FRANKLIN LEARNING CENTER

Learning Activity Packet

Subect: Health Related Technology 1

Teacher: Jessica Way

Lap #1 Title: Human Body I

Pennsylvania Academic Standards, Science 3.3.10

A. Explain the structural and functional similarities and differences found

among living things.

• Identify and characterize major life forms according to their placement in existing classification groups.

• Explain the relationship between structure and function at the molecular and cellular levels.

• Describe organizing schemes of classification keys.

B. Describe and explain the chemical and structural basis of living organisms.

• Describe the relationship between the structure of organic molecules and the function they serve in living organisms.

• Identify the specialized structures and regions of the cell and the functions of each.

• Explain how cells store and use information to guide their functions.

Pennsylvania Common Core Standards

ELA 1.2 Reading Informational Text

Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.

CC.1.2.9-10.J Acquire and use accurately general academic and domain- specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

1. Introduction

Understanding the basic functions of the human body is crucial to understanding assessment, diagnosis and treatment of basic pathology as well as understanding how to promote optimal wellness.

1. Behavioral Objectives
2. Students will label a diagram of the main parts of a cell, describe the basic function of each part of a cell, compare the four main types of tissue by describing the basic function of each type and explain the relationship between cells, tissues, organs, and systems.
3. Students will be able to label the names of the planes and the directional terms related to these planes on a diagram of the three planes of the body.
4. Students will be able to label a diagram of the main body cavities, identify the main organs located in each body cavity and locate the nine abdominal regions.
5. Students will label a diagram of a cross section of the skin, differentiate between the two types of skin glands, list six functions of the skin, provide the correct names for three abnormal colors of the skin and identify the cause of each abnormal color, describe at least four skin eruptions and describe at least four diseases of the integumentary system.
6. Vocabulary

anatomy cell cell membrane

chromatin connective tissue cytoplasm

dehydration endoplasmic reticulum epithelial tissue

genes Golgi apparatus lysosomes

genome meiosis mitosis

muscle tissue nerve tissue nucleolus

nucleus organ organelles

pathophysiology physiology pinocytic vesicles

protoplasm stem cells tissue

vacuoles body cavities cranial

buccal caudal distal

dorsal frontal inferior

lateral medial midsaggital

nasal orbital pelvic

posterior proximal spinal

superior thoracic transverse

ventral

1. Activities/Projects

* Students will complete a Learning Gizmo on homeostasis and relate how the body adapts to changing elements outside of the body. (Objective 1)
* Students will complete a "Makes Sense To Me" rendering of a cell on a posterboard for display in class. (Objective 1)
* **"The Super Cell". After receiving a lecture about adaptation students will then create a 3-D realistic display of various types of cells with thought to how many organelles they would need to work best in their part of the body. (Objective 1)**
* Students will participate in interactive discussion of homeostasis, body cavities, directional terms and anatomical vocabulary. They will use games as a way of memorizing important concepts regarding the body. (Objectives 2 and 3)
* Students will practice labeling sections of skin and stating how the various anatomical components relate to the functions of the skin. Students will review pictures of various skin diseases and play a game to see how good their recall is! (Objectives 4)
* Students will have visitors to the classroom that will teach extensively about burns. Students will write a 3 page research paper that answers the following core questions about either a 1st degree burn, 2nd degree burn or 3rd degree burn: (Objective 4)?

1. So when your patient has this SPECIFIC burn what EXACTLY has happened to their skin – in your own words!!!
2. What would your patient feel like as a result of this burn?
3. What would you do to treat this kind of burn?
4. What would worry you most about caring for a patient with this burn?
5. What new treatments are out there to help treat your patient?
6. Resources

* Medical Dictionary
* Internet Sites:

Cells for Kids – great tips on how cells work and how to make our own!

http://www.kathimitchell.com/cells.html

A virtual interactive cell:

<http://www.nsf.gov/news/overviews/biology/interactive.jsp>

An overview of basic first aid treatment of 1st, 2nd and 3rd degree burns:

<http://www.mayoclinic.com/health/first-aid-burns/FA00022>

Fabulous nursing care plan for patients with burns:

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3038394/>

Great overview of skin grafts!

<http://health.howstuffworks.com/skin-care/information/anatomy/skin-graft.htm>

* Clinical Lab resources
* Visitors from the Philadelphia Burn Foundation
* Other resources as needed

1. Assessment

* Completion of lab report for “Homeostasis” (Objective 1)
* Completion of posterboard or animation demonstrating, “How I See It”(Objective 1)
* Completion of original cell poster and group project, "The Super Cell", please see attached rubric. (Objective 1)
* Participation in classroom activities (Objectives 1,2,3 and 4)
* Final LAP exam (Objectives 1,2,3 and 4)
* Completion of thorough, well-researched essay on treatment of burns.

1. Instructional Accommodations/ Alternative Assessments

Alternative Assessment 1: Instead of the “Super Cell” students may create a video animation that accurately demonstrates a current way medical researchers are manipulating cells to cure disease.

Alternative Assessment 2: Instead of the essay on burns, students may find a subject that has suffered from a 3rd degree burn or a 2nd degree burn over a considerable part of their body. They may create a video journal about the subject that reviews how they got the burn, what treatments they have received and what challenges they continue to face.

All students with testing difficulties are encouraged to seek assistance in the resource room during quizzes and final exams.

All students having difficulty with reading comprehension will be provided with time afterschool to receive assistance with understanding the complex vocabulary of medicine.

The Ultimate Cell

Dear Students of Health Related Technology,

Please be discrete about reading this message, as this program is absolutely top secret! The Pentagon is undergoing a project to create a superhuman and we need your help. Help us design the fastest, healthiest, most efficiently built human cell by cell. We know you are now experts in cell organelles and we need you to use your knowledge for some bioengineering.

Your teacher will assign your small group a cell from a specific part of the body and will not share with others what cell you were given. First you will research that part of the body until you thoroughly understand what it is built to do. Next you will consider what ratio of organelles will best assist your cell with performing well. Next, you will create a 3-D image of your group's proposal for "The Ultimate Cell" out of any common objects you have access to. Finally your product will be viewed by an impartial judge who will pick the best prototype in your class and they will be rewarded accordingly.

You have until next Friday to accomplish this goal. Good luck! Your country is counting on you!

Sincerely,

Admiral Rhett Iculum

**Checklist for LAP 1**

* **Completed Learning Gizmo on “Homeostasis”**
* **Completion of “Makes Sense to Me” Cell**
* **Completion of the Super Cell with small group – (This project is worth 25% of your grade)**
* **Quizzes on homeostasis, anatomical terms, body organization, cellular structure and integumentary system (25% of your grade)**
* **Research Paper on Burns! (25% of your grade)**

**If any of the above is missing or not corrected with an alternative assessment, no LAP credit will be issued! The cumulative score of all assignments MUST be above 80% -- no exceptions!**