

Essential Standard

7.PCH.2 Analyze the immune system in terms of the organs, their functions, and their interrelationships.

Clarifying Standard

7.PCH.2.1 Analyze the immune system in terms of the organs, their functions, and their interrelationships.

Review:

- 7.PCH.1.1 Explain health and academic consequences of inadequate rest and sleep.
- *In an earlier class you learned about the importance of sleep for good health.*

Processing Questions:

- *How do each of the following aid a person in getting better sleep?*
- *What are some other suggestions for getting better sleep?*
- *How are sleep and health associated?*

What body system are we describing below?



Statement of Objectives:

- *In today's class we are going to analyze the immune system. We will look at the of organs and their functions. At the end of this lesson, you will be able to list the components of the immune system and how to keep it healthy.*

The Immune System

Major Organs of the Immune System

Matching: draw a line from the organ to its definition.

- | | |
|-----------------|---|
| 6. Skin | A small organ in the upper chest, it produces mature T cells. |
| 7. Thymus | Found in the upper left part of the body under the ribcage, it filters the blood and looks for foreign cells. |
| 8. Spleen | A spongy tissue found inside the bones, it produces red and white blood cells. |
| 9. Lymph nodes | The primary barrier between germs and the body. |
| 10. Bone marrow | Found throughout the body, they serve as filters and trigger the immune response. |

Video: KidsHealth: How the Body Works, the Immune System

Directions: As you watch the video, fill in the blank spaces about the immune system and the major players.

What does the immune system do?

Fights invaders, commonly:

1.	Example:
2.	Example:
3.	Example:
4.	Example:

What is a leukocyte?

What pathogen invades Nate's body?

They will use Nate's cells to:

Immune System Counter-attack

1. Identify the Invaders

Macrophage

Mission:

Special features:

What does the flag do?



2. Call for Help

Helper T Cells

Mission:

Special Features:



3. Tag the Invaders

B Cells

Mission

Special Features:

What are the Y's?



4. Destroy the Invaders

K Cells

Mission:

Special Feature:

Cytotoxic T Cell

Mission:

Special Features:



5. Remember the Invaders

Memory Cells

Mission:

Special Features:



What are some ways Nate can stay healthy?

What are additional ways that you can keep your immune system healthy?

The Immune System (master)

Major Organs in the Immune System

Matching: draw a line from the organ to its definition.

- | | |
|----------------|---|
| 1. Skin | A small organ in the upper chest, it produces mature T cells. |
| 2. Thymus | Found in the upper left part of the body under the ribcage, it filters the blood and looks for foreign cells. |
| 3. Spleen | A spongy tissue found inside the bones, it produces red and white blood cells. |
| 4. Lymph nodes | The primary barrier between germs and the body. |
| 5. Bone marrow | Found throughout the body, they serve as filters and trigger the immune response. |
-

Watch video and answer questions

- [Your Immune System](#)

Answer Key

What does the immune system do?

Fights invaders, commonly: 1) viruses, **example:** Flu 2) bacteria, **example:** Strep throat 3) parasites, **example:** Diarrhea and 4) fungi, **example:** Athlete's foot

What is a leukocyte? Commanding officer of the immune system

What pathogen invades Nate's body? Cold virus

They will use Nate's cells to: copy themselves

Immune System Counter-attack



1. Identify the Invaders

Macrophage

Mission: devours invaders and launches the immune system attack

Special features: help clean up debris, including dead and dying cells—garbage haulers of the immune system

What does the flag do? It is an antigen to identify the invader.

2. Call for Help

Helper T Cells



Mission: coordinate the immune system's counter-attack on the cold virus by recruiting and activating other immune system cells

Special Features: the help B cells morph into factories that produce antibodies, which are needed to fight illness

3. Tag the Invaders

B Cells



Mission: to tag invaders with antibodies so other immune system cells know to destroy them.

Special Features: when given the signal, B cells morph into plasma cells. Plasma cells crank out thousands of antibodies per second.

What are the Y's? Antibodies

4. Destroy the Invaders

K Cells



Mission: to devour invaders or release toxic chemicals that kill invaders.

Special Feature: Killer cells will destroy any germ in their path, but they work best when they spot invaders that have been tagged for destruction.

Cytotoxic T Cell



Mission: to destroy infected body cells before the virus has a chance to multiply.

Special Features: these cells kill by releasing a special chemical that pokes holes in the wall of the infected cell. It pops like a balloon that's been stuck with pins.

5. Remember the Invaders

Memory Cells



Mission: to make immune responses faster next time the invader comes around.

Special Features: remember previous invaders.

What are some ways Nate can stay healthy?

Good night's rest

What are additional ways that you can keep your immune system healthy?

Wash hands

Get immunizations/vaccinations

Eat well

Exercise

Practice stress management

Get regular medical checkups

Independent Practice

- Create a person who has been exposed to a germ.
- Explain how the body fights the infection and how to keep the body healthy.
- Use the figure to help explain the germ's action and the immune system's response.
- Finally, list behaviors that your character already does well and some improvements s/he might make.

The Immune System: Create a Character

Assignment: create a person who has been exposed to a germ. Explain how the body fights the infection and how to keep the body healthy. Use the figure to help explain the germ's action and the immune system's response. Finally, list behaviors that your character already does well and some improvements/he might make.

Name:

Age:

Favorite subject:

Likes:

Dislikes:

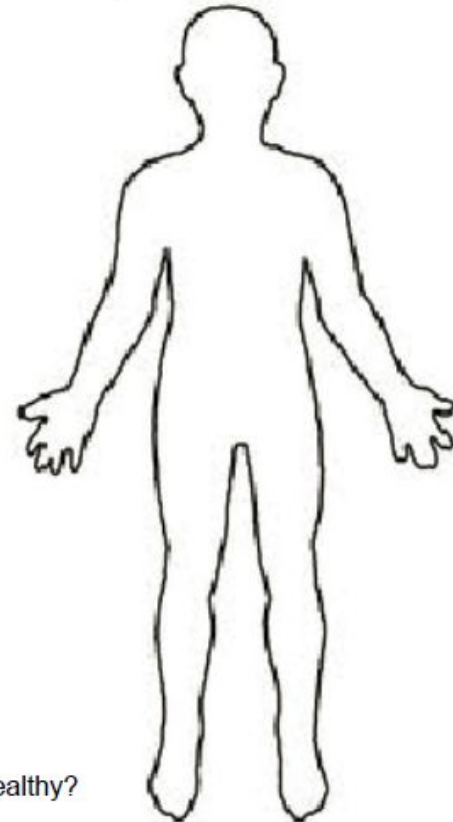
Germ:

How did s/he get exposed to the germ?

What is happening in the body?

What does _____ already do to stay healthy?

What does _____ need to do to improve her/his health?



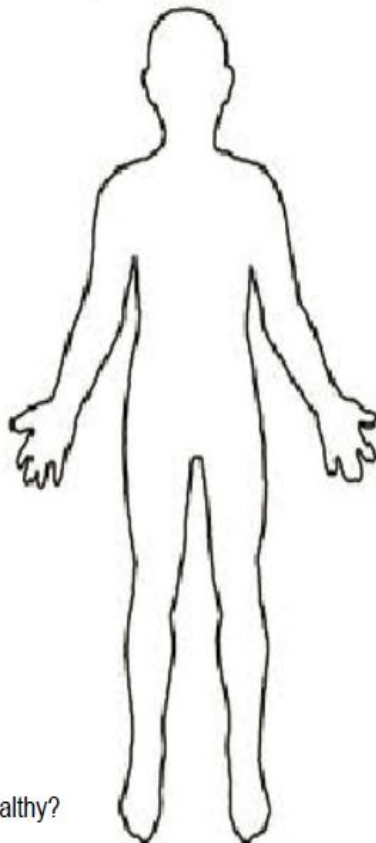
The Immune System: Create a Character

Assignment: create a person who has been exposed to a germ. Explain how the body fights the infection and how to keep the body healthy. Use the figure to help explain the germ's action and the immune system's response. Finally, list behaviors that your character already does well and some improvements/he might make.

Name:
Age:
Favorite subject:
Likes:
Dislikes:

Germ:
How did s/he get exposed to the germ?

What is happening in the body?



What does _____ already do to stay healthy?

What does _____ need to do to improve her/his health?

The Immune System: Create a Character Rubric

Student Name: _____

CATEGORY	4	3	2	1
Knowledge Gained	Student can accurately answer all questions related to facts in the poster and processes used to create the poster.	Student can accurately answer most questions related to facts in the poster and processes used to create the poster.	Student can accurately answer about 75% of questions related to facts in the poster and processes used to create the poster.	Student appears to have insufficient knowledge about the facts or processes used in the poster.
Content - Accuracy	At least 7 accurate facts are displayed on the poster.	5-6 accurate facts are displayed on the poster.	3-4 accurate facts are displayed on the poster.	Less than 3 accurate facts are displayed on the poster.
Attractiveness	The poster is exceptionally attractive in terms of design, layout, and neatness.	The poster is attractive in terms of design, layout and neatness.	The poster is acceptably attractive though it may be a bit messy.	The poster is distractingly messy or very poorly designed. It is not attractive.
Grammar	There are no grammatical mistakes on the poster.	There is 1 grammatical mistake on the poster.	There are 2 grammatical mistakes on the poster.	There are more than 2 grammatical mistakes on the poster.
Use of Class Time	Used time well during each class period. Focused on getting the project done. Never distracted others.	Used time well during each class period. Usually focused on getting the project done and never distracted others.	Used some of the time well during each class period. There was some focus on getting the project done but occasionally distracted others.	Did not use class time to focus on the project OR often distracted others.

Closure:

- *For today's health lesson we have focused on the immune system. We have discussed how the immune system protects us from a variety of germs and infection and what behaviors can help us stay well. After reviewing your character creations I see that you have a better understanding of this body system, its organs and cell structures. You also demonstrate that you understand how to help keep your immune system strong.*