

## Application Components

### Part 1: Teacher and School Information

Teacher:

Email Address: \_\_\_\_\_

Year Attended Workshop: 2012

School: Lincoln-Way North High School

Grade(s): 10-12

Class Size(s): 30-35

School Address: 19900 S Harlem Ave, Frankfort, IL 60423

### Part 2: Teaching Activity

Describe what you taught based on an activity or materials from the IAAP Teachers Workshop.

After attending the teachers' workshop in 2012 and again in 2014, I used the materials in all core areas of science, not just Earth Science. Biology teachers used the fossils, chemistry teachers used minerals, and physics classes watched the videos of the blasts. As for Earth Science, I used every sample I was given. During the rock and mineral section, we look at the sample and find where it came from. I started this unit with the Illinois worksheet and the minerals found in a bathroom. My students were amazed with how these worksheets took a topic they considered boring and really brought it to life. In fact I adapted a lab in order to highlight minerals specifically from Illinois. My classes' favorite was birdseed mining, it was great for my students to compare methods that worked versus those that didn't and most importantly helped them with their math skills too.

How can it be improved? (500 characters maximum)

The best way that the workshop can be improved is to show people how the topics you are cross curricular. I have taught all of the other sciences so when I was being presented information I knew where different topics fit in the other subjects. After aligning what the conference does with NGSS I think it is important to highlight the engineering practices as that seems to be the strongest correlation between the two. Oddly enough engineering practices are what most teachers struggle with so I think creating/adapting more lessons for ALL levels would be beneficial.

### Part 3: Proposed Activity Using Grant Money

(2,500 characters maximum)

Describe the activity and address how this will enhance what you have done in the past.

The four activities described will not only further aid in inquiry in Earth Science as needed with NGSS, but will bring Earth Science into the chemistry and biology classrooms as well. Also, these activities will also with our first AP Environmental Science class.

#### **Copper Mining:**

Students will extract and analyze copper from rock and mineral samples. During this process they are creating their own plan and learning the importance of mining waste and reclamation. Currently we discuss why certain minerals are ores and this will allow students to think like a miner.

#### **Physical and Chemical Properties of Soil:**

This kit will have students analyze the relationships between abiotic and biotic factors. Students will explore the physical differences between sand, silt, and clay such as settling time. Then students will test their chemical properties such as the presence of specific ions. Once again this will aid students in understanding the importance of soil and lead into the discussion of reclamation. We currently discuss the chemical and physical properties of minerals but this will allow our class to learn about the soil beneath their feet.

#### **Exploring Groundwater:**

This mini lab kit will allow students to calculate permeability and porosity from samples provided from the kit, but then I will give them samples donated from Vulcan and Hansen. This will allow my students to see the differences in the grade of materials. They will then create a groundwater simulation model. The Life of a Mine PowerPoint explains how reclamation occurs but this will display the importance of preventing groundwater pollution. Currently we discuss these topics but once again this kit will allow students to solve for these values or locate the problems.

### Part 4: Budget

(500 characters maximum)

Activity	FLINN #	Cost	Quantity	Total Cost
Copper Mining	FB1913	23.85	3	71.55
Physical and Chemical Properties of Soil	AP7184	62.50	3	187.50
Exploring Groundwater	AP7357	78.35	3	235.05
				494.10

Our district does receive a 10% discount on Flinn materials and free shipping over \$200.