

Your Amazing Body!

The Immune System-Defense Against Germs

Reference: Post

All curriculum relates to the Immune System Post Information (see pages 9-11)

Health/Biology Unit Goal of Instruction: Children will be able to have a concept of:

- What are germs?
- How germs cause sickness
- Importance of hygiene for health

Reference: Glossary

A. Language and Literacy

Reading for Information

Materials and Preparation:

Student Copies of the Post (Copy page 1 & 2 front and back. Copy page 3 front and use back to draw a castle.)

Copies of the Quiz. Individual testing or let children partner up and 'team-test'.

Activity A Group Readers

A-1 Teacher Post 'read-a-loud'. Students 'read-along' with copies, individually or partners.

A-2 Worksheet Quiz. Word Recognition/Word Bank. Fill in the Blanks.

A-3 Worksheet. True/False Quiz. (A-2/A-3 can be run front and back). Teacher also uses this as a question sheet for Pre-Readers with True/False False Cards

Students keep post for Quiz reference.

A-4 Creative Writing. Write a story about 'Life in Castle Days'

Activity A Group Pre-Readers

A-1 Teacher copy of Post 'read-aloud'. Show pdf graphics (castle, knight, Immune System figure).

A-2 Quiz True/False Flashcards (for you to make).

The Flash Card Game for True/False: Cut 4x4 squares in Red and Green for all students. Print

Letters “T” and “F” or write the words, “True” and “False” to make sets. Ask the questions on the Readers True/False Worksheet. Children will hold up one of the cards to answer. Discussion.

B. Math

B-1 Blank Hands with instructions Worksheet.

C-Health/Biology/Anatomy

C-1 Figure with Lymph Nodes, Thymus, Spleen, Bone Marrow (Pre-K).

C-2 Figures with expanded parts of the Immune System (Elementary).

D. Art

D-1 Castle with instructions.

D-2 Knight with instructions.

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## **Reference: Glossary**

|                      |                                                                                  |
|----------------------|----------------------------------------------------------------------------------|
| <b>antibody</b>      | Substance in the blood or tissues that can kill pathogens.                       |
| <b>bone marrow</b>   | Produces white blood cells for healing.                                          |
| <b>cells</b>         | Building blocks of the body.                                                     |
| <b>defense</b>       | The act of protecting something or someone against attack, danger, or injury.    |
| <b>disease</b>       | A condition of temporary or permanent illness.                                   |
| <b>contagious</b>    | Infection passed on from one living being to another.                            |
| <b>filter</b>        | A material with holes that catches particles from liquids that pass through.     |
| <b>germ</b>          | A tiny living cell or group of cells that may or may not cause disease.          |
| <b>Immune System</b> | The body’s cells, tissues, and organs that work together to block disease germs. |
| <b>infection</b>     | Invasion and spread of disease germs.                                            |
| <b>invade</b>        | To enter by force to do harm.                                                    |
| <b>moat</b>          | A man-made, deep, wide ditch filled with water to deter entry.                   |
| <b>mucous</b>        | A protective, slippery substance of water, cells and salts.                      |
| <b>lymph nodes</b>   | Small, round parts of the Immune System that catch and remove bacteria.          |

|                        |                                                                                    |
|------------------------|------------------------------------------------------------------------------------|
| <b>organs</b>          | A group of tissues that form to do a specific job in the body. (stomach, lungs)    |
| <b>pathogens</b>       | A germ, virus, or fungi that causes disease.                                       |
| <b>protect</b>         | To take care of something or someone. To keep from harm.                           |
| <b>spleen</b>          | A large gland-like organ in the upper left part of the stomach that filters germs. |
| <b>tissue</b><br>body. | Small cells that group into larger formations to perform specific jobs in the      |
| <b>thymus</b>          | A small gland (special group of cells) of the Immune System that filters germs.    |

## Activity A-2

### Language and Literacy. Word Recognition With Word Bank

Name \_\_\_\_\_ Date \_\_\_\_\_

(Fill in the sentence blanks with words from your word bank. Remember to cross off the word after you use it.)

#### Word Bank:

|            |       |            |       |         |       |
|------------|-------|------------|-------|---------|-------|
| 20 seconds | Germs | germs      | moat  | disease | skin  |
| drawbridge | sick  | contagious | Cells | protect | cells |

1. Three things that protect a 'castle' are a d\_\_\_\_\_ and a m\_\_\_\_\_.

2. The King lost his castle because he did not remember to p\_\_\_\_\_ his house.

3. G\_\_\_\_\_ are in the air and on surfaces of objects.

4. Germs cause d\_\_\_\_\_.

5. The first barrier against germs entering your body is a wall of  
s\_\_\_\_\_.

6. If a person gets sick, they are c\_\_\_\_\_.

7. C\_\_\_\_\_ are the basic building of the body.

8. Parts of the immune system work together to keep your body from getting  
s\_\_\_\_\_.

9. B, T, K, and Memory are c\_\_\_\_\_ that fight g\_\_\_\_\_.

10. I should wash my hands for at least 2 s\_\_\_\_\_.

### A-3 Language and Literacy. True/False Worksheet for Readers

Name \_\_\_\_\_ Date \_\_\_\_\_

1.    T     F     A moat is water around a castle.
2.    T     F     Invaders are people who are coming to help you.
3.    T     F     Germs are in the air.
4.    T     F     Bad germs are called pathogens.
5.    T     F     Pathogens are good for you.
6.    T     F     Mucous is also known as 'snot'.
7.    T     F     Bad germs can never get into your body.
8.    T     F     A person who is sick can infect another person.
9.    T     F     Cells, tissues, organs, and systems are kinds of animals.
10.   T     F     Lymph Nodes, Thymus, Spleen and Bone Marrow are kinds of plants.

11. T F The basic building block of the body is the cell.
12. T F Your Immune system sleeps at night.
13. T F The “alphabet’ letter cells work together to fight germs.
14. T F The most important thing I can do to fight germs is to wash my hands.
15. T F I should wash my hands for just 5 seconds.



**A-3-a** Answers to the True False Worksheet used for Written or Oral Quiz.

Teachers can call out answers after the written Quiz and children self-check and correct.

Also, use to discuss the True False Flash Card game to younger students.

1. True
2. True
3. True
4. True
5. False - Pathogens cause disease.
6. True
7. False - Bad germs enter the body through the air or by touching objects infected.
8. True
9. False - Cells, Tissues, Organs, and Systems are parts of the body.
10. False - Lymph Nodes/Thymus/ Spleen/Bone Marrow are parts of the body's Immune System.
11. True
12. False- Immune system never sleeps.
13. True
14. True
15. False - Wash for at least 20 seconds

## **Your Amazing Body! - The Immune System- Defense Against Germs**

Let's learn about our amazing body's ways to help keep us healthy.

### **The King Who Built a Castle**

Imagine a King that built a castle out of golden stones and rare jewels. He filled it with fine furniture, thick carpets, velvet curtains, and beautiful paintings. The courtyard was lush with green flowering gardens. Then he invited all his friends to a party to celebrate. At the moment when he was most happy, invaders from a foreign land suddenly broke into the castle and destroyed everything.

What happened?!

### **The King Forgot To Build a Moat**

The King did not think about how to *protect* all his riches. He did not build watchtowers. He did not dig a water moat of water around his castle or construct a drawbridge. He did not have gates and doors of thick wood and iron hinges. And he posted no guards in armor with cross-bows and arrows on the castle roof. He had no defense against enemies that would try to enter his castle, steal his riches and try to harm him.

*Fun Fact: Your Body Is Your Castle!*

A moat and guards would have protected the King's castle. Here is how your amazing body protects itself from 'evil invaders'.

### **Guards of the Immune System**

Germs are in the air (air-borne) and on the surfaces of objects that you and others touch each day. Germs that make you sick are called *pathogens*.

The body's first defense is to prevent the germs that cause disease from entering your castle. Your skin is a wall that stretches to cover your body and keep out foreign invaders.

The hairs of your eyebrows, eyelashes work as a filter to trap dust and dirt from entering your body. Liquid tears wash the eyes. Sticky *mucous* liquid of the nose (snot!) forms to flush out intruding particles.

### **The Enemy Inside**

If a strong germ gets inside your castle walls, then your Immune System rushes into battle. Like soldiers with weapons, your body is well-equipped to go to war with any germs that intend to harm you.

Super-power *antibodies* in the Immune System usually win and you stay well.

## The Germ That Went Around the World

When a pathogen germ does make a person sick, that person is *contagious*. This means that germs can pass on to another person that is close by. That other person will get sick. Sometimes, traveling quickly, as people go here and there in their daily lives, the germ can infect people around the world.

## To the Rescue!

The Immune System is made up of *cells, tissues, organs, and systems*. Cells are the basic building blocks of your body. Cells combine to form tissues. Tissues group together to make larger organs that do specific jobs.

Germ-fighting organs in the Immune System are the;

- *Lymph Nodes*
- *Thymus*
- *Spleen*
- *Bone Marrow.*

These germ-catching filters are located throughout the body. Their job is to keep your body healthy. They work together to form larger *systems*.

*Fun Fact: Your school system is made up of teachers, students, principals, cafeteria workers, custodians, and other school employees. Their job is to provide and maintain an environment that protects and educates children.*

## How Does The Immune System Work?

Your Immune System is always on the job to keep you from getting sick.

**B- Cells** 'tag' invaders with an *antibody*. This mark warns other Immune System cells that these germs are the enemy.

**K-Killer Cells** rush to the invaders to devour them.

**Cytotoxic T-Cells** destroy body cells that get *infected* before they have a chance to spread through the rest of the body.

**Memory Cells** recognize and remember the enemy. The Immune System responds faster the next time that germ tries to invade the body.

**Helper T-Cells** aid the immune system by attracting new soldier cells to battle.

## How You Can Fight Germs

Your Amazing Body is working without you even thinking about it! Body systems are on guard as you sleep and wake and go about your business of being a kid. Your body is where you live. It is your castle and you are the ruler of your castle.

Here are some choices you can make everyday to fight the 'evil invaders' of your domain!

### 7 Things To Do 7 Days a Week

1. Wash your hands!
2. Wash your hands!
3. Wash your hands!

\*\*Wash at least 20 seconds! Sing "Happy Birthday", "Twinkle, Little Star", or the "ABC" song.

4. Eat your fruits and vegetables
5. Drink lots of water
6. Run and play in the sunshine
7. Cough and sneeze into your 'antecubital fossa' (the area of the arm that forms when you bend your elbow!) Try it!

*B – smart. B - healthy. B - the Best ME you can be!*

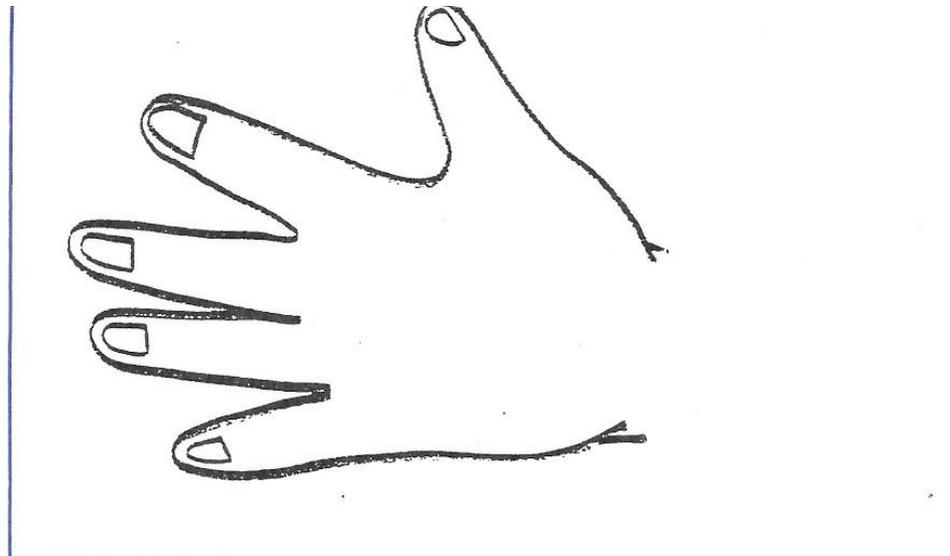
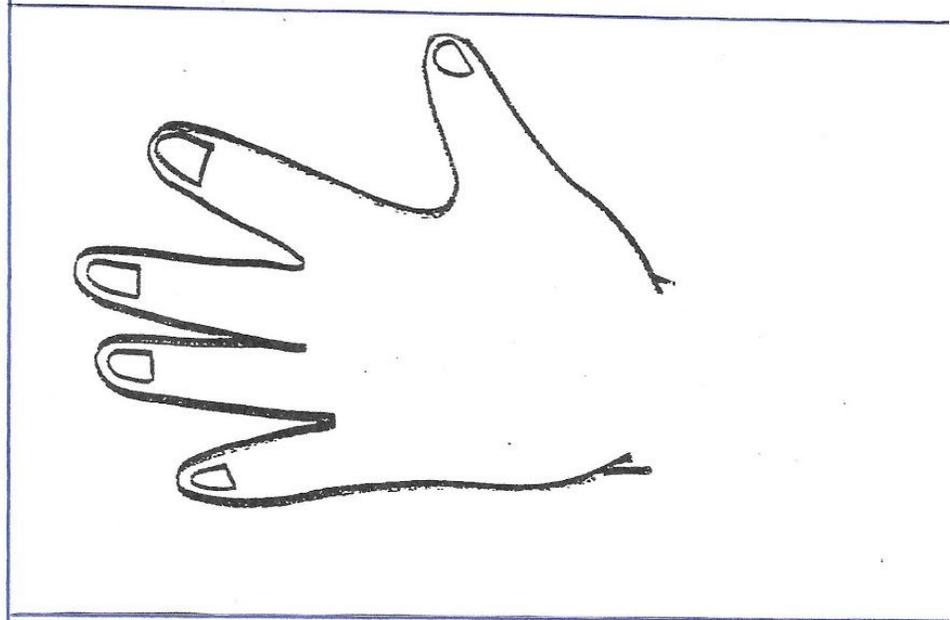
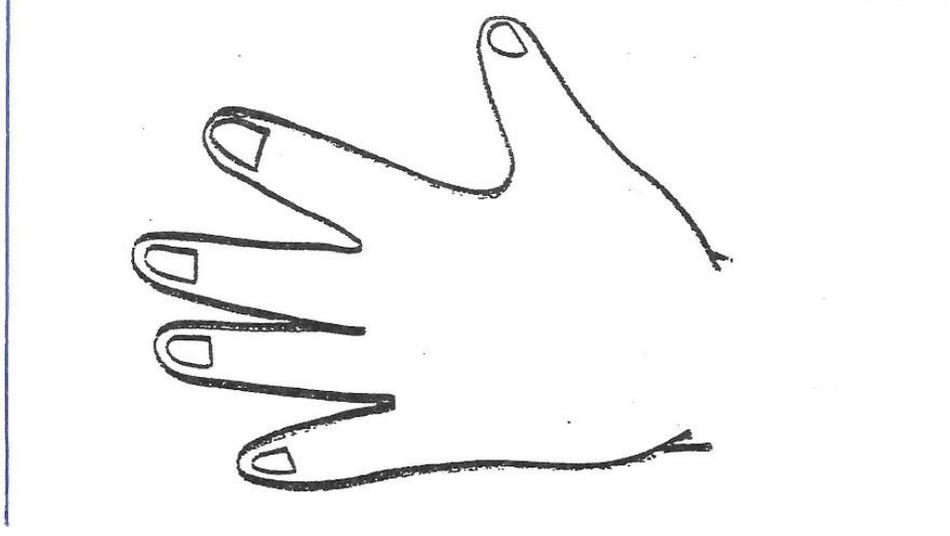
*Smarty Pants Editor and Staff look forward to presenting you with more fun facts to help you make good choices.*

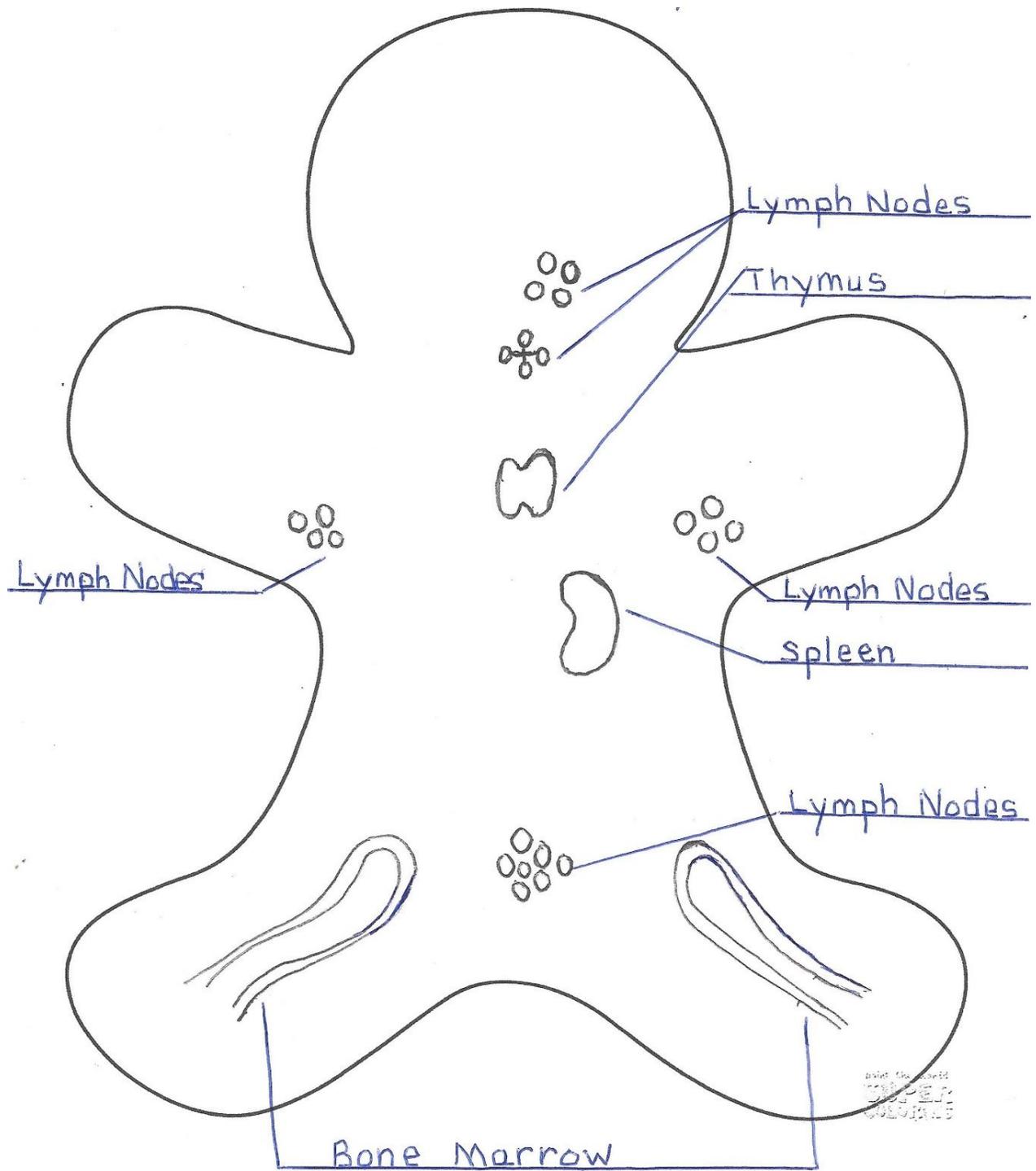
Check out *Your Amazing Body – Bones/The Skeletal System pdf*. Next in the series will be the *Digestive System*.

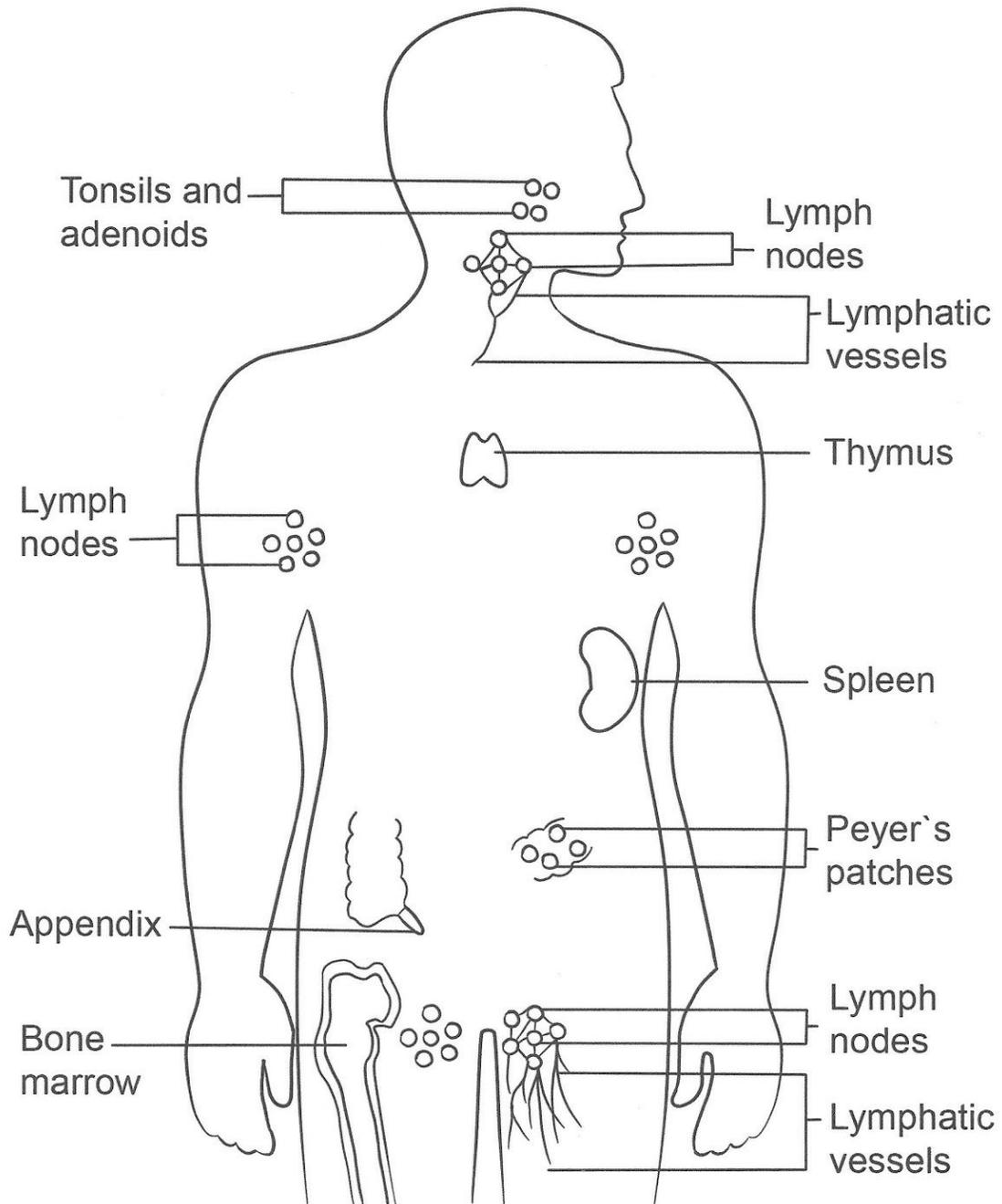
Germ on hands going to lunch  
without washing . . .  
Draw 100 dots for germs

Germ on hands going to lunch  
washing with water only . . .  
Draw 30 germs

Germ on hands going to lunch  
washing with SOAP AND WATER  
FOR 20 SECONDS. Draw 0 germs







Human Immune System