

06_Physical Fitness and Energy Systems Utilized

Content Area: **Science**
Course(s):
Time Period: **Full Year**
Length: **12 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 associated with this course for college credit. All information discussed in the course description is the basis of the examination at the end of the semester.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

- Types of physical fitness and energy systems utilized
- Daily recommended physical activity guidelines
- Dietary recommendations to support physical activity
- Temperature regulation
- Hydration to support physical activity

CONTENT AREA STANDARDS

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.
SCI.HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

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

VHEL.9-12.9.4.12.H.(2).7	Demonstrate understanding of the principles of body mechanics for positioning,
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	transferring, and transporting patients/clients by performing them without injury to the patient/client or self.
VHEL.9-12.9.4.12.H.(5).1	Summarize the goals of biotechnology research and development and describe how biotechnological products that improve the quality of life are developed within legal and ethical protocols.
VHEL.9-12.9.4.12.H.(5).2	Apply biochemistry, cell biology, genetics, mathematics, microbiology, molecular biology, organic chemistry, and statistics concepts to conduct effective biotechnology research and development.
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.6	Demonstrate use of the concepts, strategies, and systems for obtaining and conveying ideas and information to enhance communication.
VHEL.9-12.9.4.12.H.7	Locate, organize, and reference written information from various sources to communicate with others.
VHEL.9-12.9.4.12.H.8	Evaluate and use information resources to accomplish specific occupational tasks.

STUDENT LEARNING TARGETS

Declarative Knowledge

Students will understand that:

- There are types of physical fitness to improve health and cardiovascular function
- We utilize various energy systems during anaerobic and aerobic activity
- We have a daily recommended physical activity set of guidelines
- We follow a set dietary recommendations to support physical activity
- We need temperature regulation and to maintain homeostasis within our body
- Proper hydration to support physical activity is essential

Procedural Knowledge

Students will be able to:

- There are types of physical fitness to improve health and cardiovascular function
- We utilize various energy systems during anaerobic and aerobic activity

- We have a daily recommended physical activity set of guidelines
- We follow a set dietary recommendations to support physical activity
- We need temperature regulation and to maintain homeostasis within our body
- Proper hydration to support physical activity is essential

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 Project

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)

<https://www.sportsmed.org/journals/ajsm>

<https://www.cdc.gov/healthyschools/physicalactivity/physical-education.htm>

<https://dsoareshpe.weebly.com/importance-of-hpe.html>

<https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm>

Nearpods

Quzlets

Online Journals

INTERDISCIPLINARY CONNECTIONS

SCI.9-12.SEP.1.a.1	that arise from careful observation of phenomena, or unexpected results, to clarify and/or seek additional information.
SCI.9-12.SEP.1.a.2	that arise from examining models or a theory, to clarify and/or seek additional information and relationships.
SCI.9-12.SEP.1.a.3	to determine relationships, including quantitative relationships, between independent and dependent variables.
SCI.9-12.SEP.1.d	Ask and/or evaluate questions that challenge the premise(s) of an argument, the interpretation of a data set, or the suitability of a design.
SCI.9-12.SEP.1.e	Define a design problem that involves the development of a process or system with interacting components and criteria and constraints that may include social, technical, and/or environmental considerations.
SCI.9-12.SEP.2.d	Develop and/or use multiple types of models to provide mechanistic accounts and/or predict phenomena, and move flexibly between model types based on merits and limitations.
SCI.9-12.SEP.3.a	Plan an investigation or test a design individually and collaboratively to produce data to serve as the basis for evidence as part of building and revising models, supporting explanations for phenomena, or testing solutions to problems. Consider possible confounding variables or effects and evaluate the investigation's design to ensure variables are controlled.
SCI.9-12.SEP.3.b	Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly.
SCI.9-12.SEP.3.c	Plan and conduct an investigation or test a design solution in a safe and ethical manner including considerations of environmental, social, and personal impacts.

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.