North Carolina Curriculum Correlations for “The Secret World Inside You”

5th Grade

Science Essential Standard: Structures and Functions of Living Organisms

5.L.1 Understand how structures and systems of organisms (to include the human body) perform functions necessary for life.

Clarifying Objectives
5.L.1.1 Explain why some organisms are capable of surviving as a single cell while others require many cells that are specialized to survive.
5.L.1.2 Compare the major systems of the human body (digestive, respiratory, circulatory, muscular, skeletal, and cardiovascular) in terms of their functions necessary for life.

Science Essential Standard: Ecosystems
*While the human microbiome is not specifically addressed in this standard, the idea that the human body and its associated microbes function as an ecosystem should be pointed out.

5.L.2 Understand the interdependence of plants and animals with their ecosystem.

Clarifying Objectives
5.L.2.3 Infer the effects that may result from the interconnected relationship of plants and animals to their ecosystem.

Health Education Essential Standard: Personal and Consumer Health

5.PCH.3 Apply measures for cleanliness and disease prevention.

Clarifying Objectives
5.PCH.3.1 Implement a personal dental health plan to include brushing, flossing, nutrition, and injury prevention.

5.PCH.4 Understand body systems and organs, functions, and their care.

Clarifying Objectives
5.PCH.4.1 Summarize the functions of the organs which make up the digestive system.

Health Education Essential Standard: Nutrition and Physical Activity

5.NPA.2 Understand the importance of consuming a variety of nutrient dense foods and beverages in moderation.

Clarifying Objectives
5.NPA.2.2 Infer the benefits of limiting the consumption of foods and beverages high in fat and added sugar.

5.NPA.3 Understand the benefits of nutrition and fitness to disease prevention.

Clarifying Objectives
5.NPA.3.1 Contrast dieting and healthy weight management, including limiting high-fat and high-sugar foods.
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7th Grade

**Science Essential Standard:** Structures and Functions of Living Organisms

7.L.1 Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry out the basic functions of life.

*Clarifying Objectives*

7.L.1.3 Summarize the hierarchical organization of multi-cellular organisms from cells to tissues to organs to systems to organisms.

7.L.1.4 Summarize the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, and excretion) and ways that these systems interact with each other to sustain life.

**Science Essential Standard:** Ecosystems

*In 7th grade, there is no Essential Standard for Ecosystems.*

**Health Education Essential Standard:** Personal and Consumer Health

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

**Health Education Essential Standard:** Nutrition and Physical Activity

7.NPA.3 Analyze the relationship of nutrition, fitness, and healthy weight management to the prevention of diseases such as diabetes, obesity, cardiovascular diseases, and eating disorders

*Clarifying Objectives*

7.NPA.3.1 Interpret the relationship between poor nutrition and chronic illnesses such as diabetes, cardiovascular diseases, and obesity.
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8th Grade

In 8th grade, the focus of the first Essential Standard (8.L.1) is more on microbes as disease agents, so The Secret World Inside You is an ideal vehicle for getting the message out that not all microbes are bad. The second standard (8.L.2) focuses on biotechnology, all aspects of which are a consistent thread throughout the exhibit.

Science Essential Standard: Structures and Functions of Living Organisms

8.L.1 Understand the hazards caused by agents of diseases that effect living organisms.

Clarifying Objectives
8.L.1.1 Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease.

8.L.2 Understand how biotechnology is used to affect living organisms

Clarifying Objectives
8.L.2.1 Summarize aspects of biotechnology including:
- Specific genetic information available
- Careers
- Economic benefits to North Carolina
- Ethical issues
- Implications for agriculture

Science Essential Standard: Ecosystems

*While the human microbiome is not specifically addressed in this standard, the idea that the human body and its associated microbes function as an ecosystem could be raised. Some of the Clarifying Objectives lend themselves to using the human microbiome as an example of an ecosystem very well.

8.L.3 Understand how organisms interact with and respond to the biotic and abiotic components of their environment.

Clarifying Objectives
8.L.3.1 Explain how factors such as food, water, shelter and space affect populations in an ecosystem.
8.L.3.2 Summarize the relationships among producers, consumers, and decomposers including the positive and negative consequences of such interactions including:
- Coexistence and cooperation
- Competition (predator/prey)
- Parasitism
- Mutualism

Health Education Essential Standard: Personal and Consumer Health

8.PCH.1 Understand wellness, disease prevention, and recognition of symptoms.

Health Education Essential Standard: Nutrition and Physical Activity

8.NPA.3 Analyze the relationship of nutrition, fitness, and healthy weight management to the prevention of diseases such as diabetes, obesity, cardiovascular diseases, and eating disorders.
North Carolina Curriculum Correlations for “The Secret World Inside You”

High School

**Biology Essential Standard:** Structures and Functions of Living Organisms

Bio.1.1 Understand the relationship between the structures and functions of cells and their organelles.

*Clarifying Objectives*

Bio.1.1.1 Summarize the structure and function of organelles in eukaryotic cells (including: the nucleus, plasma membrane, cell wall, mitochondria, vacuoles, chloroplasts, and ribosomes) and ways that these organelles interact with each other to perform the function of the cell.

Bio.1.1.2 Compare prokaryotic and eukaryotic cells in terms of their general structures (plasma membrane and genetic material) and degree of complexity.

**Extended Essential Standard for Bio.1.1**

Ex.Bio.1 Understand structures and functions of living organisms.

*Clarifying Objective*

Ex.Bio.1.2 Explain function (e.g., Skin- protect; Heart-pump blood) of major external and internal body parts, including skin, brain, heart, lungs, stomach, eyes, and ears.”

Bio.1.2 Analyze the cell as a living system.

*Clarifying Objectives*

Bio.1.2.1 Explain how homeostasis is maintained in the cell and within an organism in various environments (including: temperature and pH).

Bio.1.2.3 Explain how specific cell adaptations help cells survive in particular environments (focus on unicellular organisms).

**Biology Essential Standard:** Ecosystems

Bio.2.1 Analyze the interdependence of living organisms within their environments.

*Clarifying Objectives*

Bio.2.1.3 Explain various ways organisms interact with each other (including predation, competition, parasitism, mutualism) and with their environments resulting in stability within ecosystems.

**Biology Essential Standard:** Evolution and Genetics

Bio.3.3 Understand the application of DNA technology.

*Clarifying Objectives*

Bio.3.3.1 Interpret how DNA is used for comparison and identification of organisms.

**Health Education Essential Standard:** Personal and Consumer Health

9.PCH.1 Analyze wellness, disease prevention, and recognition of symptoms.

*Clarifying Objectives*

9.PCH.1.4 Design strategies for reducing risks for chronic diseases.
9.NPA.3 Analyze the relationship of nutrition, fitness, and healthy weight management to the prevention of diseases such as diabetes, obesity, cardiovascular diseases, and eating disorders.

Information in “The Secret World Inside You” would be of interest to the following programs (and specific courses) in the Career & Technical Education division of NCDPI:

- Agricultural Education (Biotechnology and Agriscience Research I & II)
- Health Science Education (Biomedical Technology I & II, Exploring Biotechnology in Health Science, Health Science I, PLTW Biomedical Innovations, PLTW Human Body Systems, PLTW Medical Interventions, PLTW Principles of Biomedical Sciences)
- Technology Engineering and Design (PLTW Biotechnical, PLTW Medical Detectives)