

## Primary Investigators

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## Description of Program

Project F.L.A.S.K. (Fun and Learning Activities in Science for Kids) is an outreach program from the Department of Chemistry at The Pennsylvania State University. The Project F.L.A.S.K. team works with members of the local schools to assist in teaching science to their students. The Project F.L.A.S.K. team includes faculty members, graduate, and undergraduate students from the department.

The program is provided to local schools as a supplement to existing science curriculum. A member of the Project F.L.A.S.K. team works in conjunction with a teacher from a local school. The teacher and the team member together plan engaging story based science lessons. The activities planned are all hands on to allow students to experience their own science education. Project F.L.A.S.K. is able to provide materials for science learning activities that many schools do not have the resources to provide on their own.

Project F.L.A.S.K. also provides a service-learning component for students in the chemistry department. The program helps reconnect graduate student volunteers to science teaching and learning at its most basic level. The sciences have historically been devoid of minorities and females. The diversity of the graduate student volunteers provides role models for minority and female students who are interested in a career in the sciences.

## Upcoming Project Flask Event

**December 1<sup>st</sup> 2000** - Environmental Science lesson at Centre Learning Community Charter School.

**Planned Activities** – A 2-hour environmental science lesson that involves 10 hands on activities for 100 students from 5<sup>th</sup> – 8<sup>th</sup> grade. Students will rotate through the 10 stations each highlighting a different aspect of environmental science. Students will be asked to bring a water sample of their choice to investigate at a few of the stations. Packets of questions will be provided to each student to probe their learning as they proceed through the stations.

### Sample Stations

**Zeolites** – Students will first learn what a zeolite is and build a model of a zeolite with molecular models. Students will then be instructed on the use of zeolites in the clean up of toxic chemicals from the environment.

**Oxidation/Reduction** – Students will use hand held oxidation/reduction meters to measure the metabolism of organic that are spilled in a natural water system containing bacteria.

**EDTA Titrations** – Students will perform a colorimetric titration of their water sample with EDTA to find the concentration of metal cations in their water samples.

**Temperature Inversion** – Students will model how particles in the air can effect the surface temperature.

### **Budget**

The items listed below are for use in environmental lesson and other lessons to be run during the spring semester. Many items are general; it is hard to identify exactly what is needed for future lessons because each is designed specially for each teacher.

<b>Goggles</b> – 50 pairs of goggles to take on outreach trips to provide to students	<b>\$ 300</b>
<b>Chemicals</b> – general chemicals for lessons	<b>\$ 500</b>
<b>General Office Supplies</b> – paper and ink for color printing of certificates for each student and for making posters using the chemistry department plotter to present to the class as a remembrance of the lesson	<b>\$ 150</b>
<b>Oxidation/Reduction Meters</b> – 3 hand held redox meters	<b>\$ 300</b>
<b>pH meters</b> - 3 hand held pH meters	<b>\$ 300</b>
<b>Glassware</b> – General glassware	<b>\$ 300</b>
<b>Molecular Model Kits</b> – 5 molecular model kits to be taken to lessons	<b>\$ 150</b>
<b>Lesson Specific Items</b> – Items for lessons to be run during the spring semester	<b>\$ 500</b>

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**Total: \$ 2500**