PolarTREC Researcher Orientation

5 February 2020

2020-2021 Researchers











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If you need reminders…

These items were covered in the Meet & Greet Webinar for educators and researchers. Archive is available.

- Program Staff Introduction
- ARCUS basics
- Funding basics
- 2020-2021 Expedition Introductions
- Overview of Participation
- How to Succeed

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Award number: OPP 1918637

Orientation Agenda
Program from the Researcher Perspective

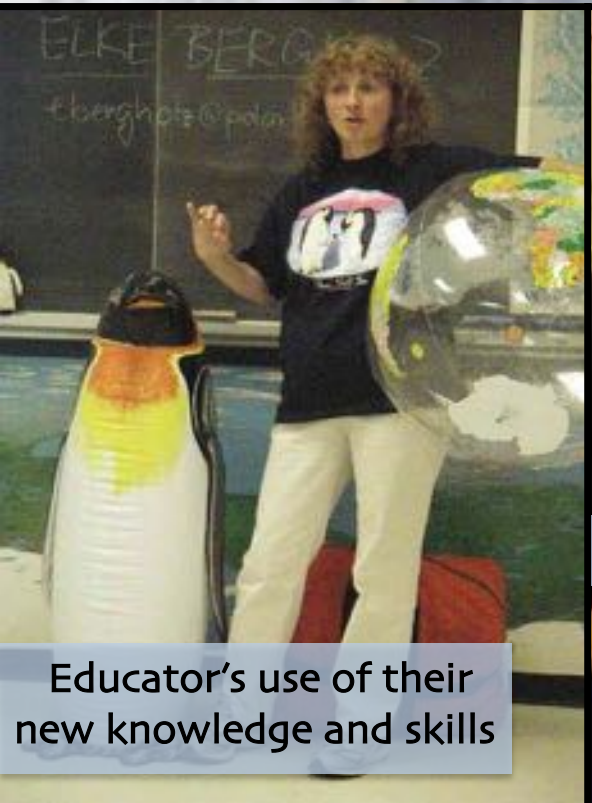
- Benefits of Participation
- New Program Components
  - Informal Educators
- Next Generation Science Standards
- 'Data & Research' Product Focus
- Expectations
- Educator Expectations and Role in the Team
- Researcher Expectations & Requirements
- Logistics Support
- Question and Answer

Evaluation

- To better understand the immediate impacts of the program on teachers, students and researchers
- To explore collaborations and networking of the program on teachers' professional experiences
- Variety of evaluation tools used pre-, during, and post-expedition.
- Conducted by third-party evaluators at Goldstream Group in Fairbanks, AK

Educator's reactions to professional development experiences

Knowledge and skills gained from professional development experiences



Educator's use of their new knowledge and skills

Impacts on students

Impacts on researchers

Researcher Satisfaction

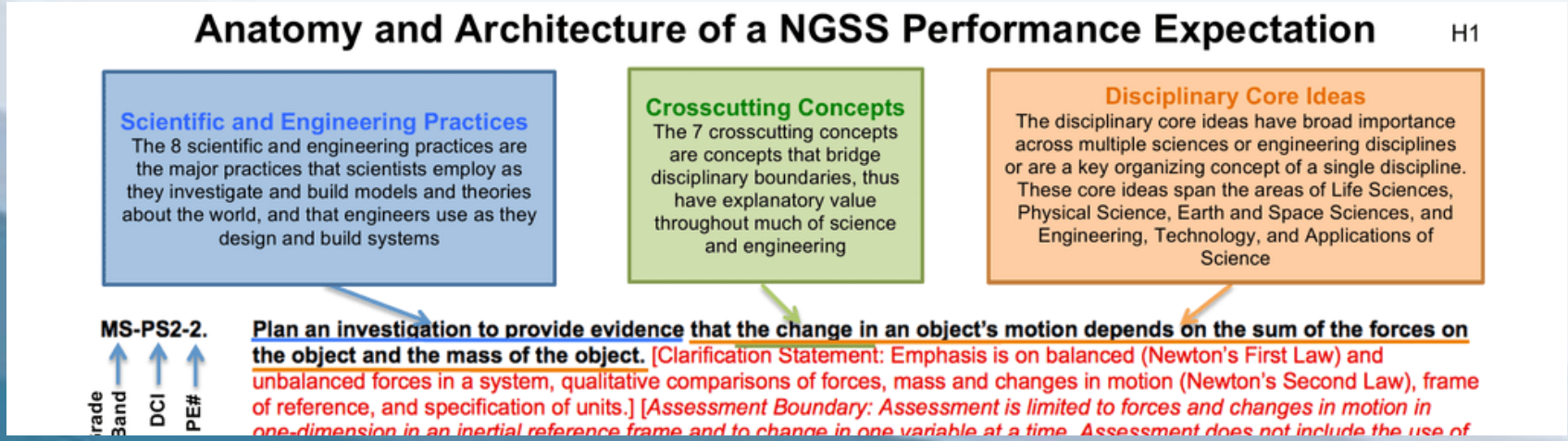
Areas of Program Satisfaction
Wants to Repeat the Experience
Positive Relationship with the Teacher
Positively Impacted the Project Outreach Activities
ARCUS Support is Essential
Benefits the Scientific Process

New – Informal Educators

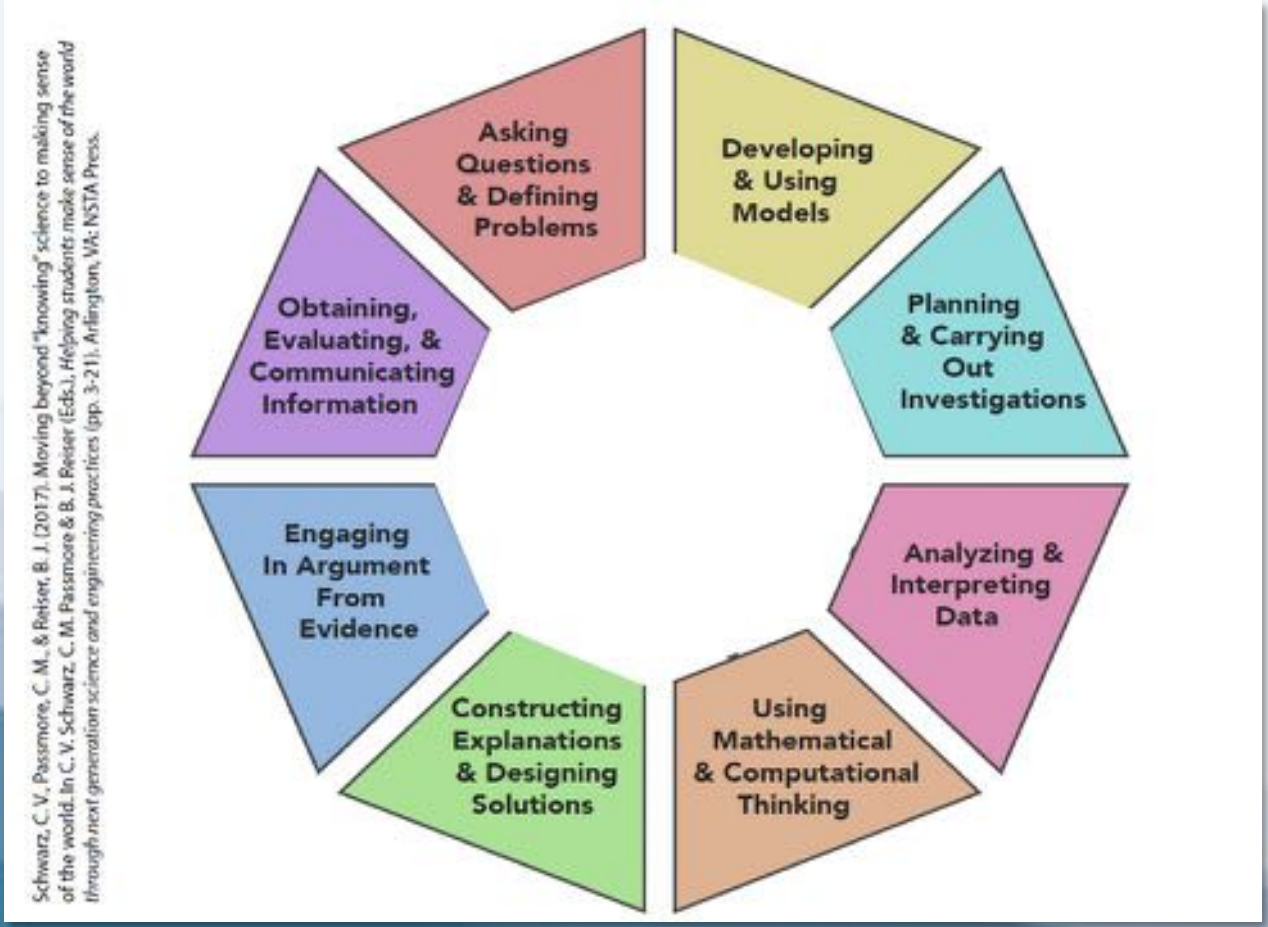
- Only about 5% of an American's lifetime is spent in the classroom and only a small fraction of that is dedicated to science instruction. (Falk and Dierking, 2010.)
- Directive to increase the public understanding of science in all settings.
- Formal classroom teachers rely on resources and training offered at informal institutions.

New – Next Generation Science Standards (NGSS)

- Instead of learning about science, students practice science
- Learning is student-driven vs. teacher-directed
- Student ask questions vs. being told what they need to know
- Performance Expectations include Practices, Concepts, & Core Ideas



Science and Engineering Practices



Schwarz, C. V., Passmore, C. M., & Reiser, B. J. (2017). Moving beyond "knowing" science to making sense of the world. In C. V. Schwarz, C. M. Passmore & B. J. Reiser (Eds.), *Helping students make sense of the world through next generation science and engineering practices* (pp. 3–21). Arlington, VA: NSTA Press.

Crosscutting Concepts

Patterns

Cause and effect

Scale, proportion, and quantity

Systems and system models

Energy and matter

Structure and function

Stability and change

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Disciplinary Core Ideas

Life Science	Physical Science
LS1: From Molecules to Organisms Structures and Processes LS2: Ecosystems: Interactions, Energy, and Dynamics LS3: Heredity: Inheritance and Variation of Traits LS4: Biological Evolution: Unity and Diversity	PS1: Matter and Its Interactions PS2: Motion and Stability: Forces and Interactions PS3: Energy PS4: Waves and Their Applications in Technologies for Information Transfer
Earth & Space Science	**Engineering & Technology**
ESS1: Earth's Place in the Universe ESS2: Earth's Systems ESS3: Earth and Human Activity	ETS1: Engineering Design ETS2: Links Among Engineering, Technology, Science, and Society

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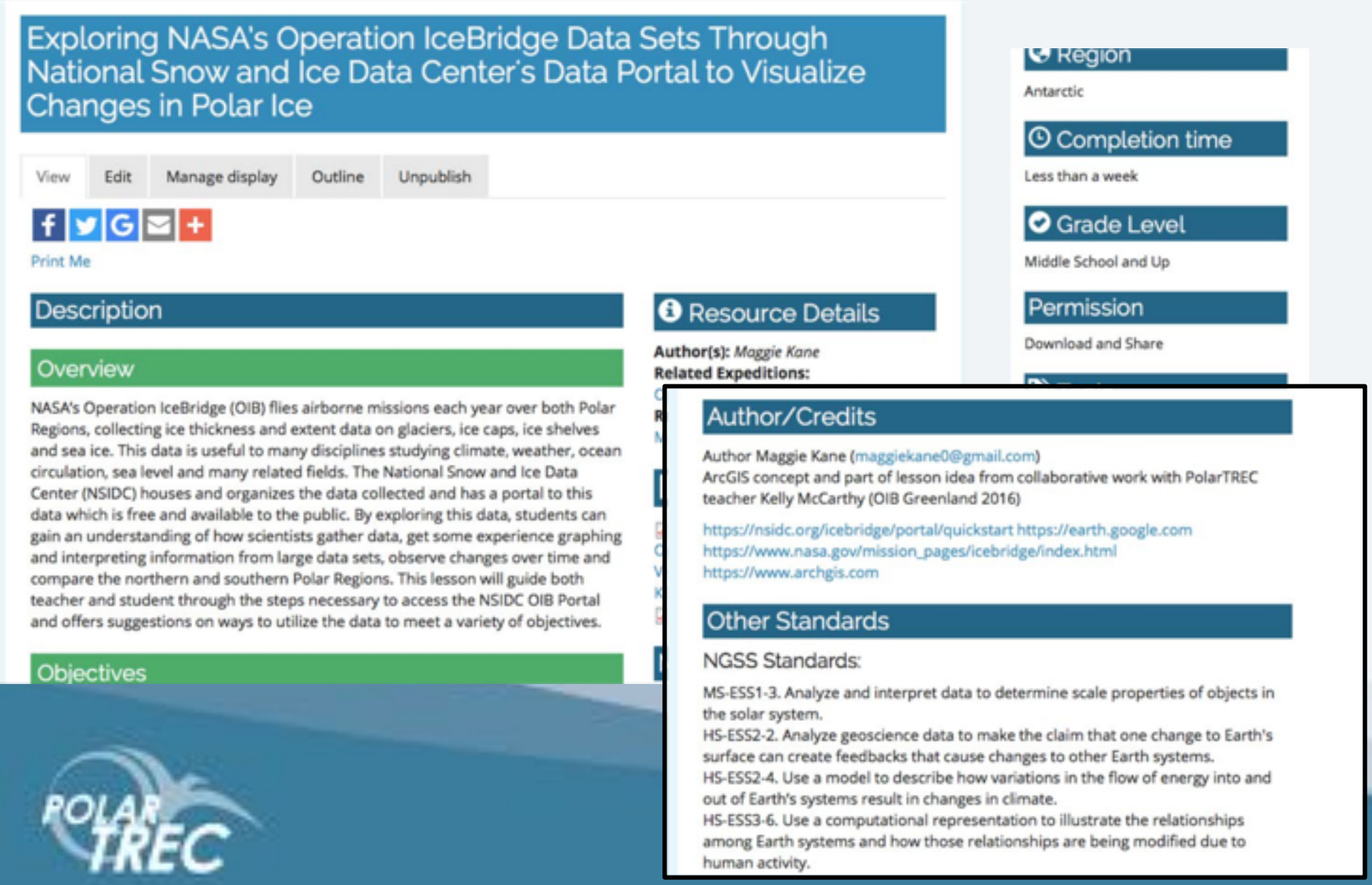
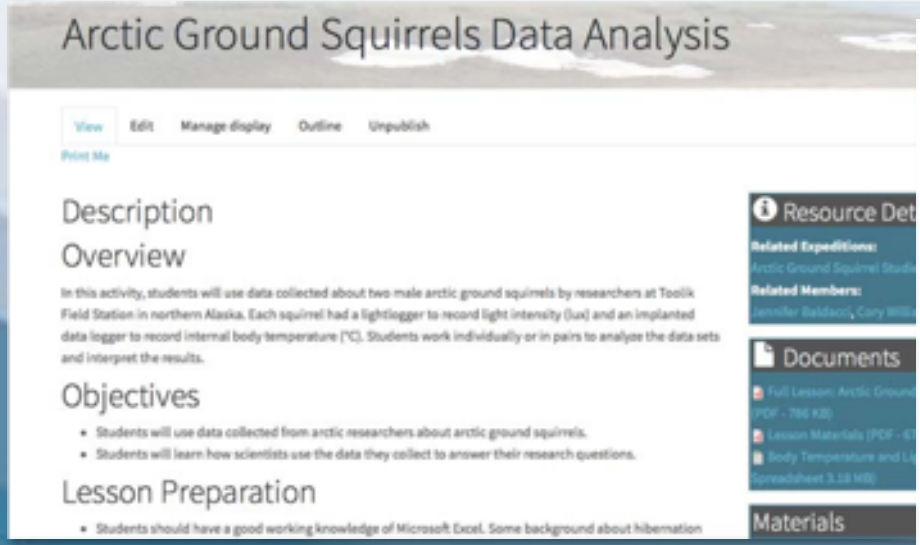
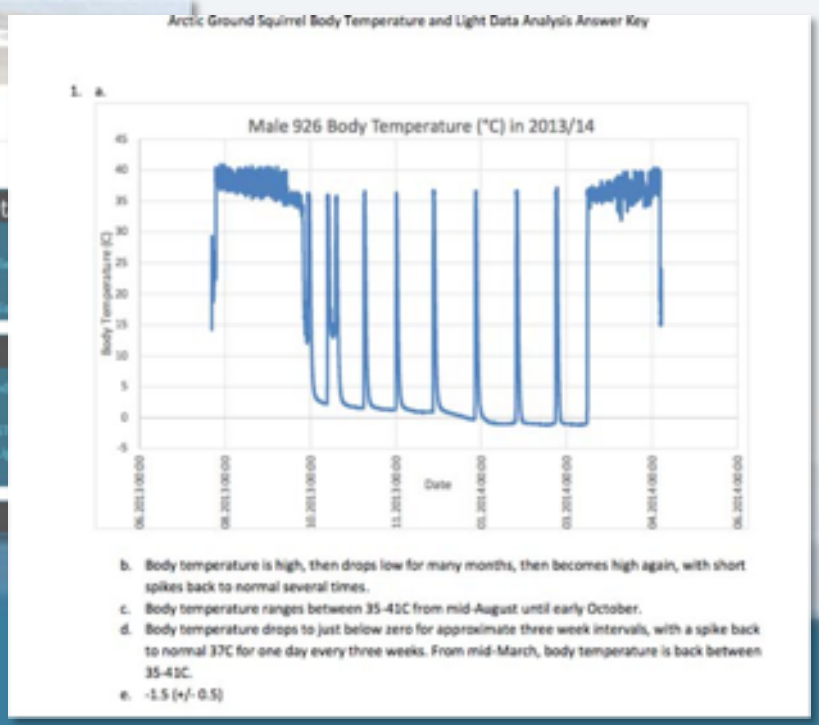
PolarTREC Products and NGSS



New – Data & Research Focused Products

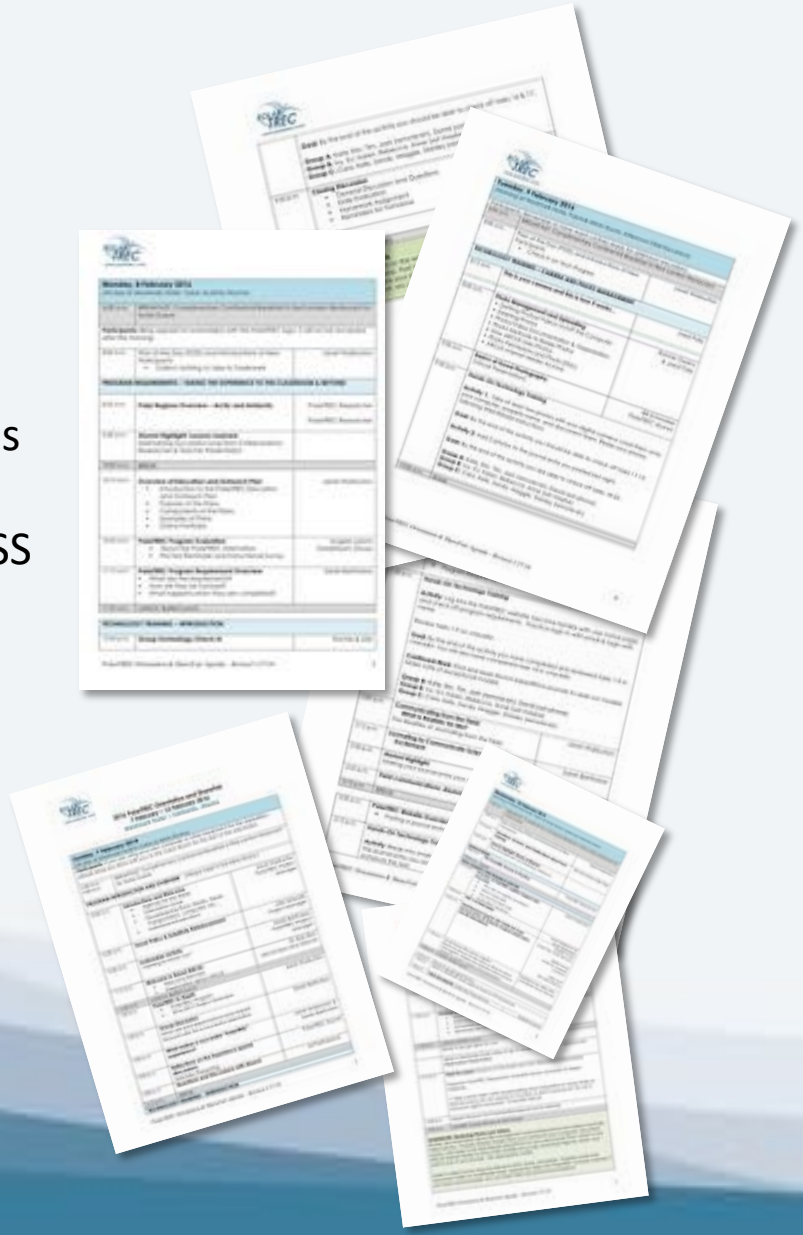
- PolarTREC Learning Resources hosts a decade of lessons and activities.
- Now, moving beyond ‘the basics’ of polar science.
- Educators products aim to “focus on the science content and the historic, current, or future data/research of the research team”
- Communicate your expectations for data/research use in products.



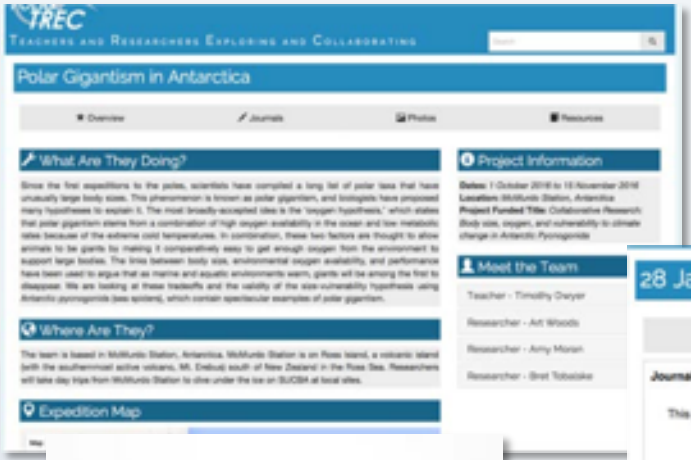


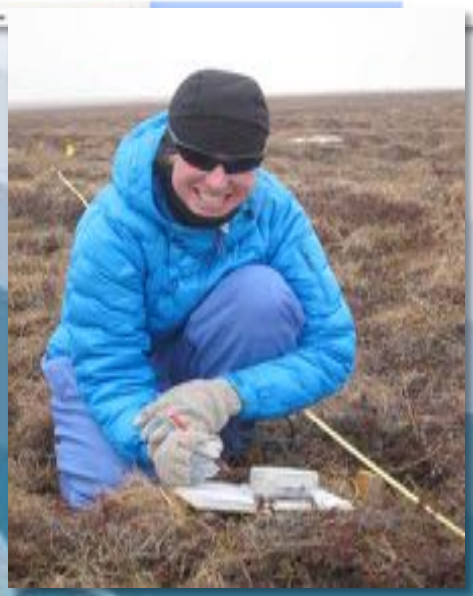
Educator Expectations

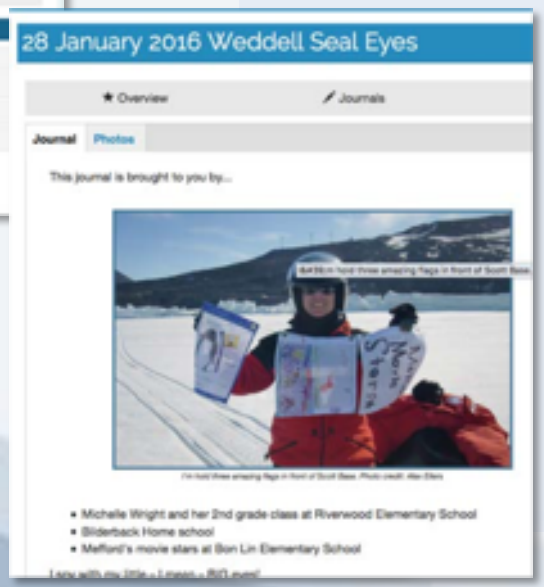
- Stay safe and healthy in the field
- Communicate with their research team before/during/after the expedition
- Attend all trainings and practice what they learn
- Stay on top of program requirements
- Communicate the science to a variety of audiences
- Create STEM focused resources that can be used by others that include data and relate back to NGSS
- Integrate what they have learned into their professional activities as much as possible



Educator's Role in the Team







Public Relations Officer

Pre-Field Momentum

In-Field Journaling/Q&A

Capturing the Science

Outreach Campaigns

PolarConnect

Leading by Example

Field Assistant

Learning Science

Translating Science

Hands-on in All Aspects

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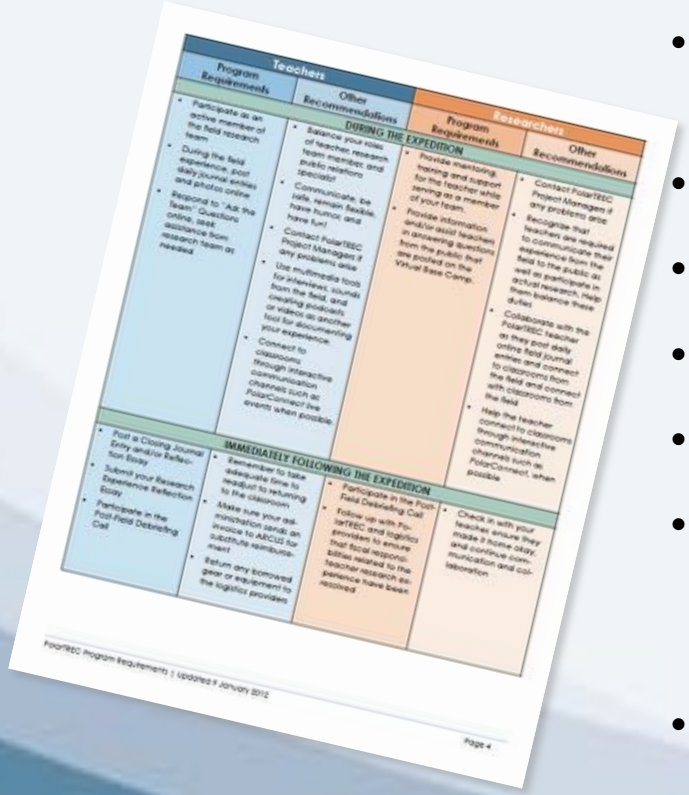
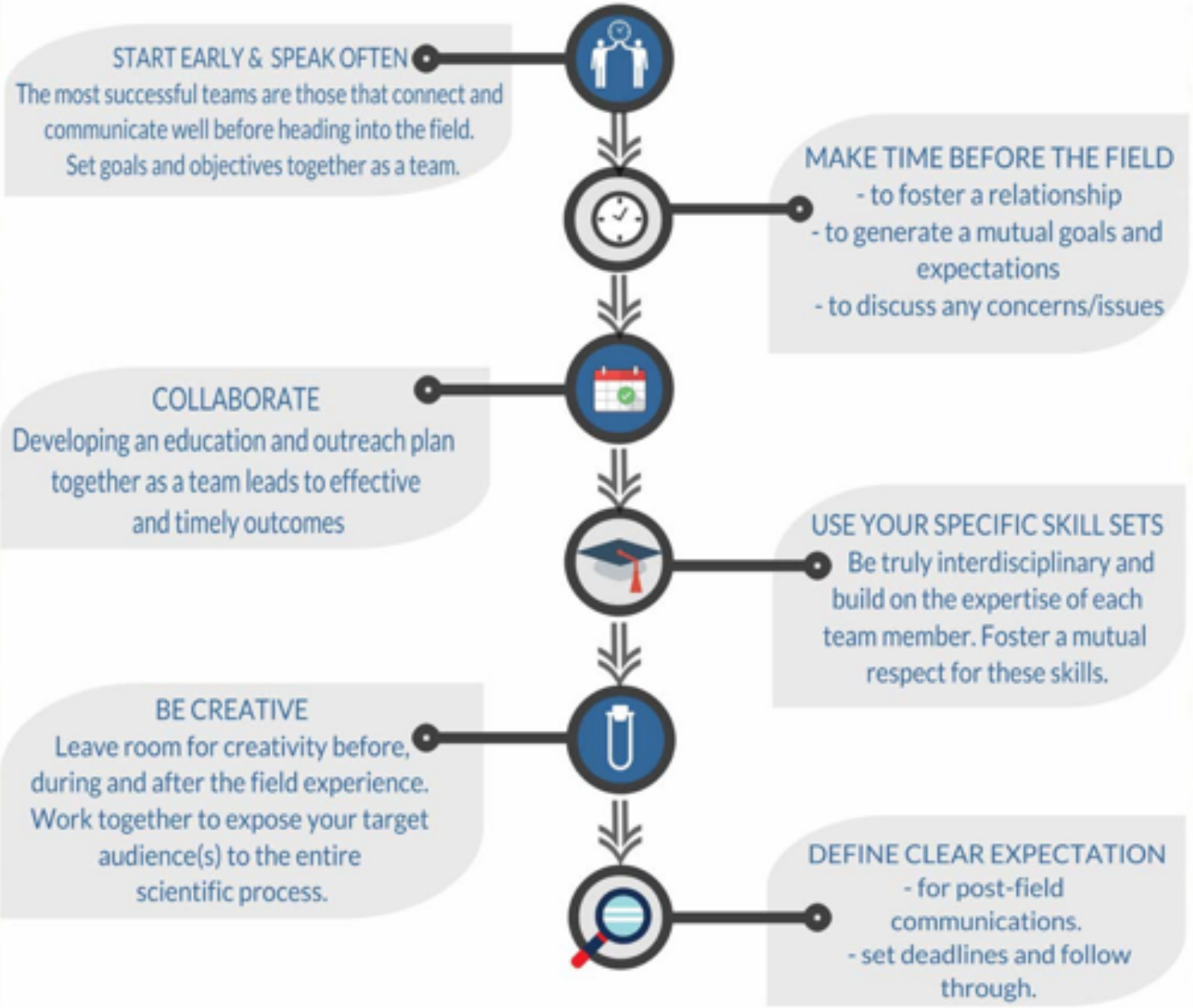
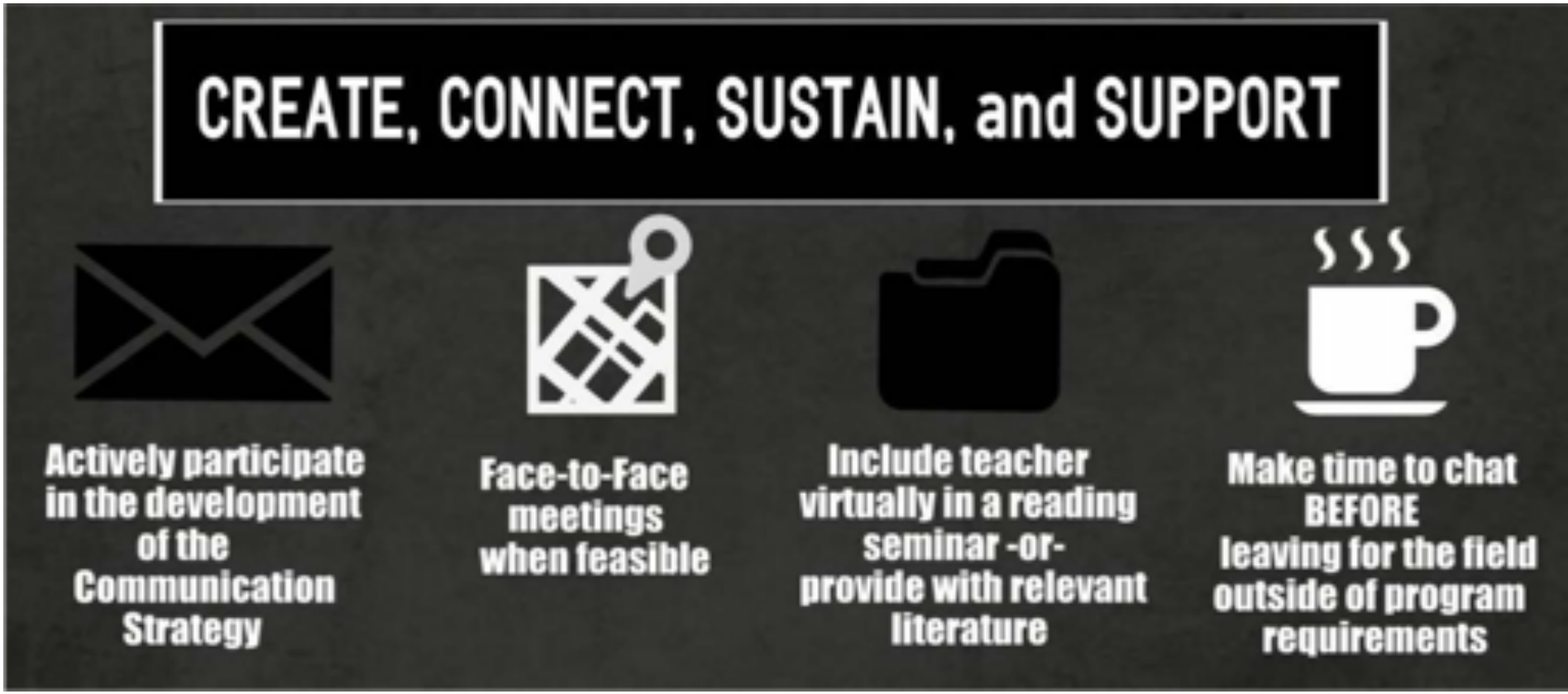
Researcher Expectations & Requirements



- Reading applications & interviews to select a teacher for your team
- 2-3 webinars related to the program
- Pre-post field logistics Zoom calls
- Fielding prep questions from educator
- Commitment to working with educator in the field
- Helping advertise and share the expedition page and other outreach activities in your networks and through social media.
- Vetting science content of products – checking their portfolio and reading journals, etc.
- Outreach activities before/after the expedition
- PolarTREC evaluation component
- Communicate with ARCUS re: any issues or needs



Create pathways for future collaboration - either together or with other teachers or researchers. Build on the incredible professional networks of both the educational and scientific communities.



Remember, ARCUS has funding for Pre-Field visits between
the educator and research team. This is a great way to get to these discussions.

Program Support for Researchers

- E&O planning strategies
- Pre-Post Field Site Visit Funding
- Seamless integration of teacher logistics
- Prep and Follow-up Management
- Dedicated outreach staffing
- Additional professional networking

Logistics Support

- ARCUS works with PF and ASC and with NSF OPP logistics
- ARCUS provides educators laptops, cameras, and GoPro's (if wanted)
- ARCUS provides all the training related to using our equipment and program requirements
- ARCUS works with educators employers to help them go to the field
- ARCUS reimburses schools for subs.
- We can only support about 4 weeks in the Arctic and 6 weeks in Antarctica.
- ARCUS pays for travel for Antarctica educators before they are on/off ice.
- ARCUS reimburses medical/dental expenses not covered by insurance for educators

Arctic logistics support (including educator travel, clothing, and equipment provided by PFS).
Point of Contact for Educators:
Rachel Murray
<Rachel@polarfield.com>

Antarctic logistics support (including in field educator travel, clothing, and equipment provided by Antarctic Support Contractor ASC)
Point of Contact for Educators:
Hood, Elaine
<Elaine.Hood.Contractor@usap.gov>

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- Questions?
- Advice & Thoughts
- Mentor Researchers