

HISTORY OF MICROBIOLOGY

OBJECTIVE/RATIONALE

Historical developments in microbiology have advanced the treatment of disease. The students will research and describe the historical development of microbiology as it relates to health care.

TEKS 121.14 3G, 4A

World History (c) 1A, 1C, 23A, 24C

TAKS ELA 1, 4

Mathematics 3, 4

Social Studies 1, 3, 5

Science 1

National Science Education Standards A9-12; C9-12; E9-12; F9-12; G9-12

National Health Care Skills Standards .09

National Curriculum Standards for School Mathematics S1; S3

KEY POINTS

- I. A major contribution to the development of microbiology was the invention of the microscope by Anton van Leeuwenhoek and the implementation of the scientific method.
- II. Contrasting theories about the origin of microbes led to experiments which greatly impacted the methodologies of microbiology
 - A. Spontaneous generation vs. germ theory
 - B. Contributions of Louis Pasteur
 - C. Robert Koch's Postulates
- III. Major twentieth-century contributions
 - A. Antibiotics
 - B. Vaccines
 - C. Technology (electron microscope)
- IV. Contributions of Institutions
 - A. Pasteur Institute
 - B. CDC
 - C. NIH
 - D. WHO
- V. Technological advances in the study of disease and its prevention and their application has resulted in the development of the major subdisciplines of microbiology:
 - A. Agricultural microbiology
 - B. Aquatic microbiology
 - C. Industrial microbiology
 - D. Medical microbiology
 - E. Space microbiology
 - F. Environmental microbiology

Teacher Note: Show an excerpt from the movie “Ben Hur” which depicts the lack of knowledge about the causes and transmission of disease.

ACTIVITIES

- I. Research historical events and create a timeline listing major contributors and contributions to the science of microbiology

MATERIALS/RESOURCES

Fong, Elizabeth, *Microbiology for Health Careers*, Fifth Edition

Bergquist, Lois M., *Microbiology-Principles and Health Science Applications*, W.B. Saunders Co., 2000.

ASSESSMENT

Project Rubric

ACCOMMODATIONS

For reinforcement, the student will design a poster depicting a scientist and their major contributions to microbiology.

For enrichment, the student will create a video highlighting the key contributions in microbiology.

REFLECTIONS
