### Science – Immune System and Diseases Organizer

**6th Grade Core Knowledge - Huey/Jurgens/Allen**

**Summary**

In this domain, students will continue adding to their knowledge of the immune system and develop an understanding of various diseases, how they spread, and are prevented today. Students will begin this unit by reviewing the circulatory and lymphatic system. After this review, students learn how the body uses various types of cells to defend against diseases including how the cells work together to attach foreign bodies. The unit then distinguishes between viruses, bacteria, and fungi. The remainder of the unit is a discussion of the common diseases that have affected history and those that still are prevalent today, including the vaccines that are available and the science behind the development of vaccines. Students also learn to differentiate between communicable and non-communicable diseases. A writing assignment coincides with this unit in which students research a particular disease. Students will demonstrate their knowledge of the immune system and diseases by completing a final unit assessment.

**The Big Idea**

The immune system is the body’s defense against diseases. White blood cells, T-cells, B-cells, and antibodies work together to defend the body against an attack. Diseases come in various forms including viruses, bacteria, and fungi and can be communicable or non-communicable. The type of disease determines the type of treatment that patients are given.

**Colorado State Standards**

**SC 7.2.2.a:** Develop and design a scientific investigation about human body systems.

**SC 7.2.2.b:** Develop, communicate, and justify an evidence-based scientific explanation regarding the functions and interactions of the human body.

**Common Core Standards**

**SL.6.1 -** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher- led) with diverse partners on grade 6 topics, texts, and issues, building on others’ ideas and expressing their own clearly.

**SL.6.2 -** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

**SL.6.6 -** Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 6 Language standards 1 and 3 on page 52 for specific expectations.)

**L.6.1 -** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

**L.6.6 -** Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

**L.6.2 -** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

**L.6.6** - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

**Core Knowledge Unit**

The Human Body

* The circulatory and lymphatic systems
* Briefly review from grade 4: circulatory system Lymph, lymph nodes, white cells, tonsils
* Blood pressure, hardening and clogging of arteries
* The immune system fights infections from bacteria, viruses, fungi.
* White cells, antibodies, antigens
* Vaccines, communicable and non-communicable diseases, epidemics
* Bacterial diseases: tetanus, typhoid, tuberculosis; antibiotics like penicillin, discovered by Alexander Fleming
* Viral diseases: common cold, chicken pox, mononucleosis, rabies, polio, AIDS

**Core Knowledge Language Arts**

• Correctly use punctuation introduced in earlier grades

• Participate civilly and productively in group discussions.

**Previous Unit:** Energy

**Prior Knowledge**

**Second Grade**

* All living things are made up of cells, too small to be seen without a microscope. Cells make up tissues.
* Tissues make up organs.
* Organs work in systems.

**Third Grade**

The Muscular System

• Muscles, Involuntary and voluntary muscles

**Fourth Grade**

The Circulatory System

* Pioneering work of William Harvey
* Heart: four chambers (atrium/atria or atriums [plural] and ventricle/ventricles), aorta
* Red blood cells (corpuscles), white blood cells (corpuscles), platelets, hemoglobin, plasma, antibodies
* Blood vessels: arteries, veins, capillaries Blood pressure, pulse
* Coagulation (clotting)
* Filtering function of liver and spleen
* Fatty deposits can clog blood vessels and cause a heart attack. • Blood types (four basic types: A, B, AB, O) and transfusions

**Next Unit:**  Oceans

**What Students Will Learn in Future Grades**

**8th Grade**

* Human Nutrition and Respiration
* Human Health

**9th Grade** Biology

**Cross Curricular Links**

Disease Research Essay

**Additional Resources**

The Apprenticeship of Lucas Whitaker by Cynthia DeFelice