

Human Body Systems (HBS)



Course Code CTS-3040
1 Semester, 1 Credit

Mrs. Stacy Nelson
stacy.nelson@k12.sd.us

(605) 367-5504
Room B117

Information

*SFSD grading scale will be used. PLTW courses have weighted grades for SFSD students.

*Grades will be calculated using total points with a balance of ~50% assessment of labs/projects and ~50% quizzes

* Extra credit lectures/experiences will be offered but can only raise you grade by 1%

* Academic dishonesty will not receive credit. Students will cannot demonstrate their learning by turning in someone else's writing and/or work.

* Lack of student responsibility including late work, lack of preparation, make-up work will be handled on a case-by-case basis. Point deduction may be used if other interventions don't work.

* Students and parents can view grades on SFSD Infinite Campus.

*If absent, check our Google Classroom page

Materials

- 3-ring binder with loose leaf paper
- pens and highlighter
- long pants and close-toed shoes for labs
- headphones
- simple scientific calculator recommended
- Students will be issued a locker

Class Expectations

1. Your Best Effort
2. Kindness
3. Respect

Assessment

Students will demonstrate knowledge through hands-on, real-world activities, projects, and problems connecting what we learn in the classroom to college and careers. In addition, each section will end with a summary quiz.

The Curriculum

Students will explore identity, communication, power, movement, protection, and homeostasis. Students design experiments, investigate the structures and functions of the human body, and use software to monitor body functions such as muscle movement, reflex and voluntary action, and respiration. Students build organs and tissues on a skeletal manikin, work through medical cases, and often play the role of medical professionals.

Unit 1 – Identity (anatomy using Maniken model, classification of tissues, skeletal anatomy, DNA analysis)

Unit 2 – Communication (the brain, neurons, hormones, senses)

Unit 3 – Power (macromolecules, ATP, respiratory system, urinary system)

Unit 4 – Movement (joints, muscles, sarcomere, blood flow, exercise physiology)

Unit 5 – Protection (skin, bones, lymph, blood)

Unit 6 – Homeostasis (health and wellness)



Knowledge gained during this course includes:

• Identity

- o Directional and regional terms
- o Histology
- o Forensic anthropology
- o DNA analysis
- o Biometrics

• Communication

- o Brain A&P
- o Nerve impulse propagation
- o Response time for reflex and voluntary action
- o Endocrinology
- o Positive and negative feedback mechanisms
- o Eye A&P

• Power

- o Digestive system A&P
- o Enzyme/substrate interaction
- o Metabolism and ATP
- o Respiratory system A&P
- o Diagnosis and treatment of asthma
- o Basic pharmacology
- o Urinary system A&P
- o Nephron action

• Movement

- o Joint structure and function and range of motion
- o Physiology of muscle contraction
- o Cardiovascular system A&P
- o Peripheral vascular disease
- o Exercise physiology
- o Skin A&P

• Protection

- o Structure of bone
- o Bone fractures and bone remodeling
- o Lymphatic and immune system A&P
- o Antigen/antibody interaction
- o Pedigree construction/analysis