

ICORE ACTION PROPOSAL

Incorporating the Science of Emerging Pathogens in High School Curricula

I. **Title:** "So you think you want to be a doctor! Which career is the very best one?"

II. **Name and correspondence information for PI:**

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III. **Abstract :**

This action proposal is intended to inspire and facilitate student exploration of career opportunities in the health field. It will span the entire school year and involve students from 5th through 12th grades. Health Occupations Students of America (HOSA) members at the high school will participate in a variety of hands-on activities to allow them to make informed decisions about the options available beyond high school. They will culminate the project by sharing with the community through highly engaging interactive events, which will educate other students on the endless possibilities that are available and strive to inspire them to "think outside the box" when choosing their career in the health field.

IV. **Rationale:**

This project will primarily involve approximately twenty-five 9th through 12th grade students in HOSA. It will begin by generating interest for recruiting new members using a fun event which incorporates biotechnology and a lab activity. The only requirement for students to enter this organization is that they be interested in the vast field of health. Thus, there is a wide range of academic background in the group. Many of them want to be a doctor, nurse, or veterinarian, but have never heard of any other occupations that might be relevant to them. Those students will then participate in bimonthly meetings throughout the school year which will incorporate a series of modules for their career exploration involving a research and laboratory component. Through this series, the students will also create fun activities designed to engage younger students, educate them on career opportunities and inspire them to further their science studies.

V. **Description of teaching unit or module(s), including expected outcomes**

❖ **Objectives/Outcomes:**

1. Aid students to make proper schedule and career choices through introducing them to higher level science in a fun and engaging atmosphere
2. Inspire students to pursue further science studies
3. For PI to practice implementation of activities to prepare for a successful Biotechnology course next school year
4. To recruit students for Biotechnology course and HOSA
5. Prepare HOSA students for event competition at regional, state, and national levels

A timeline with summary of events which will span the entire school year:

August : -Schedule pick-up night - HOSA booth w/ biotech hook, including ELISA plate simulation with UV light & career display
-Mystery night – dot blot, movie: "Contagion", popcorn

September : Career exploration & competition selection
- Lab Module: designer plate, ELISA

October: -Lab Module: Using GloGerms to practice sterile technique
-visit 5th grade at Myakka Elementary - menacing microbe glowgerm activity
"Oh My, They're Everywhere"

- November:** -Lab Module: DNA gel electrophoresis
- December:** -Lab Module: Water quality colorimetric test
- January:** Winter Showcase for 8th graders at LRHS, help recruit for Biotech course next year
***Field trip to UF for JSEHS**
 Include at UF: Lab Module: Proteomics – protein electrophoresis
 College tour
- February:** -HOSA regional competition
 -Lab Module: BLAST
- March:** -Produce recruitment video for Biotechnology course to show 8th graders and LRHS
- April:** - HOSA state competition
 ○ **Relay for Life:** community education at HOSA booth (about cancer research and information regarding beneficial microbes)
- May:** visit 8th grade at Nolan Middle School - designer plate & ELISA simulation

VI. Data collection techniques and/or student assessments

- Survey regarding health careers, biotechnology, and emerging pathogens
 - Beginning, middle and end of year
- HOSA Competition results
- End of year survey
- Commercials to promo Biotechnology course & HOSA, produced by students
- Pre and post survey of 5th and 8th graders

VII. If applicable, use of equipment lockers and/or UF visit (either in the classroom or UF campus)

Movie “Contagion”
Dot blot
Designer plates
Colorimetric water-borne pathogen analysis
DNA gel electrophoresis (traditional)
Vortex
Centrifuge
UF visit for proteomics
Pipetting stations
Menacing Microbes

VIII. ICORE summer institute elements specifically included (UF connections)

- Dot blot simulation
- Biotechnology careers:
- Designer plates:
- ELISA simulation:
- Menacing microbes
- DNA gel electrophoresis
- Epidemiology
- Water quality colorimetric test
- Field trip to UF
- Proteomics
- BLAST

IX. How your proposal differs from what you normally teach, new pedagogies; how you previously taught this lesson or topic versus how you plan to teach it under your Action Proposal

This proposal is quite different from what I have done in the past. I have never included a biotechnology component into my class or club. Through the new lab techniques and current research information that have been presented during ICORE, I will be able to provide a new opportunity to the students of my district. This plan is a highly engaging way to encourage students to pursue studies in science and help them explore possible career opportunities.

X. Literature cited

www.cpet.ufl.edu ICORE: Emerging Pathogens Workshop binder from 6/2012.

XI. Budget and budget justification

The following items will be needed to implement this action plan with my HOSA students, the 5th graders, and the 8th graders that they will be presenting to.

Item	Quantity	Price per unit	Total price
GloGerm	1	\$20	\$20
Gloves	2	\$8	\$16
Biohazard bags	1	\$23	\$23
Lab coats	25	\$25	\$625
Food coloring	2	\$3	\$6
UV pen	1	\$4	\$4
Waterborne pathogens kit	1	\$20	\$20
School van for transportation to Elementary School and Middle School	2	\$40	\$80
School board van, JSEHS, additional food cost, extra night stay (8 students)	1	\$2000	\$2000
TOTAL EXPENSE			\$ 2794