

Name _____
Date _____ Period ____

Immune System to the Rescue

Objectives: (*Note: page numbers listed correspond to the numbers on the class set of handouts.)

- 1) Analyze the roles of proteins in the immune system.
- 2) Differentiate between non-specific and specific defense.
- 3) Compare/Contrast humoral response with cell-mediated response.
- 4) Explore the cooperative interactions of cells within the immune system.
- 5) Analyze strategies parasites use to avoid detection of the immune system.
- 6) Determine the role of coevolution in establishing and maintaining host/parasite interactions.

Read the prologue on pg. 440 and respond the following brainstorming questions:

- 1) Your body has several lines of defense against infectious agents. Which mechanisms are you currently familiar with?

- 2) In most cases, if you had chicken pox once you cannot get it again. Why do you think you are protected against a second invasion?

- 3) The symbiont of one species is the pathogen for another. That is, an organism can “infect” one species yet coexist peacefully with it. The same organism can “infect” another species but produces symptoms of disease. How do you explain this?

Activity – The Competition (pg. 441)

Read the activity background the TASK. Work in teams of two or three to complete the TASK in the space provided below.

How do they get in?	
How do they gain access?	
Protection plan	
Role/Jobs	
Working together	

Reading – The Pathogens Are Coming! (pg. 441-443)

Read the article and answer the analysis questions by filling in the table below:

Components	Job Description	Security System Analogy
Skin		
Oils/sweat		
Mucous membranes		
MHC		
Lymphatic system		
Antibodies		

Reading – You Make Me Sick (But I Still Need You): A First Look

Read the article and create a concept map using the following words: Immune system, macrophage, pathogen, cell-mediated response, humoral response, antigen, helper T-cells, killer T-cells, B-cells, antibodies.

Activity – Confrontation (pg. 444-451)

Read the activity introduction as well as the TASK (pg. 451). In teams of three perform TASK 1 together by creating a labeled diagram of the process in the space below.

CLASS DISCUSSION BEFORE MOVING ON!

Divide TASKS 2-4 by assigning one of the tasks to each group member. Use the above diagram to show any differences in immune response and explain this to your group members. Write down the main idea presented from each task.

Task 2 - _____

Task 3 - _____

Task 4 - _____

Analysis Questions for Confrontation (pg. 451)

- 1) What if a person was infected with chicken pox but had no macrophages?
- 2) Why do most people get chicken pox just once but they get the flu again and again?
- 3) How do you think Griffith's encapsulated bacteria might have eluded the mouse immune system?
- 4) AIDS is the disease associated with HIV infection. Explain why AIDS patients suffer from opportunistic infections they would normally fight off.

Class Discussion:

- 1) How does an antibody recognize the appropriate antigen?
- 2) How do the MHC markers on a cell signal the immune system that this cell is "self"?
- 3) How do killer T-cells recognize an infected cell?
- 4) How does a macrophage recognize a virus?
- 5) What do all these interactions have in common?

Reading – You Make Me Sick (But I Still Need You): A Second Look (pg. 451-452)

Read the article and complete the following analysis task:

- 1) Create a concept map showing how components of the immune system cause symptoms of a disease. Be sure to include at least 10 concepts or words from the reading.

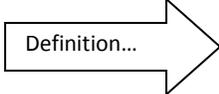
Reading – Can't Catch Me (pg. 453-455)

Read the article and then fill in the table below to show how a certain disease evades the immune system:

Disease	Evasion Tactic	Description of Evasion

Class Discussion: Coevolution

Definition...



- 1) What defines a successful host-parasite relationship?
- 2) How does this relate to natural selection?
- 3) Many parasitic diseases, such as malaria, that have long been associated with humans still cause disease and death. What does this tell you about coevolution and parasitism?