THE IMMUNE SYSTEM
Presentation and Activities

BY BIOLOGYGUY
LESSON 1: What is the Immune System?

BIG QUESTION: What would happen if I did not have an immune system?

WARM-UP: Brainstorm everything that you know about the immune system. See if you can answer the Big Question! (p. 52 of Science Journal “Parts of Immune System”)

LESSON OBJECTIVES: SWBAT
- Identify the organs of the immune system
- Explain the function of these organs
- Evaluate which organs are most crucial to the immune system and why
LESSON 1: What is the Immune System?

• At one time or another you must have got sick.

• Have you ever thought why you got better?

• What was happening inside of your body for you to start feeling better?
LESSON 1: What is the Immune System?

• If we were to peel back the skin and take a look inside we will see that the reason why we get better is because we have an immune system.

• The Immune System consists of organs and cells which work together to fight off and protect us from foreign particles and disease causing organisms.

• The key cells involved in the immune system are WHITE BLOOD CELLS.
LESSON 1: What is the Immune System?

The immune system includes:

1. The Spleen
2. Tonsils and Adenoids
3. Lymph nodes
4. Lymphatic Vessels
5. Peyer’s Pitch
6. Bone Marrow
7. Appendix
8. Thymus
9. White blood cells
THYMUS: this is located in the chest area just behind the breast bone. Its job is to enable T-cells (type of white blood cell) to mature. The T-cells learn to differentiate between cells that belong in the body (self) and those that are foreign and should not be in the body (non self).
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WHAT DOES EACH ORGAN DO?

APPENDIX:
The function of the Appendix has not been known for many years, however they now believe that it plays some sort of role in the immune system as it contains an abundance of white blood cells and lymph tissue. It is thought to have some link to detecting foreign particles in the gastrointestinal tract (part of digestive system).
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LYMPH NODES: These are a collection of small bean-like structures which filter lymph fluid; a fluid which drains from tissues. Lymph nodes contain white blood cells (lymphocytes) which can detect any foreign particles in the lymph.
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WHAT DOES EACH ORGAN DO?

LYMPHATIC VESSELS: are a network of tubes that carry fluid away from tissue to the lymph nodes. The fluid may contain foreign particles which could cause disease.

The white blood cells in the nodes will then destroy the foreign particles.
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**BONE MARROW:**
Although bone marrow is not an organ, it plays a very important role in the immune system.

Bone Marrow is a soft region inside bones where White Blood cells are made.

The white blood cells then travel to other organs in the immune system where they mature or become specialized.

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**Tonsils and Adenoids**

**Lymph Nodes**

**Lymphatic vessels**

**Spleen**

**Peyer’s Patch**

**Thymus**

**Appendix**

**Bone Marrow**

**Lymph Nodes**

**Lymphatic Vessel**
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PEYER’S PATCH:
This is a region within the small intestine, that contains many lymph nodes. Its job is to search for foreign particles and disease causing germs within the gastrointestinal tract.

Next time you get stomach ache or diarrhea think about “Peyer’s Patch” it might be working overtime.
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WHAT DOES EACH ORGAN DO?

**Spleen** This is a bean shaped organ. Its function is to filter the blood looking for foreign particles. It contains many specialized white blood cells.

Without the spleen, your body would find it difficult to find disease causing bacteria. Meaning you might get sick more often.
TONSILS AND ADENOIDS:
Located at the back of our mouth, the tonsils and adenoids contain lots of lymphoid tissue. They are our first line of defense as substances enter our body.

Adenoids, sit above the tonsils close to the nasal cavity. As we grow older they become smaller, and have less function in filtering out foreign particles and germs.
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WHAT DOES EACH ORGAN DO?

WHITE BLOOD CELLS

Just like bone marrow are not organs, however they play an important role in the body’s immune system.

White blood cells, are like the soldiers that fight the war on disease and foreign particles.

There are many different type of White Blood Cell, each type has a particular role or specialty.