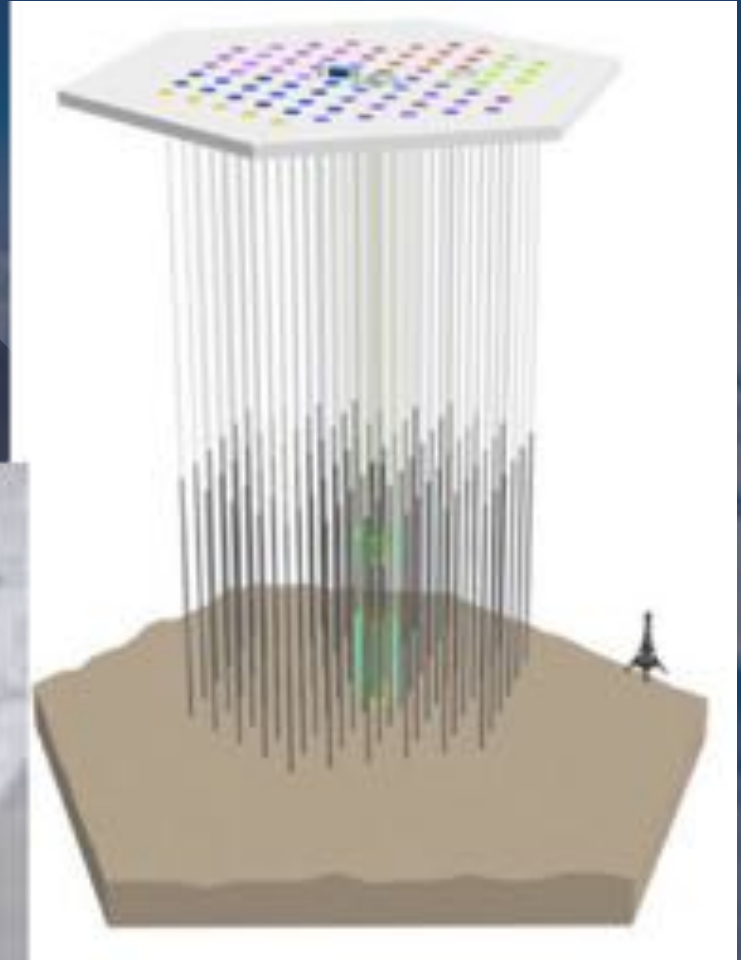
1 billion passing through you
every second!



Where do neutrinos come from?



How do you detect neutrinos?

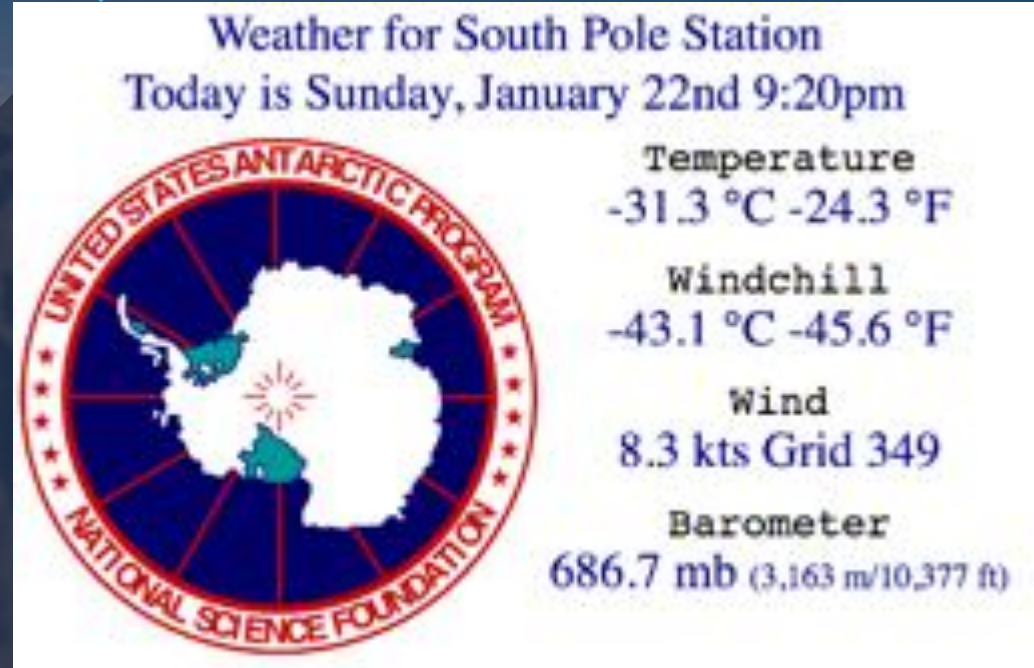


...in addition to the content connections

I wonder how scientists survive
and thrive in such an extreme
environment.



An Extreme Environment: Cold



An Extreme Environment: Altitude



An Extreme Environment: Sunlight



An Extreme Environment: Humidity



An Extreme Environment: Transportation



25 January 2017 A Picture is Worth a Thousand Words

"A true photograph need not be explained, nor can it be contained in words." -Ansel Adams This is one of the most amazing views of my trip. Out at one of the ARA stations, I was the farthest away from "town" I'd ever been. I was at the edge looking out over nothing but the Antarctic ice. Peaceful and quiet, this continent will hold a special place in my heart. Anthony Bourdain came to the South Pole Station to film his TV show "Parts Unknown." I got to meet him! (Credit: Michael Larson) Taken right after we finished trenching, James' beard shows just how beautifully moisture will freeze at the South Pole. A rare sighting of the ONE polar bear on the entire continent of Antarctica! (Credit: Adam West) This Do Not Freeze (DNF) sticker is common on...



→ Read Journal 6

24 January 2017 A Day in the Life at the South Pole

No Such Thing as a "Typical" Day Several people have asked me, "what is a typical day for you at the South Pole?" Well, the answer isn't so simple. I'd say there really isn't a "typical" day - each day is different. Let me give you a glance into just one day I've experienced at the South Pole. 1:30am-3:30am - Internet Access I wake up to the annoying sound of my alarm and quickly turn it off. The walls of the dorm rooms are quite thin and I don't want to wake my neighbors. It's pitch black in my room thanks to the cardboard over my window. I pull it back a crack and sunlight pours in as if it's mid-afternoon. Why am I up at 1:30am? Well our best satellite for internet, DSCS, has been down the past few nights. So, we're limited to the other two satellites - SKYNET (which isn't great)...



→ Read Journal 6

23 January 2017 Ozone Balloon Launch

Balloon Launch Every Wednesday, an Ozone balloon is launched from the South Pole Station. I was lucky enough to observe one of these balloon launches! Gavin holding the balloon getting ready for the launch. Along for the ride are several scientific instruments aiming to collect data at various altitudes. There are some meteorological instruments, such as a thermometer and a barometer, as well as an Ozone probe. Between the pressure readings from the barometer and a GPS tracker, the altitude of the balloon at any given moment is known. This equipment is placed in an insulated, Styrofoam box. Right before launch, the box is heated using what looks like a fancy hair dryer. It's important that the equipment in the box doesn't freeze in the upper atmosphere, but over-heating can also be...



→ Read Journal 2

bit.ly/MillerSouthPole



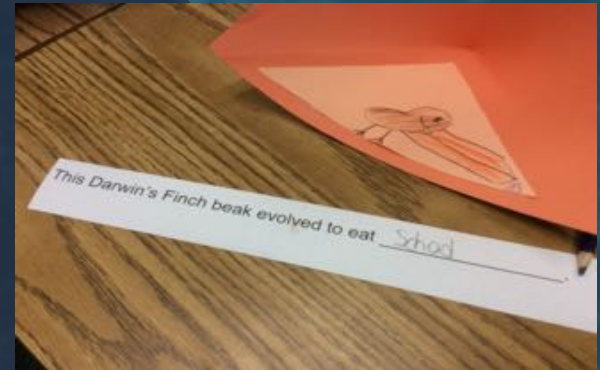
Galápagos, Ecuador



Galápagos, Ecuador



G is for Galápagos & Evolving Finches



...in addition to the content connections

I wonder how living things survive and evolve in such an extreme environment.

Now it's your turn!

- You will have 15 minutes outside of this room. You decide where you go and you go on your own!
- As you walk, just observe. Avoid texting and other tasks. Look for things that **make you wonder**.
- When you see something that makes you wonder, take a picture of it. Take as many pictures of wonderings as you'd like.
- Return in 15 minutes and choose your favorite picture and wondering to share with the group.

Sharing What We Wonder



- Welcome back! Choose your favorite picture and wondering.
- Take turns sharing out with your group.
- After 5 minutes, everyone should have shared and the group should have chosen one of the photos and “I wonder...” statements to focus on moving forward.



Taking this “I wonder...” to your classroom to be problem solved

Your group has chosen **one** picture and **one** wondering, yet we can all take this same “I wonder...” back to our classroom.

You know your curriculum. How can this “I wonder...” statement be used in your classroom? Share your ideas on the same paper as your group.

Wrap Up

A close-up photograph of a person's open palm, held horizontally. The palm and fingers are covered in a thick, vibrant pink powder. The powder is piled up in the center of the palm and has spilled slightly over the edges of the fingers. The background is dark and out of focus, making the bright pink powder stand out.

Real life examples bring meaning into our classroom experiences.

When Educators model exploration, we support equity, engagement, problem solving and bravery.

Our students are capable of solving problems and want to engage in problem solving.

Are you interested in going on an expedition?

In our session's FOM (bit.ly/TeachersModelingExploration) folder you have access to our expedition applications as well as other opportunities for educators.

If you ever need support applying to an expedition, let us know!

Feedback please!

Use the link or code to give feedback on this presentation!

Thank you!

Link to this session's google folder:
bit.ly/TeachersModelingExploration

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We want your FOM feedback!



<http://goo.gl/y1ZZHE>



Festival of the Minds

Session Resource Folder



<https://goo.gl/ZwC2L6>