

Example ACS-Hach High School Chemistry Grant Proposal
Category: Science Outreach Event

Student Impact

600

Collaboration

Yes. Chemistry teachers at [REDACTED] would teach chemistry concepts to their students then work with the teaching apprenticeship program to turn this information into lessons for elementary students. The high school students would then work with [REDACTED] teachers to teach these lessons to younger students. Ideally this would involve grades K-5 at [REDACTED].

[REDACTED] is the Teacher Apprenticeship coordinator who places students in classrooms that are interested in becoming a teacher. [REDACTED] is the Horizons (gifted) teacher at [REDACTED] who has agreed to be our point of contact.

Proposal Summary & Goals

The goal of this project is to provide effective science lessons for elementary students using high school chemistry students as teaching assistants. High school chemistry students will design and teach chemistry concepts for elementary students. The lessons will be safe and environmentally friendly. The need for more science at the elementary level has never been greater. Next year science will be a second indicator to measure adequate yearly progress (AYP). Yet many elementary teachers are not comfortable teaching science concepts because they lack knowledge and training in science, especially chemistry. Another goal is to improve science understanding and improve standardized test scores at the elementary and high school level.

Description

Science Achievement in the U.S. is constantly under scrutiny and compared to other countries. Several reasons are debated as to why American students fall short on the TIMMS and other international standardized tests. One possible reason is the focus at the elementary level on reading and math skills. Now that science is being included as an indicator for meeting adequate yearly progress by schools in our state the need for science instruction at the elementary level has never been greater. Yet many elementary teachers are inadequately prepared to teach even the most basic science lessons. Through a cooperative effort between high school and elementary schools teaching and learning can be maximized for both elementary and high school students.

Approximately 100 students take Honors Chemistry. There are approximately 500 students at the elementary school that shares our campus. With this grant we will purchase environmentally safe supplies for four different chemistry lessons. After the high school student have mastered the Georgia Performance Standards (GPS) in an area, they will work with students in the Teacher Apprenticeship program to develop grade level appropriate lessons based on the science GPS for that level. Students in the Teacher Apprenticeship program observe and assist high, middle, and elementary teachers. They are on a career path to become a teacher. The chemistry learned by students teaching and planning the lessons is solidified by teaching the content. The elementary students learn chemistry concepts. The elementary teachers have assistance teaching science. Ideally, all students and teachers learn more chemistry.

The general topics we will focus on are clean water chemistry, acids and bases, waves and light, and pure substances and mixtures. This is one lesson per quarter (grading period).

If this project is successful, we can work with the elementary school teachers in the subsequent years and increase to teaching one lesson per month. The elementary teachers will hopefully also learn more science content by working with our students as well.

Young children have an innate love of science and learning. If science achievement in the U.S. is to improve we have to take advantage of this important window of opportunity.

Outcomes

When students participate in science they learn. When students have the opportunity to teach what they have learned to another student, they solidify their knowledge and have an opportunity to help another learn. For the high school students to teach a lesson they must learn the material. Granted the elementary lesson that they develop and teach will not be at the same level as what they have learned but they must use critical thinking skills in planning how they will convey the material and in the lesson that they design. Not all students are great "test takers". This experience will give students a different avenue to demonstrate learning and provide a different arena in which they can succeed.

The elementary students will experience "real science". Elementary kids admire high school kids so they will be excited about chemistry and the opportunity to work with the "big kids." This experience will lay the foundation for more science content to be taught at the elementary school level. Also, the elementary school teachers will have the opportunity to learn as well.

Evaluation

We will measure success in the following ways:

1. CRCT science scores for 2012.
2. Pass rates in chemistry classes.
3. Teacher and student feedback.
4. Student engagement and interest.

Grant Amount

\$1,500.00

Budget

<u>Item</u>	<u>Qty</u>	<u>Unit Price</u>	<u>Cost</u>
Understanding pH Measurement Kit	2	59.95	119.9
Intro into Environmental Testing Kit	2	76.5	153
Water Quality Survey Kit	2	44.75	89.5
Water Quality Test Kit	2	42.5	85
Intro to Light and Optics Kit	2	145.95	291.9
Intro to Sound Kit	2	102.95	205.9
Understanding Properties of Matter	1	149.95	145.95
Properties of Matter	1	59.95	59.95
Reconstructing Atomic Theory Kit	1	189.95	189.95
Atomic Theory Kit	1	39.95	39.95
		Sub-Total:	1381
Shipping and Handling			119
		Total:	1500