

POLARTREC

EDUCATION AND OUTREACH

NEEDS ASSESSMENT

Personal Vision:

The Williams classroom is all about the relationships among all the players. It is rich with content, humor, proper manners, communication, team work and accountability.

Students must leave the 8th grade ready for the following:

- non-fiction text analysis
- data collection, reporting and concluding
- literature analysis, commentary, critique and evaluation
- individual accountability and honor
- experimental design and construction
- data gathering, reporting and analysis

Barriers or Hinderances to Realizing the Vision:

Barriers are the typical matters teachers talk about "being out of their control". These are typically lack of buy-in by unsupported students, lack of aspirations by both parents and students and the inability of students and their parents to deal with academic work outside of the school day. Homework should not consume students, but it seems that often times there is not an attitude of "do whatever it takes" to make education happen. It is difficult to hold students accountable to timely and professional work product when parents and students appear not interested and willing to the point of creating rich options.

What are realistic ways the experience can be shared with students?

The obvious come to mind here quite readily within the electronic arena. Blogs, emails, photos and real time sharing can be part of the mix, but there needs to be some continuation of the experience over time in order to really challenge students' future

decision making. Data from the Denali expedition can be used to give students a real world application for data analysis. Students can use the data and if travel to the University of Maine cold storage lab is possible, then students can see many of the tools used in ice core analysis.

Both pre and post experience activities should occur and that means multiple sessions with students of all ages. The focus group for this PolarTREC experience is the Nobleboro Central School 7th grade class, but outreach will occur, and has occurred on various fronts already.

- Pre-expedition classroom visits scheduled for April 3rd, 2013 at Nobleboro Central School, Bristol/South Bristol School and Lincoln Academy (9-12) Climate Action Club. This is scientist Campbell's high school and Williams and Campbell are both attending the events. PolarTREC website will be introduced, polar gear will be on display and explained, and Campbell will explain research and glacier travel.
- Post expedition classroom visits to be done June 2013 and September 2013 to include video and slide shows and PolarTREC website.

Student needs related to specific curricula

- gain awareness of need for ocean acidification related to shellfish health
- polar region geography
- climate change and its relation to a winter tourist economy and recreational activities
- Impact the last ice age had on Maine geography and current land forms
- real data analysis using high latitude materials

Changes to teaching methods

My teaching methods are pretty much inquiry based already and students are exposed to a rich variety of classroom experiences. The goal here would be to implement some polar studies units and have them fit into existing curricula requirements and Next Generation Science Standards. This does not concern me as teachers in my district

have latitude in classroom practices and content. I also have the luxury of having students for multiple years and multiple subjects, so polar science can easily become part of both reading and writing classes as well as science.

Something very specific would be my desire to push some polar based literature to students via my reading/literacy class and also use polar literature as a basis for some writing as I also have students in the language arts/writing content area.

Three to five learnings

- safe glacier travel
- data collection in the field -- meteorologic stations and associated downloads and data gathering
- ice core chemistry

Concepts to teach better or differently

- importance of soil microbes
- the huge amount of carbon stored in the tundra and the potential for its release due to climate change
- polar region geography
- ocean acidification related to shellfish health

Equity in ethnicity, gender, socioeconomic and differently-abled students

Tiny class size at Nobleboro Central School literally means that “no one can hide”. Tiny literally means some class sizes are as little as 8 and with differentiated instruction in math and literacy class size can be as little as five. I also have the luxury of having the same students for as many as three years and my total student contact per day is only 25 students in three grades. The issues in gender, socioeconomic status and differently abled students typically boil down to the barriers mentioned in a previous section.

There is very little ethnic diversity in the area in Maine in which I live. In 28 years in the classroom I have had less than 10 non-white students.