



Infectious Disease - Unit 1 - Outbreak!

Unit Focus

This introductory unit will expose students to the chain of infection and the epidemiological triad by which all infectious diseases operate. This will serve as a foundation for students to research one disease through the lens of an epidemiologist by developing chain of infection and epidemiological triad models. Topics to be explored include: types of pathogens, factors that contribute to the spread of disease, and mechanisms of infection. Special thanks to Dr. Linda Niccolai and Dr. Danyell Stewart for their assistance in the development of this course. This unit should take approximately 5 weeks.

Stage 1: Desired Results - Key Understandings

Standard(s)	Transfer									
<p>Common Core Science & Technical Subjects: 11-12</p> <ul style="list-style-type: none"> 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. (CCSS.ELA-LITERACY.RST.11-12.2) Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics. (CCSS.ELALITERACY.RST.11-12.4) 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. (CCSS.ELALITERACY.RST.11-12.7) Draw evidence from informational texts to support analysis, reflection, and research. (CCSS.ELA-LITERACY.WHST.11-12.9) 	<p><i>Students will be able to independently use their learning to...</i></p> <p>T1 Communicate effectively based on purpose, task, and audience to promote collective understanding and/or recommend actions.</p> <p>T2 Create models to explore complex systems, show mastery of key science concepts, and/or develop solutions through creation of a product open to testing and redesign.</p>									
<p>Madison Public Schools Profile of a Graduate</p> <ul style="list-style-type: none"> Analyzing: Examining information/data/ evidence from multiple sources to identify possible underlying assumptions, patterns, and relationships in order to make inferences. (POG.1.2) Product Creation: Effectively use a medium to communicate important information. (POG.3.2) 	<p>Meaning</p> <table border="1"> <thead> <tr> <th>Understanding(s)</th> <th>Essential Question(s)</th> </tr> </thead> <tbody> <tr> <td> <p><i>Students will understand that...</i></p> <p>U1 There are certain characteristics of pathogens that make them highly transmissible.</p> <p>U2 Different regions of the world, cultures, governments, and socioeconomic status impact the ability of diseases to spread.</p> <p>U3 Various groups of people work together to continuously monitor and prevent pandemics through a series of protocols and policies.</p> <p>U4 Understanding the Epidemiological Triad can help scientists, governments, researchers, doctors, and first responders predict, prevent, and treat outbreaks of infectious diseases.</p> </td> <td> <p><i>Students will keep considering...</i></p> <p>Q1 How do diseases spread?</p> <p>Q2 What do stakeholders need to understand in the event of a disease outbreak?</p> <p>Q3 How does the epidemiological triad help us understand infectious disease?</p> </td> </tr> </tbody> </table> <p>Acquisition of Knowledge and Skill</p> <table border="1"> <thead> <tr> <th>Knowledge</th> <th>Skill(s)</th> </tr> </thead> <tbody> <tr> <td> <p><i>Students will know...</i></p> <p>K1 Zoonotic viruses can spread between animals and humans.</p> <p>K2 The Epidemiological Triad consists of: Agent, Host, and Environment.</p> </td> <td> <p><i>Students will be skilled at...</i></p> <p>S1 Use the epidemiological triad to assess an infectious disease.</p> </td> </tr> </tbody> </table>		Understanding(s)	Essential Question(s)	<p><i>Students will understand that...</i></p> <p>U1 There are certain characteristics of pathogens that make them highly transmissible.</p> <p>U2 Different regions of the world, cultures, governments, and socioeconomic status impact the ability of diseases to spread.</p> <p>U3 Various groups of people work together to continuously monitor and prevent pandemics through a series of protocols and policies.</p> <p>U4 Understanding the Epidemiological Triad can help scientists, governments, researchers, doctors, and first responders predict, prevent, and treat outbreaks of infectious diseases.</p>	<p><i>Students will keep considering...</i></p> <p>Q1 How do diseases spread?</p> <p>Q2 What do stakeholders need to understand in the event of a disease outbreak?</p> <p>Q3 How does the epidemiological triad help us understand infectious disease?</p>	Knowledge	Skill(s)	<p><i>Students will know...</i></p> <p>K1 Zoonotic viruses can spread between animals and humans.</p> <p>K2 The Epidemiological Triad consists of: Agent, Host, and Environment.</p>	<p><i>Students will be skilled at...</i></p> <p>S1 Use the epidemiological triad to assess an infectious disease.</p>
Understanding(s)	Essential Question(s)									
<p><i>Students will understand that...</i></p> <p>U1 There are certain characteristics of pathogens that make them highly transmissible.</p> <p>U2 Different regions of the world, cultures, governments, and socioeconomic status impact the ability of diseases to spread.</p> <p>U3 Various groups of people work together to continuously monitor and prevent pandemics through a series of protocols and policies.</p> <p>U4 Understanding the Epidemiological Triad can help scientists, governments, researchers, doctors, and first responders predict, prevent, and treat outbreaks of infectious diseases.</p>	<p><i>Students will keep considering...</i></p> <p>Q1 How do diseases spread?</p> <p>Q2 What do stakeholders need to understand in the event of a disease outbreak?</p> <p>Q3 How does the epidemiological triad help us understand infectious disease?</p>									
Knowledge	Skill(s)									
<p><i>Students will know...</i></p> <p>K1 Zoonotic viruses can spread between animals and humans.</p> <p>K2 The Epidemiological Triad consists of: Agent, Host, and Environment.</p>	<p><i>Students will be skilled at...</i></p> <p>S1 Use the epidemiological triad to assess an infectious disease.</p>									

Stage 1: Desired Results - Key Understandings

K3 The chain of infection consists of the reservoir, the agent, portal of exit, mode of transmission, portal of entry, and susceptible host.
K4 Pathogen, transmission, infectious agent, epidemiological triad, chain of infection, zoonotic, virulence, host, Emerging Infectious Disease (EID), vector, outbreak, pandemic, epidemic

S2 Explain the factors that influence the spread of infectious diseases.