**Cindy Becker**

**Unit Conversions using Global Applications**

**Global Learning Unit**

**Overview**

**Demographics**: This unit is designed for two high school algebra classes consisting of ninth and tenth grade students with an average class size of twenty. These students attend a rural, mono-culture high school. One of the algebra classes includes approximately four IEP students.

**Partners**: Our learning partner will be an urban high school in the state of Kansas with some cultural/racial diversity. Communication will be through ePals and IDL.

**Special Considerations**: Students will need to be prepared to work with others from a different race or culture. Laptops and the technology room will have to be reserved in advance.

**Primary Learning Outcomes**: Students will be introduced to unit conversions in their textbook. Global environmental issues such as plastic water bottles, the Great Pacific Garbage Dump, and the BP oil spill will be explored. Students will then practice converting the length of disposed water bottles in a day or year to miles and comparing it to the earth’s equator, the size of the Great Pacific Garbage Dump to the size of an item more familiar to them (football fields, city blocks, quarters of farm ground, area of a local lake), and convert the volume of BP’s oil spill/day to . . . size of our classroom or school? Concurrently, the students will learn new technology skills, interviewing techniques, practice cooperative and collaborative learning, and intercultural and interpersonal communication.

**Assessments**: A pre-test on conversions, finding volume, and current environmental issues will assess student’s current knowledge. An attitude assessment will also be used to evaluate students’ cultural and racial feelings/biases.

**Frameworks**

**Learner Goals and Outcomes:**

Students will be able to calculate volume unit conversions and relate that measurement to something recognizable.

Students will be able to use technology to conduct research. Technology will also be used to interface with students in another school to improve communication skills by posing questions to their teammates and sharing ideas. The final project, a Power Point presentation, will incorporate more technology (Power Point and IDL) and sharpen their critical thinking skills.

**Standards Addressed:** Using theKansas State Standards for Math, this project will address 3.2.K3 and 3.2.K4, 3.2.K5, 3.2.A1a, 3.2.A1c (Standard 3—Geometry, Benchmark 2—Measurement and Estimation).

**Frameworks Questions:**  This unit addresses the 21st century skills of critical thinking and problem solving, communication, collaboration, and creativity and innovation. It also attends to the NCTM standard of “compute fluently and make reasonable estimates” for grades 9-12. The mission statement of our high school “It is the mission of Conway Springs High School to provide the students the opportunity to master basic educational skills and the opportunity to accumulate knowledge to adapt to a changing environment, to be able to meet the rigorous requirements of colleges and universities, and to be a responsible community member.” is encompassed by the teachings and activities in this unit.

**Design Considerations**

**Cultural Contrast in the Classroom**: There is a minimal amount of cultural contrast or racial diversity found in the classroom. There are the “farm kids” and the “town kids” and a few bi-racial students.

**Degree of Contrast Desirable Between Partners:** To make this unit activity beneficial, there needs to be some evident differences between the partners. This can be race, culture, language, school/after-school activities, or type of parent/student employment.

**Global Learning Partners:** I will use networking among my colleagues to locate a partner school in Kansas willing to cover this unit with me.

**Team Structure:** A team will consist of two students from each classroom. I will pair students up who are diverse as possible. Partners will be assigned randomly to partners from the other classroom to form a team.

**Technologies Available for Global Learning:** My school has forty laptops available for checkout, a technology lab with twenty computers, and an IDL classroom. Because of budget cuts, any money for memberships over a couple hundred dollars would probably have to come from a grant.

**What Global Learning is to be Achieved?** Even though we’re connecting with an in-state classroom, students will still accomplish global learning. The students in our mono-race/culture classroom will be exposed to and communicate with students of different races and cultures. The students will learn about global environmental issues, how they are affected by them, and devise possible solutions. They will learn how to communicate with students and collaborate on a project using technology that is new to them.

**Further Considerations:** I am going to have to be prepared to introduce unit conversions using another school’s schedule, not necessarily my own. I will be devoting a lot of class days to a unit I usually fly through. This will affect my pacing guide. I feel that I should also inform the administration of why I am introducing global curriculum and how it benefits the students. I do not foresee any problems with the administration, only respect for introducing something new and utilizing available technology.

**Content, Processes, and Attributes**

**Content to be Learned:** Unit analysis is a process for converting measures into different units such as feet to inches. This will be taught using units of currency, length, area, and volume. These conversions will further be explored and applied using the global environmental issues of discarded water bottles (length), Great Pacific Garbage Dump (area), and the BP oil spill (volume). Students will also delve into local environmental issues concerning their own and partner school’s community.

The technology skills the students will learn involves how to communicate using ePals, how to collaborate on a project using Google Docs, and being exposed to Interactive Distance Learning.

The global citizen skills attained will be interviewing techniques, and communicating, learning from, and collaborating with students of a different race/culture. They will learn about current global environmental issues, how it affects them, and investigate solutions.

**Major Attributes that will be Developed**: The skills the students will develop during this unit include employing technology that they’ve read about but not actually participated in. I am sure the students will catch on and rapidly become experts. I am pretty confident they will enjoy the experience of working with partners from another school thus resulting in more engagement in the unit content. They will practice their critical thinking skills both in accessing reliable research data and in coming up with environmental solutions. I believe they will begin seeing global problems or issues as having ramifications for all citizens, even if you live in Kansas.

**Student Preparation:** Students will need to explore the community and school we are partnered with using the internet so they have some background knowledge. As partners, they will prepare questions for their teammates. As a group, we will brainstorm for question ideas which are acceptable and not acceptable. As a group and individually, we will also study and investigate the three environmental issues mentioned earlier. Lastly, partners will investigate local environmental problems to present to their teammates.

**Differentiated for Diverse Learners:** I would definitely pair those of high-ability who are accepting of differences to guide those who are of low-ability. The standard unit problems could also be at geared toward different levels. Currency conversion and unit measures could involve coinage and units native to the student’s culture.

**Student Assessment and Unit Evaluation**

**How will Student Achievement be Assessed?** A pre-assessment will be administered to measure general content knowledge of unit conversion of length, area, volume. There will also be a pre-assessment to measure student attitudes and knowledge of environmental issues. After the unit is completed, this assessment will be given again and changes will be evaluated.

Along the course, student problem-solving skills will be observed and quizzed. The final Power Point presentation will be assessed. I might also have the students write a short reflective essay on what they learned and how they think their attitudes changed or did not change and why.

**What Criteria will be used to Evaluate Global Learning Outcomes?** I will develop rubrics to appraise student’s questioning skills, their ePal correspondence, Power Point presentations, and reflective essay.

**What Criteria will be used to Evaluate the Global Learning Curriculum Unit?** I will, as always, jot down comments in my planning book after each day’s activities. I am sure the students will offer feedback as well as the unit progresses! The students’ reflective essays can also be a gauge for evaluation and I will have discussion time at the end of the unit for the students’ to voice their opinions and suggestions on the unit.

**Instruments of Evaluation:** As mentioned earlier in this section, rubrics will be used for assessment of some of the activities. I would like to use Survey Monkey for the attitude pre-assessment because I don’t think they’ve been exposed to it before and it’s very easy to use. A standard content test will be used to assess conversion material.

**Global Citizenship**

At the introduction of this class, my original definition of global citizenship included being conscious of how our moral, ethical, and business decisions affect the world, not just our own community, state, or nation. I think that original definition, although slightly undeveloped, still encompasses the essence of global citizenship. In participating in this unit, my students will realize that our consumption of water from plastic bottles, our failure to recycle or reduce our consumption, and our reliance on oil has ramifications that affect citizens beyond our state and national boundaries. Conversely, the students will realize that other country’s environmental issues are our concern.

The second part of my definition of citizenship incorporated being respectful of, and knowing the positive contributions of, all races and cultures. This unit addresses this definition by networking with students who may be of a different race or culture. Although every group may not experience this since I am using another Kansas school for a partner, it is a step forward.

This unit addresses global citizen skills by teaching the students new ways to communicate using technology—ePals and IDL. They will also have to practice interviewing skills, interpersonal skills, and cooperation when working on team problems and projects. Students will apply their content to real-world problems. Most of all, they will practice their critical thinking skills when trying to find workable solutions to global environmental problems.

I am expecting this unit to open students’ minds to issues they weren’t concerned with or knowledgeable of before this experience. I believe it will pique their curiosity in other global events and issues. Hopefully, this will lead to a service project or, at the minimum, of wanting further discussion and exploration of these topics in the classroom, in the school, and in their homes.

I don’t think I would have ever thought of instructing this unit in this way on my own without this class opening the door for me. Although this is my first global curriculum unit, I believe it does an adequate job integrating assessment content with global curriculum. The global curriculum helps create a more engaging content lesson, but also aids in developing global citizens while reinforcing the content material—a win-win situation for any instructor and student.