



## From the “Eyes” of an Infectious Pathogenic Agent: The Road to Infection

*Written by Jackie Hoffman*

### **Annotation:**

This lesson will provide students with knowledge on the various types of pathogens that may invade a human or animal’s body and the route that such pathogens taken in order to cause an infection. Students will create a narrative written in first person where they will act as if they are a pathogen (bacterial, viral etc.) and explain how they enter the body, what organ systems they affect, and how they ultimately cause infection in the body.

### **Primary Learning Outcome:**

Students should understand the route of entry pathogens may take to invade a host organism, the different types of pathogens that exist, similarities and differences that exist among pathogenic agents, and the physiological basis for infection.

### **Assessed GPS:**

SB1. Students will analyze the nature of the relationships between structures and functions in living cells.

- a. Explain the role of cell organelles for both prokaryotic and eukaryotic cells, including the cell membrane, in maintaining homeostasis and cell reproduction.

SB3. Students will derive the relationship between single-celled and multi-celled organisms and the increasing complexity of systems.

- a. Relate the complexity and organization of organisms to their ability for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain the organism.

SCSh6. Students will communicate scientific investigations and information clearly.

- a. Write clear, coherent laboratory reports related to scientific investigations.
- b. Write clear, coherent accounts of current scientific issues, including possible alternative interpretations of the data.

### **Materials:**

Paper

Marker/Crayons/Colored Pencils

Infectious Disease Books, Magazines, Articles etc.

### **Total Duration:**

50 min- Day One

(Homework Assignment)

40 min-Day Two

## **Procedures:**

### **Step 1**

Description: Pathogens and Pathogenic Invasion

Duration in hours/minutes: 30 minutes

Lecture: Should include the various types of pathogens that may invade the body as well as examples of such pathogens, modes of infection, characteristics of a successful pathogenic invasion, and symptoms of infection. Additionally, methods for diagnoses of such infections and treatments for these infections may help students to further their knowledge and understanding of pathogenic agents.

### **Step 2**

Description: First Person Pathogenic Narrative

Duration in hours/minutes: 20 minutes

Explain to students that they will be choosing a specific pathogenic agent that may cause a certain type of infection in the body and that they will be playing to role of that pathogen. Students are to write a 1-2 page narrative in the first person point of view where they will describe their life as that pathogen. They should include in their written narrative a description of they physical characteristics, their biological characteristics, their mode of invasion, the manner in which they cause infection, symptoms of infection, and ways that they may be eliminated or controlled within the body. Students should create a narrative that involves a story line where they tell the story of themselves and their lives as a specific pathogen. Students may include drawings or diagrams of their journey to infection within their narratives. Students should work on creating these narratives at home as a homework assignment. Students should not reveal the identification of their pathogenic agent in their narrative.

### **Step 3**

Description: Sharing Pathogenic Narratives

Duration in hours/minutes: 40 minutes

Students should review their lecture notes on different pathogenic agents prior to sharing their narratives with the class. As each student reads their narrative to the class, have students write down what type of pathogenic agent caused the infection on a sheet of paper. This activity reinforces the characteristics of pathogenic agents and their modes of infection while forcing students to analyze these characteristics on their own.

### **Assessment:**

This lesson will be assessed by having students write their own narratives from the point of view of a pathogenic agent and by having students decide what type of pathogenic agents are represented in the narratives written by their classmates.

### **Extension:**

Students may create a pseudo-pathogen that includes structural and biochemical characteristics of other pathogens presented in this lesson. Students may name their fictitious pathogen, create infections that the pathogen may cause, and derive ways to prevent the spread of such infections, and mitigate the effects of this pathogen.

**Remediation:**

Students should be asked to split up into groups and explain to their partner what a pathogen is, how it causes infections, what examples of pathogenic agents are, and how pathogens are kept under control within our bodies. The teacher will need to review these concepts with the class before moving forward.