

## **Immune System**

The immune system is something that most children, and many adults, take for granted. They don't understand that there is an intricate system inside the body, a layer of defenses, which strive to protect humans from infection and illness.

However, children do know that they don't like to be sick. They also often know that how they treat their body has an effect on how well they fight germs. In order to have a strong immune system, proper nutrition is essential. Also, good sleep, exercise and healthy habits like washing your hands are all important.

Additionally, there are certain foods and habits that can strengthen the immune system and protect people from infection and illness.

### **Classroom Resources for Teaching About the Immune System**

Teaching about the immune system can be part of a large unit on the body. It can also be part of a unit on health and healthy habits. It's a great opportunity for children to learn how to stay healthy and also to appreciate how amazing their body is. Even discussing how the body responds to a simple paper cut demonstrates the amazing capabilities of the immune system and the human body.

Teacher Planet offers activities and lesson plans so you can really integrate a lesson on the immune system into your overall unit. You'll also find top rated worksheets, teaching resources and clipart and printables that you can use to decorate your classroom and get students involved visually. Help your class learn to appreciate the immune system.

## **How the Immune System Responds to a Virus:**

### **Objectives:**

1. Students will be able to make and explain illustrations that show how viruses can appear as foreign invaders in the blood.
2. Students will be able to show how certain cells can recognize and attack the foreign invaders in the blood.
3. Students will be able to show and explain how certain cells can track down and devour the virus.
4. Students will role play how the immune system responds to a virus.

### **Materials needed:**

1. Large red cloth
2. Construction paper
3. Chalkboard
4. Double sided magnets
5. Markers
6. Scissors

## **Strategy:**

### **A. Background:**

1. Discuss the meaning of the human immune system.
2. Discuss what the human immune system consist of and where it is located.
3. Discuss how the healthy body's immune system works. Use the chalkboard and other bulletin board drawings.
4. Discuss approximately when and where the AIDS-like virus was discovered.
5. Name some viruses that can break down the body's immune system.
6. Draw and cut out the following large letters in multicolors.
7. The letter V will represent the VIRUSES.
8. The letter T will represent the T-CELLS.
9. The letter B will represent the B-CELLS.
10. The letter K will represent the KILLER CELLS.
11. The letter A inside a circle will represent the ANTIBODIES.
12. The letters "SOS" will represent the emergency call sign.
13. One child should be the narrator for the role playing.

## **Performance Assessment:**

1. Three children will place their VIRUS signs on the red cloth which represents the BLOOD.
2. One child will place his/her T-CELL sign on the blood and scream out "VIRUS-VIRUS."
3. Three more children will appear with their T-CELL signs and place them around the VIRUS sign.
4. Two of the children who had the T-cell signs will place the "SOS" signs around the virus and scream out "Emergency-Emergency, B-CELLS, KILLER CELLS."
5. The child with the T-CELL sign begins the attack on the virus.
6. A child with a B-CELL sign comes first and, with an arrow, shoots the A-ANTIBODY at the virus which binds to the virus.
7. Three children with the K signs (KILLER CELLS) move around the blood, track down the viruses, then DEVOUR THEM.
8. The children should remove the VIRUS SIGNS and thus ends the virus in the blood.
9. Everything goes back to normal with one exception, the ANTIBODIES stay in the blood. The antibodies remember the VIRUS and are ready to attack immediately, should the virus ever appear again. Therefore, once you get a disease, you are immune from getting it again.

## **Multicultural Aspects:**

AIDS - Acquired Immune Deficiency Syndrome is a disease that breaks down the body's immune system, which is the body's defense against disease. Therefore, making a person vulnerable to opportunistic infections.

AIDS infects all ethnic cultures. The latest research indicates that all ethnic groups around the globe are evenly divided in their involvement with this disease.

Activity 2: Students will cut out letter shapes, and try to fit them into other letter spaces, i.e., trying to fit the letter X into shape O. What this activity shows is how the white blood cells in the immune system fight off any foreign invaders, and how others “ X’s” will come to destroy the “O” because it does not belong. Yet when the HIV virus enters the blood system, the system is broken down and any foreign invader can enter the body and destroy it.

Activity 3: After activities 1 and 3, you should have a 30-40 min. Lecture and answer and question period on the movie and other hand outs on immunity and disease. The game board is used to play ‘Jeopardy’ answering questions about things that are familiar to students about the disease or immune system (for example, ‘This NBA star retired after learning he was infected with the HIV virus’). Ans : “Who is Irvin ‘Magic’ Johnson ?”). This activity will be enjoyable to the students as well as though provoking.

## **Performance Assessment:**

The student assessment will basically come from the game and a short quiz on the movie, lecture, and hand-outs as well as prior information learned through the game of life. The expected results would be that students learned how dangerous unprotected sex and doing drugs can be, and that no one is immune to catching AIDS. So **PLAY SAFE OR NOT AT ALL.**

## **Autoimmune Disease**

### ***Introduction***

The word "auto" is the Greek word for self. The immune system is a complicated network of cells and cell components that normally work to defend the body and eliminate infections caused by bacteria, viruses, and other invading microbes. If a person has an autoimmune disease, the immune system mistakenly attacks self, targeting the cells, tissues, and organs of a person's own body. After a thorough research and evaluation of related scientific literature, you and your partner will make an informed presentation to your classmates on one of the many different autoimmune diseases.

## Task

1. Pair up with a classmate and choose one of the following 18 autoimmune diseases:

	<b>Multiple Sclerosis</b>	<b>Myasthenia gravis</b>	
	<b>Crohn's disease</b>	<b>Ulcerative colitis</b>	
	<b>Autoimmune Hepatitis</b>	<b>Autoimmune hemolytic anemia</b>	
	<b>Pernicious Anemia</b>	<b>Type I diabetes mellitus</b>	
	<b>Grave's disease</b>	<b>Hashimoto's thyroiditis</b>	
	<b>Primary biliary cirrhosis</b>	<b>Behcet's disease</b>	
	<b>Rheumatoid arthritis</b>	<b>Systemic Lupus erythematosus</b>	
	<b>Scleroderma</b>	<b>Psoriasis</b>	
	<b>Vitiligo</b>	<b>Sjogren's syndrome</b>	

2. Using the Internet (go to <http://www.niaid.nih.gov/publications/autoimmune/textonly.htm> for a list of useful websites), science articles and other publication from the national foundation for this disease, make an oral presentation and provide a written report of your group's findings.