

Invisible Enemies: Weaving the M in S.T.E.M

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The Summer Academy program featured in this presentation was financed by the federally funded GEAR UP program through the Chicago GEAR UP Alliance. This Summer Academy program integrated Reading, Writing, Art, and S.T.E.M components in an integrated, inquiry-based four-week unit for rising middle grades students around the text *Invisible Enemies: Stories of Infectious Disease* by Jeanette Farrell. Students learned about infectious diseases by crossing academic disciplines to ask questions, find answers, learn about the past and the present, and consider ways to improve their health to protect themselves from what the future may hold.

Research Questions

- How can we teach math and science in culturally responsive ways?
- How can we support students' math and science learning through literacy?
- How can we support math and science learning through content integration?

Enduring Understandings

We are accountable and responsible for our own learning.

Acquiring knowledge can be confusing but is worth the effort.

Learning is interconnected cross content areas.

Our present lives are the result of history and how people have responded to the circumstances and environments of their times.

Standards (Selected)

Common Core State Standards (CCSS) Competencies for 6-12 Reading:

CC.8.R.I.4 Craft and Structure: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.

CC.8.R.I.9 Integration of Knowledge and Ideas: Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.

Common Core State Standards (CCSS) Competencies for 6-12 Writing:

CC.8.W.7 Research to Build and Present Knowledge: Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

CC.8.W.8 Research to Build and Present Knowledge: Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase

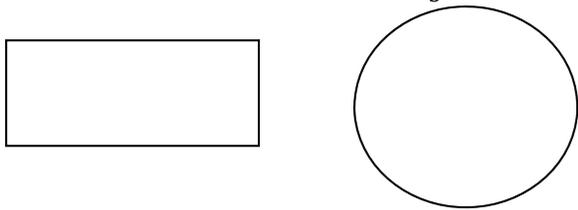
Common Core State Standards (CCSS) Competencies for 6-12 Speaking and Listening:

CC.8.SL.1 Comprehension and Collaboration: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.

CC.8.SL.4 Presentation of Knowledge and Ideas: Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.

GEAR UP Summer Academy
Infectious Diseases: Killers of Mankind
Math/Science Pre-Assessment (SAMPLE)

1. What place value is the number 3 in the number 123.456?
a. ones b. oneths c. tens d. tenths
2. What place value is the number 4 in the number 123.456?
a. hundreds b. thousands c. Tenths d. thousandths
3. Use the figures below and shade $\frac{2}{3}$ of each shape



4. Explain the difference between a bacteria and a virus.

Math/Science Post-Assessment (SAMPLE)

Choose one question below to answer in at least three sentences.

11. Describe how a virus reproduces.
12. In what ways are viruses and bacteria alike and different?
13. **Instructions: Use the set below to answer question 7-10**

{10, 2, 4, 6, 4, 4}

7. What is the mean? 5
8. What is the median? 4
9. What is the mode? 4
10. What is the range? 8