

# Statewide Healthcare Curriculum:

## Contextualized Science Module

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**\*Supplemental material can be located in flash drive file labeled:  
HC Context Science Resource File**

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## **FOUNDATIONS FOR DESIGN**

- ✓ Instruction emphasizes learning by doing through projects and simulations; therefore, the instructor is a facilitator or learning coach.
- ✓ Each module emphasizes communication, teamwork, and critical thinking.
- ✓ Content is contextualized for healthcare professions and their programs of study.
- ✓ Learning outcomes often require learners to meet and interact with academic and healthcare professionals, engage in collaborative and individual projects involving authentic materials and resources, visit healthcare and academic facilities, and complete documents and writing tasks for career paths with the guidance of learning facilitators.
- ✓ Specific units within modules may serve as precursors for additional units within the module. Many lessons and units may be repeated and expanded from one module to another.
- ✓ Self-advocacy and continual self-assessment and self-monitoring are inherent to each module while students must be introduced to, required to meet with, and encouraged to consult with program coordinator as well as academic and employment professionals.
- ✓ Site visits to healthcare and learning facilities, guest speakers, and conferences with employment and academic professionals are integral to the relevance and value of the program for students.

## **ASSUMPTIONS:**

- ✓ Each agency or instructor who may use these modules may adapt instructional strategies, content level of difficulty, learning activities and projects to meet the needs of the program's own target population and adult learners of lower and higher academic levels.
- ✓ Referenced resources, relevant internet links, learning activities (created, suggested, attached, or referenced) will be used, modified, or omitted based on student need and restraints of class time and resources.

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- ✓ This curriculum will work in established internal partnerships within the academic community as well as external partnerships/relationships in the employment community.
- ✓ Units and lessons will be adapted to fit within varying contact hours of a program.

**Module Description:** The Contextualized Science Module is designed to prepare students to transition into entry-level allied health courses, as well as to prepare them for the GED® Science test and college readiness. The course is divided into three units of study: **Unit I: Introduction to the Structure and Function of the Human Body**, **Unit II: Human Body Systems** and **Unit III: Infection Control in the Healthcare Environment**.

**i-Pathways Alignment with the Statewide Healthcare Curriculum:** The lessons identified in this document have connections with both i-Pathways and the intended learning objectives identified in the Statewide Healthcare Curriculum. The i-Pathways lessons can be used to build background knowledge, reinforce content, or provide learners with additional practice in a specific skill development.

## Module Objectives:

### Students will:

- Demonstrate knowledge of cells and cell division
- Develop a basic understanding of human genetics
- Demonstrate knowledge of the organs and functions of the human body systems
- Develop a basic understanding of diseases and disorders of the human body
- Demonstrate knowledge of preventative measures for health and wellness
- Understand the importance of infection control in the healthcare environment
- Demonstrate knowledge of infection control techniques and procedures
- Demonstrate knowledge of medical and scientific terminology used in healthcare

## Learning Outcomes

### Students will:

- Identify cell structures and the process of cell division
- Describe the relationship between cells, tissues, organs and body systems
- Utilize building block strategies to understand medical terminology
- Utilize data collection, charts and graphs to recognize inherited human traits

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- Describe the features and functions of the major human body systems
- Explain a variety of preventative measures for health and wellness
- Research and report on diseases and disorders of the human body
- Describe techniques and procedures to prevent infection in the healthcare environment
- Utilize the scientific method to conduct experiments and analyze the results

## Methods of Instruction

- Lecture
- Small and large group discussions
- Online tutorials
- Internet research
- Hands-on activities and experiments

## Methods for Evaluating Student Performance

- Individual and group presentations
- Research reports
- Written summaries
- Diagrams
- Teacher designed quizzes and exams

## Module Overview

### Unit One: Introduction to the Structure and Function of the Human Body

- A. Cells and cellular reproduction
- B. Structural organization of the human body
- C. Building blocks of medical terminology
- D. Genetics and inherited traits

### Unit Two: Human Body Systems

- A. Skeletal system
- B. Muscular system
- C. Integumentary system
- D. Circulatory/Cardiovascular system
- E. Lymphatic system
- F. Respiratory system
- G. Digestive system
- H. Urinary system

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- I. Senses: the eyes and ears
- J. Nervous system and the Brain
- K. Endocrine system
- L. Female and male reproductive systems

## Unit Three: Infection Control in the Healthcare Environment

- A. Infectious diseases
- B. Techniques and procedures to prevent infection

## Module Outline

### Unit One: Introduction to the Structure and Function of the Human Body

1. Structural organization of the human body
  - a. Cells
    - i. Structure of the cell
    - ii. Cellular reproduction
  - b. Tissues
    - i. Epithelium
    - ii. Muscle
    - iii. Connective
    - iv. Nerve
  - c. Organs
  - d. Body systems
2. Medical Terminology
  - a. Prefixes
  - b. Suffixes
  - c. Roots
3. Genetics
  - a. Inherited human traits
  - b. Gregor Mendel
  - c. Punnett squares

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## Unit Two: Human Body Systems

1. Skeletal
  - a. Functions
  - b. Axial and appendicular skeleton
  - c. Joints
  - d. Diseases, disorders, and age-related changes
  - e. Preventative measures
  
2. Muscular
  - a. Functions
  - b. Diseases, disorders, and age-related changes
  - c. Preventative measures
  
3. Integumentary
  - a. Functions
  - b. Diseases, disorders, and age-related changes
  - c. Preventative measures
  
4. Circulatory/Cardiovascular
  - a. Functions
  - b. Diseases, disorders, and age-related changes
  - c. Preventative measures
  
5. Lymphatic
  - a. Functions
  - b. Diseases, disorders, and age-related changes
  - c. Preventative measures
  
6. Respiratory
  - a. Functions
  - b. Diseases, disorders, and age-related changes
  - c. Preventative measures
  
7. Digestive
  - a. Functions
  - b. Diseases, disorders, and age-related changes
  - c. Preventative measures

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8. Urinary
  - a. Functions
  - b. Diseases, disorders, and age-related changes
  - c. Preventative measures
  
9. Senses
  - a. Eyes
    - i. Functions
    - ii. Diseases, disorders, and age-related changes
    - iii. Preventative measures
  
  - b. Ears
    - i. Functions
    - ii. Diseases, disorders, and age-related changes
    - iii. Preventative measures
  
10. Nervous
  - a. Functions
  - b. Diseases, disorders, and age-related changes
  - c. Preventative measures
  
11. Endocrine
  - a. Functions
  - b. Diseases, disorders, and age-related changes
  - c. Preventative measures
  
12. Reproductive
  - a. Female
    - i. Functions
    - ii. Diseases, disorders, and age-related changes
    - iii. Preventative measures
  
  - b. Male
    - i. Functions
    - ii. Diseases, disorders, and age-related changes
    - iii. Preventative measures



# **Statewide Healthcare Curriculum: Contextualized Science Module**

## **Unit Three: Infection Control in the Healthcare Environment**

1. Infectious diseases
  - a. Key terms and definitions
  - b. Microbiology
  - c. Characteristics of infectious microbes
  
2. Techniques and procedures to prevent infection
  - a. Key terms and definitions
  - b. Standard precautions
  - c. Transmission-based precautions
  - d. Drug resistant organisms
  - e. Center for Disease Control
  - f. OSHA