Statewide Healthcare Curriculum
Contextualized Science Module

Unit I: Introduction to the Structure and Function of the Human Body

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT

1. Identify the main parts of a cell and explain the process of cell division	Human body: cells and cellular reproduction	• Lecture/Discussion
		  ○ Overview of the structure of the human body
		  ○ Cell structure and cellular reproduction
		• Have students label the major parts of the cell
		• Have students complete activities on cellular reproduction
		Use Handout: **Mitosis, Meiosis, and Fertilization**
		http://serendip.brynmawr.edu/sci_edu/waldron/
		• i-Pathways: *Science*—Unit 2: Measurement and Data Analysis—Lesson 1:The Cell
			Accurately label a cell diagram
			
			Student completion of handout activities

2. Write a summary describing the relationship between cells, tissues, organs and body systems	Structural organization of the human body: cells, tissues, organs and systems	• Discuss the four major types of human tissue and their functions: epithelium, muscle, connective and nerve • Discuss the structural organization of the human body • Have students summarize the relationship between cells, tissues, organs and body systems	Written summary
3. Use prefixes, suffixes and roots to define medical terms	Medical terminology	• Introduce the building blocks of medical terminology: prefixes, suffixes and roots • Use: **Medical Words tutorial** *http://www.nlm.nih.gov/medlineplus/medicalwords.html*	Quiz over medical terms

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4. Create a chart and collect data on various inherited human traits among their classmates	Genetics	• Discuss genetics and give examples of inherited human traits • Pictures of inherited traits: *http://www.fi.edu/guide/knox/Traits/traitsexamples.pdf* • Give background on Gregor Mendel • Have students complete the inherited traits activities Use PDF File: **Inherited Traits** *http://www.wyomingagclassroom.org/resources/pdf/5_6/inherited_traits.pdf* • i-Pathways: *Science*—Unit 2: Measurement and Data Analysis—Lesson 2: Molecular Basis of Heredity	Completion of inherited traits activities
5. Complete Punnett squares to determine the probability of inheriting certain traits	Genetics	• Explain Punnett squares • Have students complete the genetics activities Use Handout: **Genetics** *http://serendip.brynmawr.edu/sci_edu/waldron/* • Have students take a unit exam • i-Pathways: *Science*—Unit 2: Measurement and Data Analysis—Lesson 2: Molecular Basis of Heredity	Completion of genetics handout activities Teacher created unit exam

Statewide Healthcare Curriculum
Contextualized Science Module

Unit II: Human Body Systems

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT

1. Describe the features and functions of the skeletal system	Skeletal system	• Lecture/Discussions on the skeletal system
		  ○ Bones, functions, location and key terms
		  ○ Axial skeleton, Appendicular skeleton
		  ○ Joints and their functions
		  ○ Demonstrate movements
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative measures for healthy bones and joints
		• Have students label a skeletal diagram
		• Have students work with a partner to create vocabulary flash cards and memorize terms
		• Websites for interactive tutorials, videos and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
			Accurately label a skeletal diagram
			
			Teacher designed quiz

2. Explain the features and functions of the muscular system	Muscular system	• Lecture/Discussions on the muscular system
		  ○ Characteristics, functions, location and key terms
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative measures for healthy muscles
		• Have students label a muscular diagram
		• Have students work in small groups to research a muscle disorder and preventative measures
		• Have groups present their findings to the class
		• Websites for interactive tutorials, videos and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
			Accurately label a muscular diagram
			
			Research reports

Statewide Healthcare Curriculum
Contextualized Science Module

Unit II: Human Body Systems

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT

3. Describe the features and functions of the integumentary system	Integumentary system (the skin)	• Lecture/Discussions on the integumentary system
		  ○ Layers, appendages and functions of the skin
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative measures for healthy skin
		• Have students label the layers and appendages of a skin diagram
		• Have students work in pairs to research a skin disease or disorder
		• Have students present their findings to the class
		• Websites for interactive tutorials, videos and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
			Accurately label a skin diagram
			
			Research report

4. Explain the features and functions of the circulatory/cardiovascular system; conduct an experiment on heart rate	Circulatory/ cardiovascular system	• Lecture/Discussion on the circulatory/cardiovascular system
		  ○ Organs, functions, location and key terms
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative measures for health and wellness
		• Have students label and color a diagram of the circulatory system
		• Websites for interactive tutorials, videos and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
		• Have students practice measuring their heart rate
		• Have students work in a group to design and conduct an experiment on the effects of a stimulus on heart rate
		• Have groups create a poster on their heart rate experiment
		Use Handout: **Regulation of Heart Rate**
		http://serendip.brynmawr.edu/sci_edu/waldron/
			Accurately label a circulatory system diagram
			
			Heart rate experiment and completed poster

Statewide Healthcare Curriculum
Contextualized Science Module

Unit II: Human Body Systems

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT

5. Explain the features and functions of the lymphatic system	Lymphatic system	• Lecture/Discussions on the lymphatic system
		  ○ Organs, functions, location and key terms
		  ○ Diseases, age-related changes
		  ○ Preventative measures for health and wellness
		• Have students label a diagram of the lymphatic system
		• Websites for interactive tutorials, videos and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
			Accurately label a lymphatic system diagram

6. Describe the features and functions of the respiratory system	Respiratory system	• Lecture/Discussions on the respiratory system
		  ○ Organs, functions, location and key terms
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative measures for health and wellness
		• Have students label a diagram of the respiratory system
		• Websites for interactive tutorials, videos, and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
		• Have students complete an experiment on breathing
		Use Handout: **Breathing and Holding Your Breath**
		http://serendip.brynmawr.edu/sci_edu/waldron/
		• i-Pathways: *Science*—Unit 1:Lesson 1: Science as Inquiry
			Accurately label a respiratory system diagram
			
			Completion of breathing experiment

Statewide Healthcare Curriculum
Contextualized Science Module

Unit II: Human Body Systems

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT

7. Explain the features and functions of the digestive system	Digestive system	• Lecture/Discussions on the digestive system
		  ○ Organs, functions, location and key terms
		  ○ Digestive process
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative measures for health and wellness
		• Have students label a diagram of the digestive system
		• Websites for interactive tutorials, videos, and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
		• Have students complete the activity about food and energy
		Use Handout: **Food, Energy, and Body Weight**
		http://serendip.brynmawr.edu/sci_edu/waldron/
			Accurately label a digestive system diagram
			
			Completion of handout activities

8. Describe the features and functions of the urinary system	Urinary system	• Lecture/Discussions on the urinary system
		  ○ Organs, functions, location and key terms
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative measures for health and wellness
		• Have students label a diagram of the urinary system
		• Websites for interactive tutorials, videos, and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
			Accurately label a urinary system diagram
			
			Teacher designed quiz

Statewide Healthcare Curriculum
Contextualized Science Module

Unit II: Human Body Systems

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT

9. Explain the features and functions of the eyes	Senses: the eyes	• Lecture/Discussions on the eyes
		  ○ Structures, location, functions and key terms
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative and corrective measures for abnormal conditions
		• Have students label a diagram of the eye
		• Websites for interactive tutorials, videos, and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
		• Have students complete the activities on taste and vision
		Use Handout: **Studying Our Senses**
		http://serendip.brynmawr.edu/sci_edu/waldron/
			Accurately label an eye diagram
			
			Completion of handout activities

10. Describe the features and functions of the ears	Senses: the ears	• Lecture/Discussions on the ears
		  ○ Structures, location, functions and key terms
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative and corrective measures for abnormal conditions
		• Have students label a diagram of the ear
		• Websites for interactive tutorials, videos, and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
			Accurately label an ear diagram
			
			Teacher designed quiz

Statewide Healthcare Curriculum
Contextualized Science Module

Unit II: Human Body Systems

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT

11. Explain the features and functions of the nervous system	Nervous system	• Lecture/Discussions on the nervous system
		  ○ Structures, location, functions and key terms
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative measures for health and wellness
		• Have students label a diagram of the brain
		• Have students research a brain disorder or disease and write a report on their findings
		• Websites for interactive tutorials, videos, and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
			Accurately label a brain diagram
			
			Written reports

12. Describe the features and functions of the endocrine system	Endocrine system	• Lecture/Discussions on the endocrine system
		  ○ Organs, location, functions and key terms
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative measures for health and wellness
		• Have students label a diagram of organs and glands in this system
		• Websites for interactive tutorials, videos, and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
			Accurately label a diagram of the endocrine system
			
			Teacher designed quiz

Statewide Healthcare Curriculum
Contextualized Science Module

Unit II: Human Body Systems

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT

13. Explain the features and functions of the female reproductive system	Female reproductive system	• Lecture/Discussions on the female reproductive system
		  ○ Organs, location, functions and key terms
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative measures for health and wellness
		• Have students label a diagram of organs and glands in this system
		• Websites for interactive tutorials, videos, and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
		• Have students research one of the handout topics
		• Have students work in small groups to report their findings
		• Use Handout: **Sexual Health and Reproduction**
		http://serendip.brynmawr.edu/sci_edu/waldron/
			Accurately label a diagram of the female reproductive system
			
			Completion of research questions and group discussion

14. Describe the features and functions of the male reproductive system	Male reproductive system	• Lecture/Discussions on the male reproductive system
		  ○ Organs, location, functions and key terms
		  ○ Diseases, disorders, age-related changes
		  ○ Preventative measures for health and wellness
		• Have students label a diagram of organs and glands in this system
		• Websites for interactive tutorials, videos, and activities:
		http://www.nlm.nih.gov/medlineplus/videosandcooltools.html
		http://www.bbc.co.uk/science/humanbody/
		• Have students take a unit exam over the human body systems
			Accurately label a diagram of the male reproductive system
			
			Teacher created unit exam

Statewide Healthcare Curriculum
Contextualized Science Module

Unit III: Infection Control in the Healthcare Environment

Students will:

OUTCOMES	CONTENT	ACTIVITIES/RESOURCES	ASSESSMENT

1. Identify several infectious diseases and explain how they are spread	Infectious diseases	• Lecture/Discussions on infectious diseases
		  ○ Key terms and definitions
		  ○ Theories and discoveries that led to microbiology
		  ○ Characteristics of the five types of infectious microbes and examples of each type
		  ○ Elements of the chain of infection, the body's defenses
		• Have students participate in an experiment on the spread of infection and discuss the results
		• Have students write a reflection about the experience
		Use Handout: **Infectious Diseases**
		http://serendip.brynmawr.edu/sci_edu/waldron/
		• i-Pathways: *Science*—Unit 5: Lesson 3: Health Hazards
			Participation in infectious disease experiment and discussion
			
			Written reflection

2. Describe techniques used to prevent infection in healthcare settings	Infection control in the healthcare environment	• Lecture/Discussions on techniques to prevent infection
		  ○ Key terms and definitions
		  ○ Requirements for standard precautions
		  ○ Demonstrate importance of medical and surgical aseptic techniques
		  ○ Major types of transmission-based precautions
		  ○ Drug resistant organisms, recently emerged contagious diseases
		  ○ Roles of the Centers for Disease Control (CDC) and the Occupational Safety and Health Administration (OSHA) in protecting the public against infectious diseases
		• Have students research a communicable disease or an exposure control plan at a workplace or school and report the findings to the class
		• Have students take a unit exam
			Student reports
			
			Teacher created unit exam