Needs Assessment.

In this document you can answer any or all of the

questions below, or come up with questions of your

own.

**Questions to address:**

What is my personal vision for my

classroom? **I want my classroom to be more project based, with teams of students working to answer questions they research and come up with (with teacher facilitation). I would like for students to learn science by doing science, learn to ask and answer questions, learn to set goals, evaluate and re-evaluate their progress. I would like to see them address authentic topics, whether it is background knowledge such as plate tectonic mechanisms or topical place-based problems such as steep slope regulation. Other examples include addressing energy problems, or learning about sustainable gardening practices. These broader topics can form a framework for learning about climate change, nutrient cycling, land use issues, and ecological systems. I have a host of similar topics to work through in Biology, including evolutionary relationships, knowledge of bio-chemical pathways to apply in learning about genetics/ecology/evolutionary processes. I would also like to take a more inter-disciplinary approach in Earth Science; for example it's a perfect venue for incorporating biology and chemistry into soil science.**

***I*** *still want this, especially to work on projects in student teams. I still haven't achieved it. Hopefully as I get the new curriculum implemented, I can have time to think about new ways of bringing student teams together…..for next year!*

What are the realities faced in the classroom

that may help or hinder my vision?

**Plus: supportive administration**

**Supportive school vision of alternative teaching and learning styles**

**Smallish class sizes of 20 or less**

**Space available in schoolyard, adjacent Greenway, river, and greenhouse/garden plots**

**Internet connectivity and access to computers (1:1 classroom)**

**Earth science broad curriculum open to interpretation**

**Minus: Biology high-stakes testing EOC scores with wide, shallow curriculum to test**

**Some lack of funding for classroom supplies**

**Limited classroom space for ongoing projects as classrooms are shared with college science faculty**

**Physics class emphasis on force and motion, electricity and magnetism…difficult to connect with Polar ecology and biochemistry soil science…**

*Very limited class space, limited access to lab, classes overcrowded in small facilities*

What are realistic ways the experience can

be shared with students**? Integrate into existing curricula, especially Earth science, quite a bit of biology in the ecology and chemistry sections, some physics with dynamics of physical processes such as densities, air currents, wavelengths, and use of technical field equipment to gather data**

**physics tie in with neutrino observatory, solar ovens**

**special topics class to look at polar science…currently proposing a 1 credit elective for students to follow along with summer expedition..reading and commenting on journals, posing questions, researching topics that support the research I'm working with.**

**Specific issues to address:**

Three to five student needs related to specific curricula:

 **Students in all sciences need a better understanding of how scientists work to pose and answer questions**

 **In Earth/environmental science, students need to better understand soil/plant/micro-organism/atmosphere relationship**

Three to five changes you would like to make to your teaching methods:

 **Use broad concept of ecology as framework for teaching much of biology. For example, looking at protein/amino acids and micro-organisms while teaching about cells, organelles, and interactions of cell processes**

**Teach majority of curricula in project based format**

Three to five things you expect to learn during your experience

**Better understanding of soil biochemistry relationships** *still working on that!!!*

**Better understanding of climate change** *WOW, I definitely got that, and my EarthScience class this past fall was almost all based around climate as a framework for so many topics.*

**Field techniques that can be modified to use outside the classroom** *I especially want to incorporate phenology projects and litter decomposition projects*

Three to five concepts you would like to teach “better” or differently

**Climate change**

**Soil science**

**Ecology**

Equity and expectations related to ethnicity, gender, socioeconomic, and differently-abled

Students

**Most of our students are first generation college bound, and have little concept of career opportunities available to them. Female students, especially, lack the confidence in science to pursue some of the exciting careers that are opening up. In field work, our girls often take the role of note taker automatically. I work to switch that up so the guys are able to take decent notes, and the girls get to realize the fun and satisfaction of field work.**

*I'm going to really push the GIRLS on ICE expedition to a couple of my students, they would love it!*

**Distribution:**

Share your Needs Assessment with your research team and the PolarTREC Project Managers. It will help your team understand what you want to get out of the whole experience.