Needs Assessment

Personal vision for the classroom:

Students will be exposed to real time science and the importance of polar ecosystems and the research that is occurring. Students will look at climate change and the relevance to research in climate as a valid science and importance to the 21st century. Students will be writing me questions on a weekly basis as well as writing personal emails documenting their learning. Students will also incorporate knowledge from the expedition into capstone projects at the culmination of the academic school year.

The realities of teaching:

The state of Arizona currently does not cover climate science in their state standards so that I will have to work diligently to find ways that our research fits with existing standards. The school and local district are finally being supportive on my expedition, thus encouraging my participation. I recognize that through participation in this program some of my mandated state standards and timing in the district curriculum map will be altered, but my hopes are that through participation in this expedition I will be able to show and encourage students in critical thinking and how it relates to science.

Realistic ways experience will be shared with learners:

Pre- during and post expedition students will be participating with me in all aspects of preparation ( well not the paperwork). We have discussed the medical, and knowledge needed prior to starting a scientific exploration. We have discussed the nature of the research and we have discussed why this is important to learners in Arizona and the world. I have also developed a cadre of followers (I hope) fro 46 of our fifty American states. Students will be checking the blog as well as writing to me asking questions. I will also be calling in to classes and maintaining email communications with my students. Oceanography club will be completing activities during club time that directly relate to what I am researching while on board the vessel, both in data and for these learners biology.

Curricular issues / Teaching Methods:

Students working on formal communication skills as addresses in common core standards

Students collecting data and interpreting data as addresses in NGSS

Students developing relationships with scientists in the field and looking at past contributions from scientists (state standards)

Work with students that I not yet in my science classes -, developing vertical instruction with students in the school 6 8.

Increase my use of data in the classroom, students working with and then interpreting real time data.

Increase my questioning strategies with students to encourage higher critical thinking

Develop curriculum that can be used through successive years so that further generations of learners can benefit.

Increase planning and work with seventh grade science instructor in geology, and real time geological data collection as it relates to plate tectonics

I see these changes in my teaching methods allowing me to become a better educator to meet the needs of all learners. With NGSS it is important to develop depth with instruction, not breadth. Working with scientists in the field on science topics relevant to students makes me a better educator, students need to understand polar ecosystems and how they relate to climate change. Especially in Arizona, as ALL of our weather is dependent on global oceans and ocean circulation and weather patterns.

Learning Expectations:

Physical and historical geology of the southern ocean

Scientific relevance of ACC

Importance of continual movement of plate tectonics

Longevity and importance of continued field research and how to disseminate to general public

Develop professional partnerships with researchers.

Strategies for decoding science to be understood by general public.

Provide evidence in samples collected on age of the earth and areas we are studying with plate tectonics – (the earth is not only a few thousand years old)

ALL teachers need to constantly be improving their skills, looking at science and the changes in science with open eyes. Science is fluid, constantly changing with scientists always stepping out of the box. Science is not scripted like math and English. I need to constantly improve my skills in teaching science like a scientist.

Concepts to teach with better accuracy:

Use of data in the classroom.

Climate change as it relates to plate tectonics and ocean circulation.

History of science as it is disseminated to the public, and how this science will become history to future learners.

Importance of collecting data and decoding data. (real science)

Use of vernier probes in instruction

With all the listed concepts, data and climate are the most important to me. Data is science and climate is the future. If I can get better and more effective at both then I will have been successful in implementing what I have learned with my students.

Equality and expectations for all learners:

All learners having access to technology. (available in the classroom)

All learners seeing the validity and importance of participating in field research.

All students able to communicate with me and researchers questions, comments and concerns through social media.

ALWAYS to encourage more girls in science, state requirements in the histroya dn nature of scientific exploration predominantly focus on men.

With the onset of charter education in Arizona a great deal of cream has been skimmed from the top of public schools. Many of my students live in poverty, have limited resources and do not see education as a viable future. I hope to change this vision by exciting learners about their futures and all the doors that ARE open to them. I also have a high number of special education students. These learners have unique subsets in regards to learning and need to be encouraged as to their potential as future learners. Through hands on activities and lessons, through the use of technology I can encourage their enthusiasm with out their disabilities being a hindrance.