

Project 6.1.1: How Do the Parts Make a Whole?

Introduction

Anna Garcia was only 38 when she died, meaning that at least one of her body systems was no longer able to support life. The failure of one or more of her body systems may be the result of injury due to an accident or could be the result of an illness or a combination of illnesses. Before we can determine which system or systems failed or what caused the failure which led to her death, we have to learn more about the human body.

The human body is an amazing machine composed of many interrelated systems which are in turn composed of cells, tissues, and organs that act independently and interdependently within the body. No individual component of a human body works alone. Components of each system in the body affect or interact with every other system. The body is dependent upon the many interactions between all systems and structures to maintain homeostasis and health. In this activity you will investigate the different body systems that make up the human body and explore all of the ways Anna's various illnesses affected each body system, potentially resulting in her premature death.

Equipment

- Computer with Internet access and PowerPoint
- Laboratory journal
- PBS Course File
- Yarn, 3 ft pieces (four different colors)
- Tape
- Glue
- Colored construction paper (five different colors)
- Life-sized poster of the human body (blank) on the wall in the classroom
- Activity 6.1.1 Student Resource Sheet
- Activity 6.1.1 Student Response Sheet
- Human Body Systems Resource Sheet
- PLTW Biomedical Science Peer Evaluation Rubric
- PLTW Biomedical Science Documentation Protocol
- Tips for Producing Effective Presentations Resource Sheet

Procedure

Part I: Human Body Systems

1. Obtain an Activity 6.1.1 Student Resource Sheet and an Activity 6.1.1 Student Response Sheet.
2. Note that you and your group will be assigned one body system from the Student Resource Sheet. Review the structures listed for your assigned system.

3. Work with your team and use reliable sources to research both the functions of your assigned body system and its associated structures. If desired, refer to your Human Body Systems Resource Sheet from Unit 1.
4. Record your findings for your assigned system in Part I of the Activity 6.1.1 Student Response Sheet. Make sure to document any sources used in the space provided at the bottom of the Student Response Sheet.
5. Note that you will communicate all of your research in shared google slides. Review the content requirements for the presentation that are listed below. Your presentation should:
 - Include all organs listed on the resource sheet for the assigned system (download from unit 6 assignments).
 - Use drawings, pictures, and text to describe the function of the assigned system and its associated structures.
 - Include clear diagrams or visual representations of the structures.

Part II: Anna's Illnesses

6. You will now explain the effects of diabetes, sickle cell anemia, heart disease, and urinary tract infection on your system. You should address each on separate slides.

Conclusion

1. How can a problem in one body system cause a cascade effect on multiple body systems? Use Anna as an example to illustrate your response.