

Epidemics: Past, Present, and (hopefully not!) Future

By Kathy Feinstein, Cheltenham High School, Wyncote, PA

Objectives:

Students will investigate and understand the nature of an epidemic outbreak with respect to-

- a) historical perspective
- b) present-day potential dangers
- c) prospective viewpoint regarding avoidance in the future

Utilizing: Microbe Lecture #4, Emerging Infections: How Epidemics Arise

Animations (**A**-Viral Infection, **C**-E. Coli Infection, & **D**-Salmonella Inside Host Cell)

Video Clips (**C**-Living Salmonella Invading a Cell, **D**-Live Listeria, then **B**-Penicillin Killing E. Coli)

Lecture Demos (**A**-Size Analogy Infectious Agents, **B**-Size Analogy Bacteria, **D**-Bacterial Transmission.)

Pre-Teach: vocabulary (bacterial/viral structure/function) using Lecture Demos a & b

Ability Level: Could be modified for entire spectrum of biological science learners

Method/Materials:

- 1) Students to view Lecture **#4**
- 2) Review with students key concepts of Lecture #4 (on DVD)
 - a) Transmissions of infectious agent (Lecture Demo **D**)
 - b) Viral/Bacterial infection (Animations **A**, **C**, & **D**)
 - c) Live bacteria in cells (Video Clips **C** & **D**)
 - d) Treatment of bacteria (Video Clip **B**)
- 3) Assign students to research 1 epidemic in history – some limited class time allotted, then to be completed at home
 - a) general information (re: epidemics)
 - b) select one specific epidemic, and research it in terms of ...
 - 1- time frame
 - 2- geographic location and number or people involved
 - 3- type/name of microbe
 - 4- mode of transmission
 - 5- signs/symptoms/treatment
 - 6- precautions to avoid recurrence (i.e. vaccines, hygiene, water treatment, etc.)
 - c) Assessment:
 - 1- 3-5 minute class presentation with 1 visual aid and/or use of computer or overhead projector to include the above 6 criteria
 - 2- written report submitted for evaluation to include above 6 criteria (sources properly cited)

Standards addressed by this activity/assignment:

State (PA): 3.1.10 (B) & (E)
3.2.10 (A) & (B)
3.7.10 (D)
3.8.10 (A) & (C)
3.2.10 (C)
3.3.10 (A – D)

National: Content Standard C
Teaching Standards A & B