02_Digestion, Absorption, and Transport (Scientific Principles)

Content Area: **Science**
Course(s):
Time Period: **Full Year**
Length: **20 blocks**
Status: **Published**

General Overview, Course Description or Course Philosophy

- The course tests the students' understanding of the relationships between diet, lifestyle, and the prevention of disease. The student is expected to understand digestion, absorption, and metabolism of protein, carbohydrates, fat, vitamins, and minerals. Additionally, evaluating nutrition claims and food labels are expected student learning outcomes. This is a Rutgers University Course and students receive 3 college credits for passing the end of semester examination provided by the university. There is an examination fee. All information discussed in the course description is the basis of the examination at the end of the semester.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

CONTENT AREA STANDARDS

SCI.HS-LS1-3	Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.
SCI.HS-LS1-7	Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

VHEL.9-12.9.4.12.H.1	Demonstrate language arts knowledge and skills required to pursue the full range of postsecondary education and career opportunities.
VHEL.9-12.9.4.12.H.2	Demonstrate mathematics knowledge and skills required to pursue the full range of postsecondary education and career opportunities.
VHEL.9-12.9.4.12.H.5	Select and employ appropriate reading and communication strategies to learn and use technical concepts and vocabulary in practice.

STUDENT LEARNING TARGETS

Declarative Knowledge

Students will understand that:

- The Digestive, Circulatory, and Lymphatic work together to maintain homeostasis within the GI tract
- Enzymes are requires and essential to maintain homeostasis
- The lymphatic system must removes substance from the GI tract to maintain homeostasis
- There are numerous disorders associated with genetics, improper diet, and poor nutrition

Procedural Knowledge

Students will be able to:

- Recall & Identify the structures of the GI tract and Circulatory System
- Identify the enzymes within the accessory organs that aid in the digestive process
- Identify the processes by which absorption takes place within the GI tract
- Investigate various disorders of the GI tract and identify the different signs and symptoms
- Recognize substances that can impact the various conditions of the GI tract

- Plan a Healthy Diet.

- Highlight: Vegetarian Diets.

- Nutrient density, food groups, grain processing techniques, reading food labels

EVIDENCE OF LEARNING

Formative Assessments

- Attendance/Participation/Group Discussion – Students are expected to attend all classes and participate in classroom discussions and group activities.

- Unit Assignments – Each unit will have specific assignments geared to meet unit objectives. These assignments can be completed as homework or in class, as time permits.

- Course Projects – There will be four major projects due throughout the course. Each project will have specific directions for completion and students are expected to work individually on these projects.

Summative Assessments

- Benchmarks – departmental benchmark given at the end of MP1, MP2, and MP3
- Alternative Assessments
    - Lab inquiries and investigations
    - Lab Practicals
    - Exploratory activities based on phenomenon
    - Gallery walks of student work
    - Creative Extension Projects
    - Build a model of a proposed solution
    - Let students design their own flashcards to test each other
    - Keynote presentations made by students on a topic
    - Portfolio

RESOURCES (Instructional, Supplemental, Intervention Materials)

- Anatomy & Physiology Text books
- Crash Course
- Nursing NCLEX reviews
- Nearpod
- https://www.niddk.nih.gov/about-niddk/research-areas/digestive-diseases
- https://www.niddk.nih.gov/search?s=all&q=digestion
- https://www.niddk.nih.gov/search?s=all&q=absorption

INTERDISCIPLINARY CONNECTIONS

- Group and partner activities are assigned when possible
- Students will be grouped based on learning styles and approach to processing content

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.