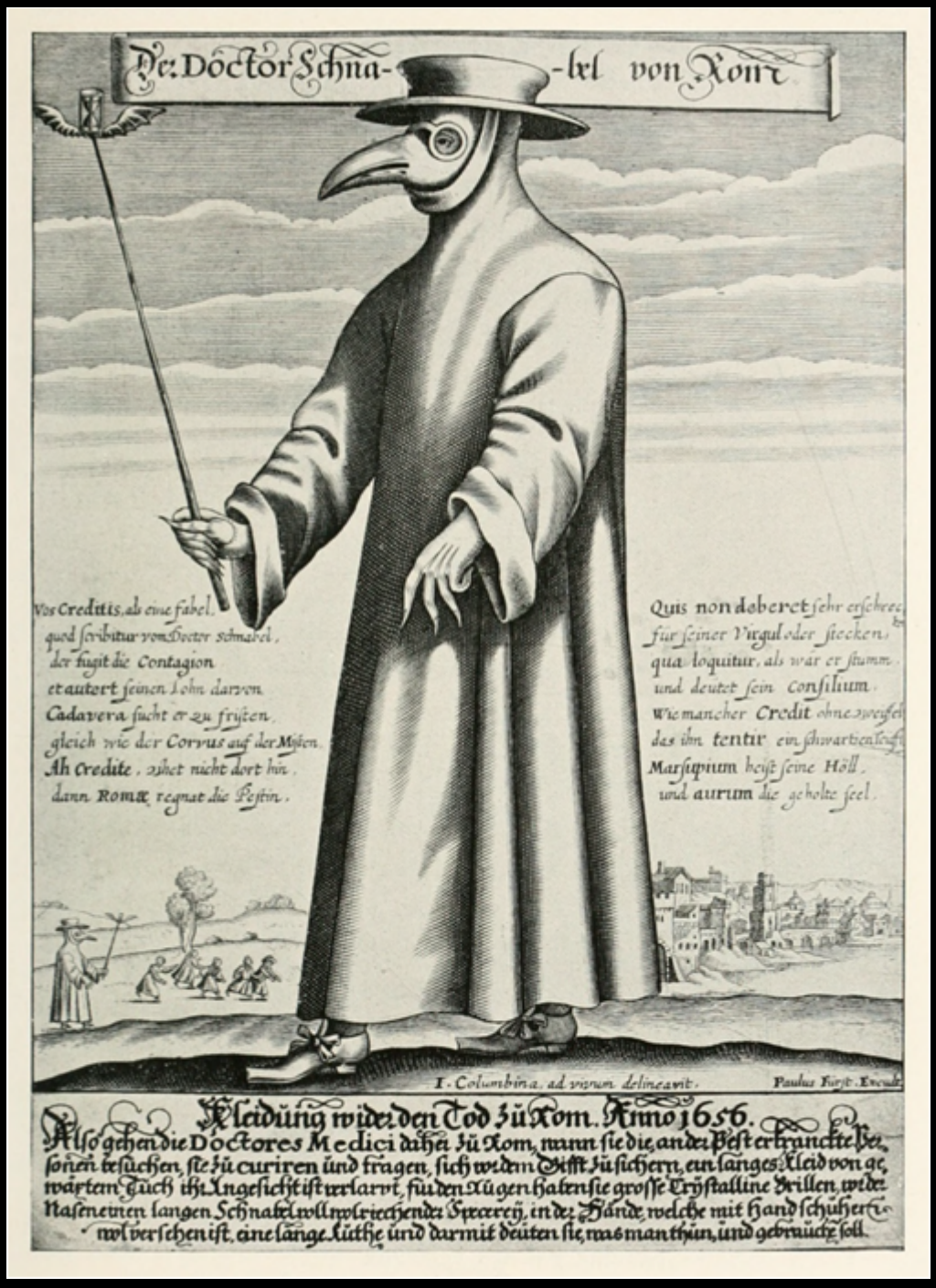
Epidemic! Fundamentals of Public Health, 1850-the Present



Explore the history of epidemics and the efforts taken to prevent them! During this unit students will act as doctors during a 19th century cholera outbreak, investigate the germ theory, use primary sources to examine the Spanish influenza, and use social media to raise awareness of Ebola. Included is a 2-hour Museum visit that will allow students to step back in time and see how scientists studied, diagnoses, and treated syphilis a century ago. Each lesson is appropriate for students in social studies, science, and health science courses.

Grade Levels: High School

Time Commitment: Four 50-minute class periods and a museum visit.

Materials Needed:

Computer

Internet Connection

Printer

Microsoft Office

If the tour to the museum is cancelled, there will still be at least a $100 charge due for the unit materials.

Learning Objectives

-Students will be able to:

-define "public health" and take on the role of a public health expert.

-describe real diseases and their effects on individuals and society, both past and present.

-diagnose diseases through the observation of patient symptoms.

-explain how our society's response to disease has changed over time, while also making connections between the past and the present.

-read and analyze primary historical documents.

-appreciate the major advances in—and limitations of—scientific techniques for studying and controlling disease since the nineteenth century.

-analyze current public health recommendations and create a public health campaign.

A list of potentially relevant Indiana Standards is included below.

Summary:

Lesson One: The Age of Miasma

Students will take on the role of 19th-century health experts with no knowledge of microbes in the midst of an epidemic of cholera. A short introduction by the teacher is followed by a group activity, in which students will gather clues – like detectives – to discern the origins of the epidemic and make recommendations to improve public health.

Lesson Two: The Germ Theory of Disease

Students will next explore the beginnings of the germ theory of disease, gaining an understanding of the work of scientists like Louis Pasteur who used scientific demonstrations to show that many diseases were indeed caused by microbes. This lesson includes clips from the 1936 film *The Story of Louis Pasteur.*

Lesson Three: Science and the Infuenza Epidemic of 1918: Limits and Possibilities

This lesson has two goals: 1) to examine historical documents from the 1918 Spanish Flu epidemic in Indianapolis in order to analyze the responses of public health officials, and 2) to examine recent studies of the 1918 flu to explore the interactions between historical and scientific research, and between the past and the present. Overall, the lesson will demonstrate how the production of knowledge is both limited and enabled by changing social contexts.

Lesson Four: Epidemic Disease Today: The Case of Ebola

This lesson brings the discussion of public health and epidemic diseases into the present, as students analyze public health responses to Ebola. The focus is on the function of organizations like the CDC, the nature of public health campaigns, and the use of media to transmit information to the public about disease prevention. Students will create their own public health tweet.

Museum Visit: Investigating Syphilis

We recommended that the museum visit take place after lesson two or three (with the remaining lessons to follow the museum visit).

While at the Indiana Medical History Museum, the students will tour the Old Pathology Building, a medical laboratory dating from the 1890s. The museum visit will allow students to step back in time and see how scientists studied, diagnosed, and treated diseases a century ago. An interactive introduction is followed by a tour that focuses on the study of syphilis at Central State Hospital. A short conclusion activity allows students to explore public health dimensions of syphilis and present their findings in the historic amphitheater.

Indiana Academic Standards

Subject Areas: Health Science, Science, and Social Studies

Grade Levels: High School (9-12)

Health Science

PLTW Bio-Principles of Biomedical Sciences

Recommended Grade Level: 9th grade or permission from instructor

Domain 1 – Human Body Systems

Core Standard 1 – students investigate the six major human body systems. Students explore what it means to be a system, relate principles of engineering to systems, and investigate the interrelatedness of human body systems. Students learn about the role of medical examination in determining unknown causes of death.

- Standards
  - PBS-1.3 Recognize that organs are composed of specific types of tissues, which are composed of specific cells that operate both independently and interdependently of each other. Know that these cells are the fundamental functional units within all living organisms.
  - PBS-1.6 Identify diseases and conditions that can disrupt the functioning of cells, tissues and organs within a human body system. Understand that evidence can be seen post-mortem through medical examination.
  - PBS-1.7 Describe the aspects involved in determining cause of death, including the medical condition of a victim, in-depth scientific research, the use of medical technology and the involvement of multiple medical professionals.
  - PBS-1.8 Discuss the role of a coroner, a medical examiner and an emergency medical technician in determining the cause of death.

Domain 6 – Infectious Diseases

Core Standard 6 – Students study bacteria and viruses as the causative agents of infectious diseases. Students examine the structural differences between these organisms through Gram staining and producing models. Students investigate the differences in treatment protocols for bacterial and viral diseases. Students learn about public health campaigns that aim to educate individuals about the dangers and preventions of infectious diseases.

- Standards
  - PBS-6.1 Distinguish among the different types of bacteria and recognize that only a few cause disease.
  - PBS-6.2 Classify bacteria by shape, metabolism and reaction to Gram staining.
  - PBS-6.3 Understand that the efficacy of an antibiotic depends on the type of bacteria causing the infection.
  - PBS-6.4 Analyze the cause and implication of antibiotic resistance.
  - PBS-6.5 Describe the structure and role of viruses.
  - PBS-6.6 Describe the reproductive cycles of viruses.
  - PBS-6.7 Describe effective and ineffective treatments for viral infections.
  - PBS-6.8 Summarize the symptoms, prevalence, prevention, treatment, and the global economic and social impact of an infectious disease caused by a virus.

- PBS-6.9 Describe various ways in which infectious diseases can be spread.
- PBS-6.10 Understand how public education can help prevent the spread of some diseases through the promotion of basic personal preventive measures including hand washing, surface cleaning, and using tissues.

PLTW Bio-Human Body Systems

Recommended Grade Level: Grade 10

Domain 1: Identity

Core Standard 1: students investigate the body systems and functions that all humans have in common, and then examine differences between tissues, such as bone and muscle, and in molecules, such as DNA, to pinpoint unique identity.

- HBS.1.1 Understand the hierarchical structure and organization of the human body in terms of body systems, organs, and tissues.
- HBS.1.2 Explain the functions of the human body systems and describe how multiple body systems are interconnected. Indicate how damage to one system can impact other functions in other systems.

Doman 2: Communication

Core Standard 2: Students investigate modes of communication within the human body as well as the ways humans communicate with the outside world. Students investigate the roles of electrical and chemical signals in communication and response in the human body.

- HBS.2.1 Describe the structure and function of the central nervous system.
- HBS.2.6 Distinguish between various nervous system disorders and describe their impact on quality of life.

Domain 6: Lymphatic and Immune System

Core Standard 6: Students will research the structure and function of the lymphatic and immune system. Students will understand lymphatic and immune system functions to drain and distribute fluid in the body as well as protect the human body against specific invaders.

- HBS.6.1 Describe the structures and functions of the lymphatic and immune systems.
- HBS.6.3 Explain how blood cells are involved in specific immunity; apply knowledge of specific immunity to describe how vaccines work.
- HBS.6.5 Describe how antibody concentrations are affected by infection.
- HBS.6.6 Relate knowledge of antibody response to specific actions of cell types in the immune system.

Domain 7: Investigating Medical Data

Core Standard 7: students use medical data to investigate human body systems. Students use current techniques in biotechnology to unlock the clues of identity found in DNA.

- HBS.7.1 Evaluate medical data and use this information to build a unique case study and design a medical intervention.

PLTW Biomedical Interventions

Recommended Grade Level: Grade 11

Domain 1: Medical Interventions

Core Standard 1: Students investigate the variety of interventions involved in the prevention, diagnosis and treatment of disease.

- Standards
  - MI.1.1 Identify and describe the main categories of medical interventions and when they are necessary to maintain human health.
  - MI.1.2 Describe how scientists gather evidence about a disease or disorder to determine if a medical intervention is necessary.
  - MI.1.3 Describe the steps that scientists take to diagnose, treat and prevent diseases and disorders.
  - MI.1.4 Understand the difference between chronic and acute inherited and noninherited disorders and communicable diseases.

Domain 2: Infectious Diseases, Treatments and Preventions

Core Standard 2: Students explore the diagnostic process used to identify an unknown infection, the use of antibiotics as a treatment, how bacteria develop antibiotic resistance, and how vaccinations are developed and used to prevent infection.

- Standards
  - MI.2.1 Describe how infectious diseases are spread throughout a population.
  - MI.2.2 Compare and contrast bacterial and viral infections with regard to their diagnosis, treatment and outcome.
  - MI.2.3 Describe how antibiotics disrupt the functioning of bacteria to stop a bacterial infection.
  - MI.2.4 Understand how bacteria can develop resistance to antibiotics.
  - MI.2.5 Explain human behaviors that promote the development of antibiotic resistant bacteria in our population.
  - MI.2.6 Understand the role of vaccination in the prevention and treatment of disease and how this has impacted disease trends.
  - MI.2.7 Describe the molecular tools and recombinant DNA technologies used to produce vaccines.
  - MI.2.8 Describe how vaccines activate the body's immune system.

Process Standards

Reading Standards

- Key Ideas and Details
  - 11-12.RS.1 Cite specific textual evidence to support analysis of science, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
  - 11-12.RS.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
  - 11-12.RS.3 Follow precisely a complex multistep procedure when carrying out experiments or taking measurements; analyze the specific results based on explanations in the text
- Craft and Structure
- 11-12.RS.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific context relevant to grades 11-12 texts and topics.
- 11-12.RS.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

- 11-12.RS.6 Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved. Integration of Knowledge and Ideas
- 11-12.RS.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
- 11-12.RS.8 Evaluate the hypotheses, data, analysis, and conclusions in a science text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
- 11-12.RS.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Writing Standards

- Research to Build and Present Knowledge
  - 11-12.WS.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
  - 11-12.WS.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectivity to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
  - 11-12.WS.9 Draw evidence from informational texts to support analysis, reflection, and research.
- Range of Writing
  - 11-12.WS.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

PLTW Biomedical Innovation

Recommended Grade Level: Grade 12

Process Standards

Reading Standards

- Key Ideas and Details
  - 11-12.RT.1 Cite specific textual to support analysis of technical texts, attending to important distinctions the author makes and to any gaps of inconsistencies in the account.
  - 11-12.RT.2 determine the central ideas of conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
  - 11-12.RT.3 Follow precisely a complex multistep procedure when performing technical tasks; analyze the specific results based on explanations in the text.
- Craft and Structure
  - 11-12.RT.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific context relevant to grades 11-12 texts and topics.
  - 11-12.RT.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

    - 11-12.RT.6 Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.
- Integration of Knowledge and Idea
    - 11-12.RT.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
    - 11-12.RT.8 Evaluate the hypotheses, data, analysis, and conclusions in a technical subject, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
    - 11-12.RT.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Writing Standards

- Research to Build and Present Knowledge
    - 11-12.WT.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject of the subject under investigation.
    - 11-12.WT.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectivity to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
    - 11-12.WT.9 Draw evidence from informational texts to support analysis, reflection, and research.
- Range of Writing
    - 11-12.WT.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Health Science Education I

Recommended Grade Level: Grade 11

Domain – The Human Body

Core Standard 1 – Students analyze functions of the human body to determine how to prevent common diseases.

- Standards
    - HSEI-1.3 Analyze the basic structure and function of the human body.
    - HSEI-1.4 Describe common diseases and disorders of each body system (prevention, pathology, diagnosis, and treatment)
    - HSEI-1.5 Recognize emerging diseases and disorders
    - HSEI-1.6 Investigate biomedical therapies as they relate to the prevention, pathology, and treatment of disease

Health Science Education II

Recommended Grade Level: Grade 12

Process Standards

Reading Standards

- Key Ideas and Details
  - 11-12.RT.1 Cite specific textual to support analysis of technical texts, attending to important distinctions the author makes and to any gaps of inconsistencies in the account.
  - 11-12.RT.2 determine the central ideas of conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
  - 11-12.RT.3 Follow precisely a complex multistep procedure when performing technical tasks; analyze the specific results based on explanations in the text.
- Craft and Structure
  - 11-12.RT.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific context relevant to grades 11-12 texts and topics.
  - 11-12.RT.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
  - 11-12.RT.6 Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.
- Integration of Knowledge and Idea
  - 11-12.RT.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
  - 11-12.RT.8 Evaluate the hypotheses, data, analysis, and conclusions in a technical subject, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
  - 11-12.RT.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Writing Standards

- Research to Build and Present Knowledge
  - 11-12.WT.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject of the subject under investigation.
  - 11-12.WT.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectivity to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
  - 11-12.WT.9 Draw evidence from informational texts to support analysis, reflection, and research.
- Range of Writing
  - 11-12.WT.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Medical Terminology

Recommended Grade Level: Grade 10-12

Domain – Body Systems

Core Standard 5- students apply the use of medical terminology related to the nervous system to communicate within the health care environment.

- Standards
  - MT-5.1 Locate and identify the organs within the nervous system and define their basic functions
  - MT-5.2 Define common diseases and conditions related to the nervous system
  - MT-5.3 Identify selected procedures, treatments, and diagnostic tests used to assess the nervous system
  - MT-5.4 Interpret verbal and written reports related to the nervous system.

Core Standard 10 – students apply the use of medical terminology related to the blood, lymph, and immune system to communicate within the health care environment.

- MT-10.1 Locate and identify the organs within the blood, lymph, and immune system and define their basic functions
- MT-10.2 Define common diseases and conditions related to the blood, lymph, and immune system
- MT-10.3 Identify selected procedures, treatments, and diagnostic tests used to assess the blood, lymph, and immune system
- MT-10.4 Interpret verbal and written reports related to the blood, lymph, and immune system

Science

Biology I

Writing Standards for Literacy in Science

Research to Build and Present Knowledge

- 9-10.WS.7 Conduct short as well as more sustained research projects to answer a question (including a self generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- 9-10.WS.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectivity to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
- 9-10.WS.10 Draw evidence from informational texts to support analysis, reflection, and research

Human Anatomy and Physiology

****NB- This lesson plan touches on all of these topics from a generalist perspective, without going into a lot of scientific detail.**

Standard 2: Levels of Organization in the Human Body: Tissue and Organs

Core Standard: Examine the role of adhesion molecules and how these contribute to tissue formation.

Core Standard: analyze the relationships among and the histology and physiological functions of tissues and their cellular and biochemical composition.

- AP.2.1 Explain the interaction that exist among cells within multicellular organisms to produce tissues and organs with distinct functions.
- AP.2.2 Compare and contrast the structure, function and location of cells that make up the various types of muscle tissue, nerve tissue and connective tissue.
- AP.2.3 Describe the general cellular structure of an epithelium, including the basement membrane. Describe the different types and locations of epithelia.
- AP.2.4 Describe endocrine and exocrine glands and their development from glandular epithelium.
- AP.2.5 Describe the body cavities, their membranes, and the organs within each cavity and their role in the functioning of the body. Describe the major organ systems and their role in the functioning of the body.

Standard 6: Integration and Coordination in the Human Body: The Nervous System

Core Standard: Recognize that the nervous system consists of two parts: the peripheral nervous system and the central nervous system. Understand the structure and function of each.

Core Standard: Recognize uses of contemporary electrophysiological technologies (e.g. electroencephalogram, electrocardiogram, transcutaneous electrical nerve stimulation and cardioversion).

- AP 6.1 Distinguish the structures of the various types of neurons. Diagram the structure of a motor neuron and explain the function of each of its parts.
- AP 6.2 Describe the different types of neuroglia. Describe the function of oligodendrocytes and Schwann cells. Describe the structure and function of the myelin sheath and the role that Schwann cells play in myelin and in regeneration of a severed axon.
- AP 6.3 Discuss mathematically the origin of the resting potential. Refer to transcellular gradients of sodium and potassium ions, the "permeability" of the plasma membrane to these ions, and the intracellular concentration of negatively-charged proteins.
- AP 6.4 Explain the changes in membrane potential during the action potential and their relationship to the number of open channels for sodium and potassium ions.
- AP 6.5 Explain the role of excitatory and inhibitory neurotransmitters. Explain why is it important to remove neurotransmitter from its site of action and describe two mechanisms for removal.
- AP 6.6 Describe the meninges of brain and spinal cord. Describe the cerebral ventricles and their interconnections. Describe the secretion, flow pathways, absorption, locations and functions of cerebrospinal fluid.
- AP 6.7 Discuss the functions of the spinal cord. Describe the five segments (i.e regions) of the spinal cord and explain its organization in terms of gray matter; white matter; and dorsal ventral roots.
- AP 6.8 Discuss the components and broad function of the brain stem and the diencephalon. Describe and give the functions of the various structures that make up the cerebrum including the cerebral cortex and its anatomical divisions, the cerebral components of the basal ganglia, and the corpus callosum.
- AP 6.9 Describe the structure and functions of the cerebellum and its nuclei regarding postural control, smooth coordination of movements and motor learning.
- AP 6.10 Describe the major characteristics of the autonomic nervous system and contrast its efferent pathways with those of somatic nervous system. Compare and contrast the actions, origins and pathways of nerve fibers in the parasympathetic and sympathetic divisions of the autonomic nervous system including their associated ganglia and neurotransmitters.

Standard 11: Transport in the Human Body: the Lymphatic System and Immune Mechanisms

Core Standard: Identify and locate major organs of the lymphatic system and discuss their functions.

Core Standard: Illustrate lines of defense including the cellular and non-cellular components of the immune system.

- AP 11.1 Discuss the major anatomical structures and function of the lymphatic system including the lymphatic vessels, the structure and major groupings of lymph nodes, and the structures and functions of the spleen, thymus and bone marrow.
- AP 11.2 Discuss the different types of pathogens and outline the strategies the body uses to protect itself from them. Compare and contrast non-specific, innate or natural immunity from specific or acquired immunity.
- AP 11.3 Describe the mechanisms of the acute inflammatory response, its causes and the role of chemical signaling molecules.
- AP 11.4 Describe the development and maturation of B- and T-lymphocytes. Discuss why the development of self-tolerance is important.
- AP 11.5 Define and discuss antigens, antibodies and complement.

Social Studies

Geography and History of the World

Standard 5: Urban Growth

Students examine the physical and human geographic factors associated with the origin and growth of towns and cities in different regions of the world and with the internal spatial structure of those urban centers.

- GHW.5.1 Ask and answer geographic and historic questions about the origin and growth of towns and cities in different regions of the world and in different time periods. Compare and contrast the factors involved in the location and growth of town and cities for different time periods.

Standard 6: Innovations and Revolutions

Students examine physical and human geographic factors that influenced the origins, major events, diffusion and global consequences of new ideas in agriculture, science, culture, politics, industry and technology.

- GHW.6.3 Map the spread of innovative art forms and scientific thought from their origins to other world regions. Analyze how the spread of these ideas influenced developments in art and science for different places and regions of the world.

Standard 9: Human and Environmental Interactions: Resources, Hazards and Health

Students examine the physical and human geographic factors associated with examples of how humans interact with the environment, such as deforestation, natural hazards and the spread of diseases, and the regional and global consequences of these interactions.

- GHW.9.4 Distinguish and asses the human and physical factors associated with the spread of selected epidemics and/or pandemics over time.

Psychology

Standard 1: History and Scientific Method

Students discuss the history of psychology and its development as an empirical science by understanding the scientific method, explaining research strategies and identifying ethical issues.

- P.1.3 Describe the differences between descriptive and experimental research methods
- P.1.4 Explain the interaction among independent and dependent variables as well as the difference between experimental and control groups
- P.1.5 Distinguish between scientific and nonscientific research
- P.1.7 Describe the differences between quantitative and qualitative research strategies

Standard 2: Biological Bases of Behavior

Students investigate the structure, biochemistry and circuitry of the brain and the nervous system to understand their roles in affecting behavior.

- P.2.1 Describe the structure and function of the major regions of the brain; specifically the forebrain, hindbrain, midbrain, and the four lobes
- P.2.2 Compare and contrast between the left and right hemispheres of the brain and identify how vision, motor, language and other functions are regulated by each hemisphere
- P.2.3 Describe the structure and function of the neuron and describe the basic process of neural transmission
- P.2.4 Compare and contrast the methods for studying the brain
- P.2.5 Identify the major divisions and subdivisions of the nervous system and describe how they function

Standard 4: Cognition

Students understand how organisms adapt to their environment through learning, information, processing and memory.

- P.4.6 Identify the factors that interfere with memory

Standard 6: Abnormal Psychology

Students explore the common characteristics of abnormal behavior as well as the influence culture has had on the definition. Students also identify major theories and categories of abnormal behavior. Students discuss characteristics of effective treatment and prevention of abnormal behaviors.

- P.6.1 Describe the common characteristics of abnormal behavior
- P.6.2 Explain how both cultural and historical influences have affected the definition of abnormal behavior
- P.6.3 Identify and describe the theories of abnormality
- P.6.4 Discuss major categories of abnormal behavior and distinguish which disorders fit under which categories – DSM-IV/DSM-V
- P.6.5 Describe availability and appropriateness of various modes of treatment and prevention for people with psychological disorders

Sociology

Standard 1: Foundations of Sociology as a Social Science

Students describe the development of sociology as a social science, by identifying methods and strategies of research and by examining the contributions of sociology to the understanding of social issues.

- S 1.3 Illustrate the relationship of sociology to the other social science disciplines, including history, economics, psychology, political science

Standard 8: Collective Behavior and Social Change

Students examine the changing nature of society. They explain that social change addresses the disruption of social functions caused by numerous factors and that some changes are minor and others are major.

- S.8.3 Using an example, describe how collective behavior can influence and change society
- S.8.4 Examine how technological innovations and scientific discoveries have influenced major social institutions
- S.8.9 Trace the development of the use of a specific type of technology in the community.

United State History

Standard 3: Emergence of the Modern United States: 1897 to 1920

Students examine the political, economic, social and cultural development of the United States during the period from 1897 to 1920.

- USH.3.2 Explain the origins, goals, achievements, and limitations of the Progressive Movement in addressing political, economic, and social reform. (Government; Economics; Individuals, Society, and Culture)

Standard 4: Modern United States Prosperity and Depression: Post WWI – 1939

Students explain the political, economic, social and cultural development of the United States during the period from 1920 to 1939.

- USH.4.2 Identify new cultural movements of the 1920s and analyze how these movements reflected and changed American society. (Individuals, Society, and Culture)
- USH.4.4 Describe technological developments during the 1920s and explain their impact on rural and urban America. (Economics: Geography; Individuals, Society, and Culture)
- USH.4.6 Identify and describe the contributions of political and social reformers during the Great Depression Era. (Government; Economics; Individual, society and culture)

Health and Wellness

Health and Wellness (Grades 9-12)

Standard 1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.

The acquisition of basic health concepts and functional health knowledge provides a foundation for promotion of health-enhancing behaviors among youth. This standard includes essential concepts that are based on established health behavior theories and models. Concepts that focus on both health promotion and risk reduction are included in the performance indicators. Students apply knowledge of personal responsibility for health promotion and/or risk reduction. They develop patterns of healthy behaviors to prevent or reduce their risk of injury and/or illness throughout their lifespan. Students describe the interrelationships of emotional, physical, social, and intellectual health and how they can be impacted by their surroundings.

- HW.1.1 Document how personal behaviors can impact health
- HW.1.2 Explain the interrelationships of emotional, social and physical health.
- HW.1.3 Examine how the environment and health are connected
- HW.1.4 Examine the impact that genetics can have on personal health
- HW.1.5 Formulate ways to prevent or reduce the risk of health problems

Standard 2: Students will analyze the influence of family, peers, culture, media, technology and other factors on health behaviors.

Health is impacted by a variety of positive and negative influences within society. This standard focuses on identifying and understanding the diverse internal and external factors that influence health practices and behaviors among youth including personal values, beliefs and perceived norms. Students examine how the family, peers, culture, media, and technology influence personal, family and community health. Students analyze how policies and regulations influence health promotion and risk reduction.

- HW.2.1 Examine how the family impacts the health of individuals
- HW.2.2 Examine how society supports and challenges health beliefs, practices and behaviors
- HW.2.6 Analyze the impact of technology on personal and family health
- HW.2.10 Examine how public health policies and government regulations can influence health promotion and disease prevention

Standard 3: Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.

Effective communication enhances personal, family, and community health. This standard focuses on how responsible individuals use verbal and non-verbal skills to develop and maintain healthy personal relationships. The ability to organize and to convey information and feelings is the basis for strengthening interpersonal interactions and reducing or avoiding conflict. Students demonstrate refusal, negotiation and collaboration skills to enhance health and avoid or reduce health risks. Students organize and convey information and feelings for strengthening interpersonal interactions and reduce or avoid conflict. They access resources to enhance the health of self and/or others.

- HW.4.1 Model skills for communicating effectively with others to enhance health.
- HW.4.2 Apply refusal, negotiation and collaboration skills to enhance health and avoid or reduce health risks.
- HW.4.3 Apply strategies to manage or resolve interpersonal conflicts without harming self or others.
- HW.4.4 Illustrate how to offer assistance to enhance the health of self and others.

Standard 5: Students will demonstrate the ability to use decision-making skills to enhance health.

Decision-making skills are needed in order to identify, implement and sustain health-enhancing behaviors. This standard includes the essential steps needed to make healthy decisions as prescribed in the performance indicators. When applied to health issues, the decision-making process enables individuals to collaborate with others to improve quality of life. Students apply a comprehensive decision-making process which enables them to collaborate with others to improve quality of life now and in the future.

- HW.5.3 Asses when independent or collaborative decision making is appropriate
- HW.5.4 Propose alternative choices to health-related issues or problems.

Standard 7: Students will demonstrate the ability to advocate for personal, family and community health.

This standard helps students develop important skills to target their health enhancing messages and to encourage others to adopt healthy behaviors. Advocacy skills help students promote healthy norms and healthy behaviors. Students communicate valid information and convey opinions about health issues. Students demonstrate skills to encourage others to adopt health-enhancing behaviors.

- HW.8.1 Apply accurate peer and societal norms to formulate a health-enhancing message
- HW.8.2 Model how to influence and support others to make positive health choices.

Academic Standards for Health and Wellness

Standard 1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.

The acquisition of basic health concepts and functional health knowledge provides a foundation for promotion of health-enhancing behaviors among youth. This standard includes essential concepts that are based on established health behavior theories and models. Concepts that focus on both health promotion and risk reduction are included in the performance indicators. Students apply knowledge of personal responsibility for health promotion and/or risk reduction. They develop patterns of healthy behaviors to prevent or reduce their risk of injury and/or illness through their lifespan. Students describe the interrelationships of emotional, physical, social and intellectual health and how they can be impacted by their surroundings.

- AH.1.2 Describe the interrelationships of emotional, intellectual, physical and social health.
- AH.1.4 Analyze how genetics and family history can affect personal health.

Standard 3: Students will demonstrate the ability to access valid information and products and services to enhance health.

Accessing valid health information and health-promoting products and services is critical in the prevention, early detection and treatment of health problems. This standard focuses on how to identify and access valid health resources and to reject unproven sources. Applying the skills of analysis, comparison and evaluation of health resources empowers students to achieve health literacy. Students access valid health information, health-promoting products, and services to prevent, detect and treat health problems.

AH.3.1 Evaluate the validity of health information, products and service