Ebola Project: Going Viral

Let's be part of the SOLUTION not the problem.

In the wake of a potential global crisis we will investigate the biology of infectious diseases to better understand how they transmit, replicate and induce an immune response in humans. Our objective is to pose solutions to the Ebola outbreak in the United States by studying other infectious diseases. We will investigate infectious diseases and the development of vaccines to show how they have changed the course of human health and populations as a whole. We will determine public perceptions about infectious diseases and identify misconceptions. Ultimately, we will develop community awareness information to manage and in future prevent an outbreak of Ebola.

Essential questions
How can our understanding of other infectious diseases be used to find solutions to the Ebola epidemic?
What is disease and how does it shape the world? Is a vaccinated population a healthy population?
What are the global impacts of healthcare management strategies and costs?

As a class we will investigate Ebola - what it is, how it is transmitted and how it can cause death in some infected patients, while leaving others alive. Then, in small groups, we will investigate an infectious disease from the list below (or propose another to Dr Cate) to determine how our understanding and management of those diseases can be used to solve the Ebola epidemic.

Infectious diseases:
- Human Papilloma Virus, Influenza, Enterovirus, SARS, Meningococcal, Polio, Pertussis, Rubella, Hepatitis A, Hepatitis B, Measles, Pneumococcal, HIV

Potential solutions could include:
- Infection management plans including mathematical model of spread rates
- New vaccine designs including analysis of costs to develop and distribute
- Treatment options and strategies for cost effective access to those
• Public education information to allay concerns and keep everyone diligent

For our infectious disease investigation:

Products and benchmarks

“My virus and me” mini project:
- working in small groups we will aim to understand the biology of the ebola virus as well as the socio-emotional implications of the disease. You will produce a creative piece describing one aspect of ebola to initiate our investigation.

Develop Google Form surveys for public and healthcare professionals:
- working in small groups, students will choose an infectious disease and research it in detail. You will develop surveys for healthcare professionals (to understand how the infectious disease relates to the community) and for the general public (to identify perceptions about the infectious disease and how that compares to ebola)
- You will receive critique on the surveys from each other and healthcare professionals

Collect data and compare to nationwide statistics (eg CDC) to identify gaps/misconceptions:
- You will compare data collected from healthcare professionals survey with that collected from the general public to identify gaps in understanding and how that affects our understanding of ebola. You will also make comparisons to CDC data to discern differences between the local community and the nation.

Develop a product proposal:
- you will develop a proposal for a product that addresses gaps in public understanding by presenting scientific data in an accessible way and proposes a way to address the ebola epidemic based on the disease investigated. The piece must include one source that presents an argument that you are dismissing. You must then use at least 3 credible sources to present alternative scientific data. For example, if there is a perception in the public that your infectious disease can be spread simply by standing next to an infected person, and that is false, create a way of combatting this myth using science that is accessible. Show how this can relate to ebola and how it could help provide a solution to the epidemic.
- the proposal must present an outline, eg storyboard, of a multimedia product that could be used in an ebola campaign, eg infection management strategy, new vaccine design, new treatment options, other preventative action
- critique on the proposal will be provided by senior multimedia students and healthcare professionals

Final Products:
In small groups, you will develop multimedia campaigns to propose solutions to a potential ebola epidemic, including preventative action. Products will be presented at HTHNC End of Year exhibition (Infection quarantine zone - classroom could be transformed into infection control center and immunization clinic) and in an exhibition for the broader community - Vista Clinic where multimedia products would be displayed for several weeks? (TBD).

Week 1 (10/20) - Introduction to infectious diseases - how infection spreads
Week 2 (10/27) - My virus and me mini project to better understand ebola, including ethics and obligations of treating ebola in other countries.
Week 3 (11/3) - Choose infectious disease and commence research and survey development. Critique - send to HCPs for review 11/7.
Week 4 (11/10) - Conduct surveys (meeting with healthcare professionals 11/14) and collect data for analysis.
Week 5 (11/17) - Determine what the public needs to know, based on survey, and connect to ebola. Develop proposal. Antibiotic resistance lab.
Week 6 (12/1) - Proposal critique with seniors and HCPs. Revise and commence making final products.
Week 7 (12/8) - Final Products
Week 8 (12/15) - Exhibition
WINTER BREAK

**Project Calendar**

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<td>High Tech Fair</td>
<td>Keri &amp; Kayla Feather workshops - infectious disease activities</td>
<td>OUTBREAK Develop questions about ebola.</td>
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<td>27 My virus and me launch</td>
<td>28</td>
<td>29 SLCs ½ days</td>
<td>30 SLCs ½ days</td>
<td>31 SLCs ½ days My virus and me project due Start bacteria lab</td>
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<td>3 Choose infectious disease</td>
<td>4 Work on research and survey development</td>
<td>5 Blood bank visit (8.30-12.00)</td>
<td>6 Bacterial lab microscope analysis. Work on research and survey development</td>
<td>7 Send surveys to HCPs for critique. In-class peer critique. Start antibiotic resistance lab. <strong>Antibiotic sensitivity virtual lab</strong> Actual lab</td>
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<td>Staff Day</td>
<td>Conduct surveys (send Google forms) Antibiotic resistance lab - collect next generation</td>
<td>Antibiotic resistance lab Conduct surveys</td>
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<td>Survey data analysis - determine what public needs to know</td>
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<td>Thanksgiving</td>
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<td>Proposal critique - seniors</td>
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<td>Antibiotic resistance lab write up due.</td>
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<td>Finish final products and prep for exhibition</td>
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<td>18 Exhibition</td>
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Public Health seminar/visit?