Developing Strategies to Implement a STEM Outreach Program in your PDA

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“Young Hands in Science” Mission

The mission of the program is to create a sustainable outreach program for students who lack exposure to “hands-on” applied science to expand their scientific knowledge and increase awareness of STEM professions.
Timeline for grant—AAAS Stem Outreach Program

School Year 1:  
1) Pilot remaining units at Doull Elementary  
2) Expand to St. Vrain Valley School

Summer 1:  
1) Interim analysis of survey results  
2) Curriculum modifications  
3) Volunteer recruiting and training.  
4) Identify additional schools.

School Year 2:  
1) Expand to 6 schools in the Denver area using optimized curriculum  
2) Purchase microscopes  
3) Publish curriculum online for use by other science programs- crediting support from AAAS in development.  
4) Host year end Science Fair at Anschutz Medical Campus

Summer 2:  
1) Year end analysis from survey results from all schools  
2) Curriculum modifications  
3) Volunteer recruiting and training.  
4) Pursue funding opportunities

School Year 3:  
1) Pursue new funding  
2) Continue program in all enrolled schools  
3) Final evaluation for AAAS

Amount: $12,000 for 2 years
Current Curricula

• Case of the Cafeteria Culprit—Forensics

• Human Health and Disease

• The Chemistry of Water

• The Science of Weather (in progress)
Current Participation

- Postdoc Association
  - Tullia C. Bruno—director of program
  - Jessica Finlay Schultz—official PI on the grant and science fair

- Volunteers (50+)—Teaching emphasis!

- Schools—6 currently enrolled

- Teachers—proactive teachers are best!
Program statistics

Did you like the program?

- Loved program: 60 students
- Enjoyable program: 10 students
- Boring program: 0 students

Did you experience anything new?

- Learned a lot: 70 students
- Learned some: 20 students
- Learned nothing new: 0 students

How hard was the program?

- Too hard: 0 students
- Just right: 70 students
- Too easy: 0 students

Do you want to be a scientist?

- Yes: 50 students
- Maybe: 0 students
- No: 30 students

New statistics
Pre and post knowledge quiz!
The Power of Collaboration!

The PDA will also be involved with a new grant initiative that was JUST awarded!

- NSF/ASM-Link Mentoring Award ($5000 for one year)
- Collaboration across multiple institutions to form a multi-state science outreach program for high schools that serve underrepresented minorities
The Vanderbilt Center for Science Outreach’s (CSO) goal is to connect university scientists with K-12 classrooms. The CSO is dedicated to:

- enhancing literacy in science, technology, engineering, and mathematics (STEM)
- establishing unique partnerships
- developing and implementing educational programs
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<th>Years</th>
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<td># Students</td>
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Expansion to Feeder Schools

- Hattie Cotton Elementary- Fall 2011
  - Resident Scientist-provided oversight and science expertise in the science lab for all classes
  - Dedicated science lab
  - SCP Fellows worked with classroom teachers for one day per week for the entire academic year

- Ross Elementary- Fall 2013

- Budding Scientist Journal
Expansion to Feeder Schools

• Bailey STEM Magnet and Litton Middle School- Fall 2012
  • Resident Scientist developed curriculum for higher achieving students to continue their advanced STEM studies

• Day of Discovery- Spring 2015
  • middle school enrichment program aimed at students who are interested in STEM
  • meet one school day per week during the school year with scientist educators at Stratford STEM Magnet High School
    • in depth exploration of STEM topics through inquiry, research, experimentation, fieldwork, and field trips
What do students like best?

- What I like best about ISR is that you can do experiments and actually learn because you can actually see what happens.

- the ability to have a problem in class. then be given the chance to test or be shown the results. i felt more in tune with my work when i could test the questions.

- I love the way the teachers operate in class. I feel as if I am in college already and they will prepare me for the real thing. The projects are interesting also.

- ITS FUN to know more interesting facts about life & do projects. its also hard for us, but its just another step to college.

- Being able to work with class mates like scientist do side by side and learn all together.
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