**Needs Assessment**

***Personal Classroom Vision***

In my earth science classroom students are actively engaged in all aspects of the scientific method. Students are excited to be in class. They are examining real-life issues that relate directly to their everyday lives in the units of study: Astronomy, Meteorology and Geology. Students use technology as a natural part in developing skills as critical thinkers, interpreters and communicators of scientific information. Students make connections in their everyday lives and through horizontal teaming throughout their day. Their activities involve analyzing problems, building models, interviewing experts, collaborating, developing hypotheses and experimenting and assimilating background knowledge. My student’s curriculum is directly related to my school districts “Essential Expectations” and “Global Understandings”. Students have a clear understanding of what they should know, understand and be able to do with each lesson.

***Realities***

**Help with my vision**: My school district has spent many hours over the past half a dozen years developing it’s reading and writing curriculum. In addition we have initiated vertical teams to discuss curriculum development, overall goals and assessment of knowledge from kindergarten through twelfth grade. These teams have expanded into horizontal teams to give students more opportunities to make connections to subject matter. My school has a clear mission. Our science department has clear goals that are directly related to national and state standards (we call them “Global Understandings”.) When developing curriculum we use “backwards design” strategies. Curriculum is also related directly to “Essential Expectations” (These are categorized as problem-solving, citizenship and the community, communication and habits of learning).

Our district began an IPad initiative 4 years ago. All students k-12 have IPad’s. We have integrated and are continuing to integrate this technology throughout our everyday lives.

My school is also small. We have our own bus service. The administration is very supportive of giving students opportunities to learn outside the classroom. I live in this community and see my students in and out of school everyday.

**Hindrance’s to my vision**: Time! Given our size and the current requirements for graduation it is difficult to offer more choices (electives) for high school students.

**Sharing the PolarTREC experience with students:**

* Overview the experience in each class.
* Presentation to school board.
* Presentation to school faculty.
* Presentation to local community.
* Maintain a connection with researcher.
* Have the researcher visit my school and classes.
* Use the actual data and have students draw conclusions.

Student needs related to curricula:

* To be able to use Excel in recording/reporting data.
* Hands-on activities related directly to understanding Permafrost.
* Access to observation technology.

**Changes to teaching methods:**

* Increase use of IPad in class.
* Develop more “project” type (capstone) activities.
* Be consistent in assessing student knowledge.

**What I should learn:**

* How a research project works
* How scientific data is stored and shared
* Methods by which science can be communicated

**Concepts to teach differently:**

* How we effect the Carbon cycle
* Nitrogen cycle’s relationship to climate change
* Role of permafrost in global carbon cycling

**Equity and expectations:**

Basic understanding of subject matter is expected regardless of ethnicity, gender, socioeconomics and/or students with special needs. Instruction is differentiated based upon student need and ability. Given the continued dearth of women involved in fields of science it is important to highlight women in science to my students. It is also important to find and engage my students in activities that transcend socioeconomic barriers. All students who are interested in pursuing careers in science should be able to do so without regard to the cost of continued studies.