Polar Trec Needs Assesment Andre Wille

Vision for the classroom:

* a welcoming and engaging place to learn while doing.
* a sense of doing meaningful activities
* content material is relevant to student lives.
* students work cooperatively and collaborate while learning

Realities:

* Good resources and technology available
* Mostly motivated students
* Colleague Support
* Students with special needs including ELL, ILPs 504 plans etc.
* Need for lots of differentiation in some classes.

Ways to Share Experience

During the Experience

* Polar Connect event
* Journals-daily with Q and A
* Individual Research projects for students at home while with the Sub.
* Student Presentations

After the Experience

* Develop labs and activities
* PPT Lessons with slides
* Videos from the research experience
* Stories, Readings on related topics either gathered or essays written by myself
* Long term ecological monitoring projects at home with a display of data for the school. For example, local plant and animal phenology of spring and Fall changes. Encourage students to observe the natural world around them an document, share observations with school and community.

Student Needs

* Develop students as responsible, independent learners
* Activities to engage special needs students in biology 2 (ecology and physiology topics)
* High level IB biology data based activities and use of data sets for statistical analysis.

Changes to My Classroom

* Develop and implement more project based learning activities in my Integrated Science classroom. I am thinking engineering STEM challenges where students have to collaborate in problem solving. This sort of project is excellent for Differentiated Learning in a classroom with wide spectrum of needs and abilities.
* Teacher as resource and coach vs. l ecturer
* Polar trec may help to envision scientific research projects but not sure about how it will help with the engineering problem solving sort of projects.
* The remote controlled submarines (ROVs) that John works with fit the bill.

Things I expect to learn

* How to capture, handle, and process the ground squirrels and my role as a team member.
* Ground squirrel and mammal biology. Specifically, the regulation of endogenous clocks, physiology, phenology, behavior, and ecology.
* Medical and other applications of the research
* Arctic Climate science in general from other research teams at Toolik.
* How scientists conduct field research and collaborate as a team on the project

I am sure the learning curve will be steep. Lots of stuff to know to be a useful team member. This experience will help my teaching by giving me some authentic research experience in biology. By increasing and validating my biology knowledge with this real life experience, students will see me as an authority. I will also teach as more of an authority with the background of the experience. This will help with student learning if they perceive the lesson as authentic, meaningful and relevant.

Equity and Expectations related to ethnicity, gender, socio-economic status, and student ability.

* Develop activities that encourage cooperation and collaboration among all students
* emphasize the diversity in the scientific community at Toolik (100+ people at the station)
* Create activites focused on different student abilities. Some low level, high interest, some data analysis and statistical for IB students.