



## Human Body Systems Project By Eva McLanahan

Students will work in groups to research one of the eleven body systems as found in *Holt, Rinehart, and Winston Modern Biology* (2002). Research will focus on the structure and function of the major organs in the assigned body system. Each group will be responsible for a visual aid to be used in a presentation to the class. In addition, each individual in a group will be responsible for researching and presenting information on one disease associated with their assigned body system.

### Primary Learning Outcomes

- Students will be able to name the eleven human body systems and their functions.
- Students will be able to identify the organs and structural parts present in each system (i.e. circulatory: heart, arteries, veins, and capillaries).
- Students will be able to describe the basic structure of the major organs in each system.
- Students will recognize different diseases associated with the body systems.

### Additional Learning Outcomes

Students will enhance their research and presentation capabilities.

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### Assessed Georgia Performance Standards:

#### Habits of Mind

SCSh6. Students will communicate scientific investigations and information clearly.

#### The Nature of Science

SCSh9. Students will enhance reading in all curriculum areas

#### Co-Requisite – Content

**SB1. Students will analyze the nature of the relationships between structures and functions in living cells.**

- a. Explain the role of cell organelles for both prokaryotic and eukaryotic cells, including the cell membrane, in maintaining homeostasis and cell reproduction.

**SB2. Students will analyze how biological traits are passed on to successive generations.**

- a. Distinguish between DNA and RNA.
- b. Explain the role of DNA in storing and transmitting cellular information.

**SB3. Students will derive the relationship between single-celled and multi-celled organisms and the increasing complexity of systems.**

- a. Relate the complexity and organization of organisms to their ability for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain the organism.

**SB4. Students will assess the dependence of all organisms on one another and the flow of energy and matter within their ecosystems.**

- f. Relate animal adaptations, including behaviors, to the ability to survive stressful environmental conditions.

## Procedures/Activities

*Step: 1 Duration: 10-15 minutes*

Form groups and assign body system.

### Attachments for Step 1

**Title:** Human Body Systems Project Handout (page 3 of this file)

**Description:** Student handout for human body systems project.

*Step: 2 Duration: Varies (three 90 minute class periods)*

Students conduct research on assigned body system and chosen associated disease. Research can be conducted in the library or on the internet.

*Step: 3 Duration: Varies (two 90 minute class periods)*

Groups present the final stage of their project using at least one visual aid. All students will complete a chart on each body system while listening to the presentations.

### Attachments for Step 3

**Title:** Presentation Rubric (page 7 of this file)

**Description:** Grading rubric for the oral presentation.

**Title:** Body systems chart (pages 4-5 of this file; sample key on page 6)

**Description:** Chart for students to complete while listening to presentations.

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## Materials and Equipment

Reference material, poster board or butcher paper, pencils, markers, color pencils

## Total Duration

1 week (five 90 minute class periods)

## Technology Connection

Internet research, potential use of PowerPoint presentations as visual rather than poster board or butcher paper

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## Assessment

Presentation skills, presentation content, completion of body systems chart, quiz

## Human Body Systems Project

### Objectives:

- Students will be able to name the eleven human body systems and their functions.
- Students will be able to identify the organs and structural parts present in each system (i.e. circulatory: heart, arteries, veins, and capillaries).
- Students will be able to describe the basic structure of the major organs in each system.
- Students will enhance their research and presentation skills.

### Requirements:

- Work in groups of 3-4 to research an assigned body system, create a visual aid, and present information to the class. Information presented during the presentation will be used to fill in a chart that will be used as a study guide for the test.
- What to research for your assigned body system:
  - List and explain the *functions of the organ system*.
  - Identify the *major organs and their functions*.
  - Describe the *basic structure of at least one major organ* in assigned body system (i.e. lungs: bronchi, bronchioles, and alveoli).
  - *Each member must describe a disease associated with their body system.*
    - Name of disease
    - Description of disease/mode of action
- Visual Aid:
  - Title
  - Outline of body
  - Diagram of major organs in anatomically correct locations
  - Labels on major organs
  - Neat, easy to understand, colorful, **creative**
- Presentation:
  - Present all required information (see above).
  - Organized and easy to follow.
  - All group members participate equally in the presentation.
  - Spoken clearly and eye contact with audience.

<b>Grading</b>	<b>Points</b>
Individual participation in research and presentation	20
Group works together well and completes assigned tasks on time (not disruptive to other groups)	25
All required information is presented to the class	45
Presentation	10
	100



<b>System</b>	<b>Major Structures</b>	<b>Functions</b>	<b>Associated Diseases</b>



System	Major Structures	Functions	Associated Diseases

## KEY Human Body Systems KEY



<b>System</b>	<b>Major Structures</b>	<b>Functions</b>	<b>Associated Diseases</b>
Skeletal	bones	provides structure; supports and protects internal organs	Answers will vary
Muscular	muscles (skeletal, cardiac, smooth)	provides structure; supports and moves trunk and limbs; moves substances through body	
Integumentary	Skin, hair, nails	protects against pathogens; helps regulate body temperature	
Cardiovascular	heart, blood vessels, blood	transports nutrients and wastes to and from all body tissues	
Respiratory	air passages, lungs	carries air into and out of lungs, where gases (oxygen and carbon dioxide) are exchanged	
Immune	lymph nodes and vessels, white blood cells	provides protection against infection and disease	
Digestive	mouth, esophagus, stomach, liver, pancreas, small and large intestines	stores and digests food; absorbs nutrients; eliminates waste	
Excretory	kidneys, ureters, bladder, urethra, skin, lungs	eliminates waste; maintains water and chemical balance	
Nervous	brain, spinal cord, nerves, sense organs, receptors	controls and coordinates body movements and senses; controls consciousness and creativity; helps monitor and maintain other body systems	
Endocrine	glands (i.e. adrenal, thyroid, and pancreas), hypothalamus	maintains homeostasis; regulates metabolism, water and mineral balance, growth and sexual development, and reproduction	
Reproductive	ovaries, uterus, mammary glands (in females), testes (in males)	produces ova and milk in females, sperm in males, and offspring after fertilization	

## BODY SYSTEMS PRESENTATION RUBRIC

Name and disease \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

	<b>EXCELLENT (4)</b>	<b>GOOD (3)</b>	<b>FAIR (2)</b>	<b>POOR (1)</b>
<b>CONTENT</b>	All required information is presented.	Most of the required information is presented.	Some of the required information is presented.	Hardly any required information is presented.
<b>ORGANIZATION</b>	Presentation is well organized and easy to follow. Transition between topics is smooth.	Presentation is organized and easy to follow but transition between topics is not smooth.	Presentation is somewhat organized but hard to follow.	Presentation is very unorganized and difficult to follow.
<b>EYE CONTACT</b>	Eye contact is made throughout the entire presentation. No part of the presentation is read.	Eye contact is made throughout most of the presentation. Some of the presentation is read.	Eye contact is made only during some of the presentation. Most of the presentation is read.	No eye contact is made throughout the entire presentation and all of it is read.
<b>VISUAL AID</b>	Visual aid is creative, colorful, easy to read, and used effectively.	Visual aid is colorful, readable and used somewhat effectively.	Visual aid is lacking color, difficult to read, and not used effectively.	Visual aid is not used at all in the presentation.
<b>VOICE</b>	Presentation is loud and given at a slow pace that's easy to follow.	Presentation is audible and given at a good pace.	Presentation is barely audible and given at a fast pace.	Presentation is inaudible and given at a pace too fast to follow.
<b>INDIVIDUAL PARTICIPATION</b>	Individual participated and worked well in his/her group	Individual participated but did not work well in the group	Individual did not present information on topic, but did work well in group	Individual did not participate and did not work well in the group

TOTAL POINTS = \_\_\_\_\_ X 5 = \_\_\_\_\_

COMMENTS: