Human Body Systems Syllabus

Course Description/Goals:

Human Body Systems is a dynamic, lab based course that examines how our bodies function and maintain homeostasis. Students use interactive labs to investigate the structures and functions of the human body, and use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary action, and respiration. Exploring science in action, students build organs and tissues on a skeletal manikin, work through interesting real world cases and often play the roles of biomedical professionals to solve medical mysteries.

Course TEKS/Objectives:

In the Human Body Systems (HBS) course, students examine the interactions of body systems as they explore identity, communication, power, movement, protection, and homeostasis. Students design experiments, investigate the structures and functions of the human body and use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary action, and respiration. Exploring science in action, students build organs and tissues on a skeletal manikin, work through interesting real-world cases, and often play the role of biomedical professionals to solve medical mysteries. Exploring science in action, students build organs and tissues on a skeletal manikin, work through interesting real-world cases, and often play the role of biomedical professionals to solve medical mysteries.

https://tea.texas.gov/academics/pltw-human-body-systems.pdf

Course Outline:

Semester 1	Semester 2
• Clinical case-based investigations • Designing rehabilitation plans and therapies	• Outpatient diagnostics: spirometry, blood pressure, immune markers • Dealing with emergencies and environmental stressors

• Hands-on diagnostics: orthopedic tests, pulse & respiratory measures • Use of data acquisition tools to monitor recovery outcomes • Cross-system interactions during healing and exercise • Tissue types and cellular structure fundamentals • Microscopy, histological analysis, and 3D modeling of anatomy • Laboratory investigations using model organisms or simulations • Technical documentation and research communication methods • Integrating clinical reasoning with experimental design	• Patient monitoring in non-clinical and adventure settings • Public health and prevention in field or remote contexts • Combining clinical skills with adaptive healthcare strategies • Models of the digestive and urinary systems • Clinical labs: urinalysis, nutrient absorption, enzyme activity • Patient interviewing and medical history taking • Inter-system coordination: homeostasis and ethical considerations • Designing care protocols from patient viewpoints