Project Plan –*Final Project*

Course
PLTW Human Body Systems

Description: **Final Project**

The final project includes the connection between all of the human body systems and examines how these systems work together to maintain health and homeostasis.

Students will reflect on the way in which the body systems work together to provide identity, facilitate communication inside and outside of the body, power movement of substance around the body and of the body as a whole, and protect the body from harm. They will compile information from the graphic organizers they have created all year into organizers that are broken down by function. Students will end up with a visual representation of how multiple body systems work as a team to maintain health and wellness.

Throughout the course, students have worked through various case studies and have used their knowledge of the human body to solve medical mysteries. Students will have the chance to explore a disease and design a case study for a fictional patient, potentially to be used for Principle's of Biomedical Science course. By building the case from start to finish, they will learn how a disease presents in the body, how it is diagnosed, and how this illness or injury is treated.

Length – 1 week due at end of semester 2

Grade Level(s) – 10th
Essential Questions:
How do our body systems work together?
How does each body system affect each other?
What happens when one body system fails to work effectively?
How do we keep our bodies healthy?
Why is it important to research and identify solutions that currently exist for a problem?

Student Outcomes
Students will review their topic. Using resources such as class notes, various textbooks, and the internet they will research the topic and its relevance to the course. They will present study tool through a powerpoint, animation or study guide.

CTE Standards

2.5 Communicate information and ideas effectively to multiple audiences using a variety of media and formats.

4.1 Use electronic reference materials to gather information and produce products and services.

4.2 Employ Web-based communications responsibly and effectively to explore complex systems
and issues.

4.3 Use information and communication technologies to synthesize, summarize, compare, and
contrast information from multiple sources.

4.4 Discern the quality and value of information collected using digital technologies, and recognize bias and intent of the associated sources

5.5 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.

5.6 Read, interpret, and extract information from documents.

8.6 Adhere to copyright and intellectual property laws and regulations, and use and appropriately cite proprietary information.

11.5 Create a portfolio, or similar collection of work, that offers evidence through assessment and evaluation of skills and knowledge competency as contained in the anchor standards, pathway standards, and performance indicators.

Common Core Standards

ELA Grade 9-10 Reading 1: Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

ELA Grade 9-10 Reading 5: Analyze the structure of the relationships among concepts in a text, including relationships among key terms.

ELA grade 9-10 Literacy 7: Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

ELA Grade 9-10 Literacy 9: Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

Introduction:
You will research a disorder related to one of the body systems we have covered. Once you have researched your disorder, write an original case study in a narrative format. A case study is an in-depth presentation of detailed information about a particular subject (medical patient), which frequently includes the accounts of subjects themselves. Case studies typically examine the interplay of all variables affecting the patient in order to provide as complete an understanding of the disorder as possible. For the disorder you choose you must show a connection between at least two systems, one of which must be the Digestive, Muscular, Respiratory, Circulatory or Urinary Systems

**Type up your case study using a word processing program. Save your file and then upload it to google drive when you are finished.

What Makes a Good Case Study?

- *A good case tells a story.* It must have an interesting plot that relates to the experiences of the audience. It must have a beginning, a middle, and an end.
- *A good case creates empathy with the central characters.* We should create empathy not only to make the storyline more engaging but because the personal attributes of the characters will influence the way a decision might be made.
- *A good case includes quotations.* There is no better way to understand a situation and to gain empathy for the characters than to hear them speak in their own voices. Quotations add life and drama to any case. Quotations provide realism.
- *A good case is short.* It is easier to hold someone's attention for brief moments than long ones. Cases must be long enough to introduce the facts of the case but not so long as to bore the reader. If one must introduce complexity, let it be done in stages. First, give some data and then a series of questions and perhaps a decision point before more information is introduced. After all, that is the way life plays out...little bits at a time.

Above information taken from
http://ublib.buffalo.edu/libraries/projects/cases/teaching/good-case.html.

Suggested Steps:

1. Create a "real life," believable patient, and determine the initial facts about this patient. These would be name, age, marital status, ethnicity where relevant, gender, family, background taking the disorder into consideration.
2. Determine the patient's initial problem/symptoms, and subsequent issues that could arise as a result of the disorder or progression of the disorder.
3. Plan where the "actions" will take place. Home? Hospital? ER? Vacation? Work? Doctor's office? School?
4. Present facts in an iterative style (e.g. chronologically, as they present, or as the patient describes them, or with complications arising).

<u>Facts to include:</u>

- ❑ Initial presentation, crisis or catalyst for problem
- ❑ Results from tests, examinations
- ❑ Drugs prescribed for treatment, response to drugs, any side effects
- ❑ Differential diagnoses that may have initially presented (different diseases that could result in similar symptoms)
- ❑ Sources of the Disease: Congenital, Infectious, Traumatic, Metabolic

5. Generate questions around each section of the case study (approximately 2-4 questions per section/paragraph) for students to answer at a later date.

<u>Possible questions:</u>

- Identify the body structures/organ systems affected by this condition.
- Name possible causes for this disorder.
- Explain how symptoms show a direct relationship between the cause and the effects on the body structures.
- Identify similar or other possible diagnoses and confusing symptoms.
- Discuss meaning of test results.
- Present patient's future treatment and prognosis.

6. Include 1-2 pictures per section to enhance the reader's understanding of the concepts presented. You can insert an image into your document before you save & then upload to Moodle.

Guided Instruction:

See guidelines above as well as rubric provided.

Files

rubric: see below

Rubric for Case Study:

	Advanced 5	**Proficient 3**	**Needs Improvement 2**	**Not Demonstrated 1**
Required Information- Disease Facts (Definition/Cause, Symptoms, Tests, Treatments, Prognosis)	All five facts are presented in the case study. Facts are accurate and reliable.	Four of the facts are presented in the case study. Facts are accurate and reliable.	Three of the facts are presented in the case study. Facts have inaccuracies and the information in some cases is not reliable.	Only one or two of the facts is presented in the case study of facts are completely inaccurate.
Engages the Reader	Establishes a situation to engage the reader which includes a description of a "realistic" patient and relevant medical history, initial presentation/ catalyst to current problem, and setting.	Establishes a situation which **includes** a description of a "realistic" patient and relevant medical history, initial presentation/ catalyst to current problem, and setting. Writing is not necessarily engaging.	Establishes a situation or context, but is lacking at least one of the following: a description of a "realistic" patient and relevant medical history, initial presentation/ catalyst to current problem, and setting. Writing is not necessarily engaging.	Situation presented is incoherent or causes confusion. Lacks two or more of the following: a description of a "realistic" patient and relevant medical history, initial presentation/ catalyst to current problem, and setting.
Organization (Progression and Transitions)	Logical progression of patient and disease process. Includes necessary details to assist in	Progression of patient and disease process, but in some instances details are missing	Patient is presented in various situations that imply the passage of time, but there is no logical progression of	Writing is not organized. There is no evidence to demonstrate the progression of the

	the transitions in time.	for transitions in time.	the disease process or sections seem unrelated.	patient or the disease process. Situations are out of order.
Word Choice	Precise, vivid, natural language creates a clear and complete picture in the reader's mind. Medical terminology is used correctly and explained when necessary. Dialogue sounds natural and is appropriate to the situation.	Correct, adequate word choice creates a clear picture in the reader's mind. Medical terminology is used correctly, but not defined or explained where necessary. Sounds appropriate.	Ordinary word choice attempts to create a picture in the reader's mind. Very little medical terminology is used, but is used correctly. Dialogue sounds forced.	Limited vocabulary prevents the reader from creating a picture in his or her mind. No medical terminology is used or it is used incorrectly. Dialogue is limited or not used.
Writing Mechanics	The text is written with no errors in grammar, capitalization, punctuation, and spelling.	The text is clearly written with one or two errors in grammar, punctuation, and spelling.	Three or more errors in grammar, punctuation, and spelling, which distract or impair readability.	Errors in spelling, capitalization, punctuation, spelling, and grammar that repeatedly distract the reader.
Case Study Length	Three to four paragraphs/sections and at least 10 comprehension or analysis questions. All questions enhance reader understanding of the disorder.	Three paragraphs/sections and only 8-9 comprehension or analysis questions. Most questions enhance reader understanding of the disorder.	Two paragraphs/sections and 5-7 comprehension or analysis questions. Some questions improve reader understanding of the disorder, but not all.	One paragraph/section or fewer than 5 comprehension or analysis questions. Some questions improve reader understanding of the disorder, but not all.

Videos

N/A

Discussion: All the activities and projects leading up to this final project will help the students synthesize ideas about how the human body systems interact. By the end of HBS, the students have learned about each system and have gone very in depth with Digestive, Muscular, Respiratory, Circulatory and Urinary Systems. This project will allow them to build upon that knowledge and produce a Case study that may be used by other Biomedical classes

Assessment: The final case graded based on attached rubric

Notes

Books used:

Contact

Leslie Chadwick *lchadwick@sandi.net*

Rachel Tenenbaum *rtenenbaum@sandi.net*