Cardiovascular System/Blood Disorders
Most of the students we teach are healthy. This module allows the students to see how the human body reacts to conditions that change normal body functions. Students will also learn about the treatments that are available if the body cannot handle those changes. Teachers should select from the resources and articles included in this module; to complete the unit in the time frame used for this lesson, they should not use every article and website.

Grades: 11 12

Discipline: Science

Teaching Task: Task Template 11 (Informational or Explanatory and Definition)

Course: Human Anatomy and Physiology

Author Information:
Holly Scott (Effingham County)
Charlotte Davis (Lowndes County)
Nicole Page (Houston County)
Section 1: What Task?

TEACHING TASK

Task Template 11 — [2 Levels]  
Informational & Definition

L1: After researching medical websites and the Hole's Human Anatomy and Physiology textbook on the cardiovascular system and blood, write a medical informational pamphlet that defines healthy blood and explains three blood disorders, including one genetic blood disorder, and their treatments. Support your discussion with evidence from your research.

STUDENT BACKGROUND

Students will be introduced to how the blood flows through the body and blood disorders while covering the cardiovascular system and blood. SAP1. Students will analyze anatomical structures in relationship to their physiological functions. a. Apply correct terminology when explaining the orientation of body parts and regions. b. Investigate the interdependence of the various body systems to each other and to the body as a whole. c. Explain the role of homeostasis and its mechanisms as these relate to the body as a whole and predict the consequences of the failure to maintain homeostasis. SAP4. Students will analyze the physical, chemical, and biological properties of process systems as these relate to transportation, absorption and excretion, including the cardiovascular, respiratory, digestive, excretory and immune systems. d. Examine various conditions that change normal body functions (e.g. tissue rejection, allergies, injury, diseases and disorders) and how the body responds.

EXTENSION

Students will include a summary of the importance of the cardiovascular system and a diagram of how the blood flows through the body as an introduction in their pamphlet.
<table>
<thead>
<tr>
<th>Scoring Elements</th>
<th>Not Yet</th>
<th>Approaches Expectations</th>
<th>Meets Expectations</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>Attempts to address prompt, but lacks focus or is off-task.</td>
<td>Addresses prompt appropriately, but with a weak or uneven focus.</td>
<td>Addresses prompt appropriately and maintains a clear, steady focus.</td>
<td>Addresses all aspects of prompt appropriately and maintains a strongly developed focus.</td>
</tr>
<tr>
<td>Controlling Idea</td>
<td>Attempts to establish a controlling idea, but lacks a clear purpose.</td>
<td>Establishes a controlling idea with a general purpose.</td>
<td>Establishes a controlling idea with a clear purpose maintained throughout the response.</td>
<td>Establishes a strong controlling idea with a clear purpose maintained throughout the response.</td>
</tr>
<tr>
<td>Reading/Research</td>
<td>Attempts to present information in response to the prompt, but lacks connections or relevance to the purpose of the prompt. (L2) Does not address the credibility of sources as prompted.</td>
<td>Presents information from reading materials relevant to the purpose of the prompt with minor lapses in accuracy or completeness. (L2) Begins to address the credibility of sources when prompted.</td>
<td>Presents information from reading materials relevant to the prompt with accuracy and sufficient detail. (L2) Addresses the credibility of sources when prompted.</td>
<td>Accurately presents information relevant to all parts of the prompt with effective selection of sources and details from reading materials. (L2) Addresses the credibility of sources and identifies salient sources when prompted.</td>
</tr>
<tr>
<td>Development</td>
<td>Attempts to provide details in response to the prompt, including retelling, but lacks sufficient development or relevancy. (L2) Implication is missing, irrelevant, or illogical. (L3) Gap/unanswered question is missing or irrelevant.</td>
<td>Presents appropriate details to support the focus and controlling idea. (L2) Briefly notes a relevant implication or (L3) a relevant gap/unanswered question.</td>
<td>Presents appropriate and sufficient details to support the focus and controlling idea. (L2) Explains relevant and plausible implications, and (L3) a relevant gap/unanswered question.</td>
<td>Presents thorough and detailed information to strongly support the focus and controlling idea. (L2) Thoroughly discusses relevant and salient implications or consequences, and (L3) one or more significant gaps/unanswered questions.</td>
</tr>
<tr>
<td>Organization</td>
<td>Attempts to organize ideas, but lacks control of structure.</td>
<td>Uses an appropriate organizational structure to address the specific requirements of the prompt, with some lapses in coherence or awkward use of the organizational structure.</td>
<td>Maintains an appropriate organizational structure to address the specific requirements of the prompt.</td>
<td>Maintains an organizational structure that intentionally and effectively enhances the presentation of information as required by the specific prompt.</td>
</tr>
<tr>
<td>Conventions</td>
<td>Content Understanding</td>
<td></td>
<td></td>
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<tr>
<td>-------------</td>
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</tr>
<tr>
<td>Attempts to demonstrate standard English conventions, but lacks cohesion and control of grammar, usage, and mechanics. Sources are used without citation.</td>
<td>Attempts to include disciplinary content in explanations, but understanding of content is weak; content is irrelevant, inappropriate, or inaccurate.</td>
<td></td>
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</tr>
<tr>
<td>Demonstrates an uneven command of standard English conventions and cohesion. Uses language and tone with some inaccurate, inappropriate, or uneven features. Inconsistently cites sources.</td>
<td>Briefly notes disciplinary content relevant to the prompt; shows basic or uneven understanding of content; minor errors in explanation.</td>
<td></td>
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</tr>
<tr>
<td>Demonstrates a command of standard English conventions and cohesion, with few errors. Response includes language and tone appropriate to the audience, purpose, and specific requirements of the prompt. Cites sources using an appropriate format with only minor errors.</td>
<td>Accurately presents disciplinary content relevant to the prompt with sufficient explanations that demonstrate understanding.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates and maintains a well-developed command of standard English conventions and cohesion, with few errors. Response includes language and tone consistently appropriate to the audience, purpose, and specific requirements of the prompt. Consistently cites sources using appropriate format.</td>
<td>Integrates relevant and accurate disciplinary content with thorough explanations that demonstrate in-depth understanding.</td>
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</tr>
</tbody>
</table>
## Anchor Standards — Reading

**R.CCR.1:** Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

**R.CCR.2:** Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

**R.CCR.4:** Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

**R.CCR.6:** Assess how point of view or purpose shapes the content and style of a text.

**R.CCR.10:** Read and comprehend complex literary and informational texts independently and proficiently.

## Anchor Standards — Writing

**W.CCR.2:** Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

**W.CCR.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

**W.CCR.5:** Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

**W.CCR.9:** Draw evidence from literary or informational texts to support analysis, reflection, and research.

**W.CCR.10:** Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

## Custom Standards

**GEORGIA HUMAN ANATOMY SAP1.:** Students will analyze anatomical structures in
relationship to their physiological functions. a. Apply correct terminology when explaining the orientation of body parts and regions; b. investigate the interdependence of the various body systems to each other and to the body as a whole.

**GEORGIA HUMAN ANATOMY SAP4.** Students will analyze the physical, chemical, and biological properties of process systems such as these relate to transportation, absorption, and excretion, including the cardiovascular, respiratory, digestive, excretory, and immune systems. d. Examine various conditions that change normal body functions and how the body responds.
Section 2: What Skills?

<table>
<thead>
<tr>
<th>Selected Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preparing for the Task</strong></td>
</tr>
<tr>
<td><strong>TASK ENGAGEMENT:</strong> Ability to connect the task and new content to existing knowledge, skills, experiences, interests, and concerns</td>
</tr>
<tr>
<td><strong>TASK ANALYSIS:</strong> Ability to understand and explain the task's prompt and rubric.</td>
</tr>
<tr>
<td><strong>Reading Process</strong></td>
</tr>
<tr>
<td><strong>ACTIVE READING:</strong> Ability to identify the central point and main supporting elements of a text.</td>
</tr>
<tr>
<td><strong>ESSENTIAL VOCABULARY:</strong> Ability to apply strategies for developing an understanding of text(s) by locating words and phrases that identify key concepts and facts, or information.</td>
</tr>
<tr>
<td><strong>ACADEMIC INTEGRITY:</strong> Ability to use and credit sources appropriately.</td>
</tr>
<tr>
<td><strong>NOTE-TAKING:</strong> Ability to read purposefully and select relevant information; to summarize and/or paraphrase.</td>
</tr>
<tr>
<td><strong>Transition to Writing</strong></td>
</tr>
<tr>
<td><strong>BRIDGING:</strong> Ability to begin linking reading results to writing task.</td>
</tr>
<tr>
<td><strong>Writing Process</strong></td>
</tr>
<tr>
<td><strong>PLANNING:</strong> Ability to develop a line of thought and text structure appropriate to an information/explanation task.</td>
</tr>
<tr>
<td><strong>DEVELOPMENT:</strong> Ability to construct an initial draft with an emerging line of thought and structure.</td>
</tr>
<tr>
<td><strong>REVISION:</strong> Ability to refine text, including line of thought, language usage, and tone as appropriate to audience and purpose.</td>
</tr>
<tr>
<td><strong>EDITING:</strong> Ability to proofread and format a piece to make it more effective.</td>
</tr>
<tr>
<td><strong>COMPLETION:</strong> Ability to submit final piece that meets expectations.</td>
</tr>
</tbody>
</table>
Section 3: What Instruction?

MiniTasks

Preparing for the Task

TASK ENGAGEMENT: Ability to connect the task and new content to existing knowledge, skills, experiences, interests, and concerns

LIST
In a quick write, write your first reaction to the task prompt. Add some notes of things you know about this issue.

Scoring Guide: work meets expectations if:
students complete three-column charts and participate in the discussion.

Teaching Strategies:
• Link the task to earlier class content by having students complete three-column charts.
• Discuss what students already know, what they are responsible for doing, and what they still need to know.
• Clarify the timetable and support plans for the task.

TASK ANALYSIS: Ability to understand and explain the task's prompt and rubric.

LIST
In your own words, what are the important features of an informational pamphlet that you might find in a doctor's office?

Scoring Guide: work meets expectations if:
students write their individual features on the graffiti chart.

Teaching Strategies:
• Share examples of medical informational pamphlets from local doctors’ offices.
• Invite students to identify key features of the pamphlet examples and list the key features.
• Pair students to share and improve their individual features by using graffiti.
• Have groups move around the room to study the graffiti charts. Create a classroom list by discussing features on the charts that seem most important.
**Reading Process**

**ACTIVE READING:** Ability to identify the central point and main supporting elements of a text.

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**SHORT CONSTRUCTED RESPONSE**
What information from the teacher-provided articles be included in a medical informational pamphlet?

**Scoring Guide:** work meets expectations if:
- Answers questions with credible response.

**Teaching Strategies:**
* Using the teacher provided articles, have students highlight appropriate information to include in the introduction of the pamphlet.
* Invite students to share and discuss the information they selected from each article.

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**ESSENTIAL VOCABULARY:** Ability to apply strategies for developing an understanding of text(s) by locating words and phrases that identify key concepts and facts, or information.

Students will work in groups to list words essential to the texts. Add definitions if appropriate.

**Scoring Guide:** work meets expectations if:
- Lists appropriate phrases. * Provides accurate definitions.

**Teaching Strategies:**
* Have students work in groups to list vocabulary terms that are essential to the articles on sticky notes. Have the students post their sticky notes to create two separate word walls for the articles. As a class, go through the terms and define them using the context clues from the articles.

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**ACADEMIC INTEGRITY:** Ability to use and credit sources appropriately.

**SHORT CONSTRUCTED RESPONSE**
Define "plagiarism" and list ways to avoid it.

**Scoring Guide:** work meets expectations if:
- Provides accurate definition * Lists several appropriate strategies.
Teaching Strategies:
• Discuss respect for others’ work when creating the pamphlet.

NOTE-TAKING: Ability to read purposefully and select relevant information; to summarize and/or paraphrase.

NOTES
From each article, make a list of the elements that look like the most important features for answering the prompt. Do what you need to do to avoid plagiarism. *

Scoring Guide: work meets expectations if:
• Identifies relevant elements. * Includes information to support accurate citation (for example, page numbers for a long text, clear indication when quoting directly.

Teaching Strategies:
• Provide different sample formats for note-taking.
• Check that early student work (from active reading) is in a format that gathers the needed information effectively.

Transition to Writing

BRIDGING: Ability to begin linking reading results to writing task.

LIST
In a quick write, write about what you know now that you’ve read about the cardiovascular system.

Scoring Guide: work meets expectations if:
students complete their 3-2-1.

Teaching Strategies:
• Have students complete a 3-2-1. They will write about 3 new facts they learned from the articles, 2 points that they will include in their pamphlets, and 1 area needing clarification.
• Have student volunteers share their 3-2-1. Use the points needing clarification to allow students to fill in missing information for one another or for the teacher to clarify misconceptions.
Writing Process

PLANNING: Ability to develop a line of thought and text structure appropriate to an information/explanation task.

OUTLINE
Create a pamphlet layout based on examples of pamphlets from local doctors' offices. Your layout must include all aspects of the task and its extension.

Scoring Guide: work meets expectations if:
• Creates a pamphlet layout. * The layout clearly includes categories that will incorporate evidence from the assigned texts.

Teaching Strategies:
• Allow students to work in groups to generate ideas for the layout of the blood disorders pamphlet.
• Support for Struggling Students: Work together as a class to generate a layout that the students may use.

DEVELOPMENT: Ability to construct an initial draft with an emerging line of thought and structure.

LONG CONSTRUCTED RESPONSE
Write an initial draft complete with opening, development, and closing; insert and cite textual evidence.

Scoring Guide: work meets expectations if:
• Provides complete draft with all parts. * Supports the opening in the later sections with evidence and citations.

Teaching Strategies:
• In the computer lab, students will complete an initial draft of their pamphlet on a hard copy template that is provided for them. Students should use information collected from the reading material (textbook, articles, and links).
• Students will be encouraged to re-read the prompt partway through writing to check that they are on track.

REVISION: Ability to refine text, including line of thought, language usage, and tone as appropriate to audience and purpose.
LONG CONSTRUCTED RESPONSE
Refine composition's analysis, logic, and organization of ideas/points. Use textual evidence carefully, with accurate citations. Decide what to include and what not to include.

Scoring Guide: work meets expectations if:
• Provides complete draft (on computer template) with all parts. * Supports the opening in the later sections with evidence and citations. * Improves earlier edition.

Teaching Strategies:
• Model useful feedback that balances support for strengths and clarity about weaknesses.
• Students will be placed in groups of three to provide each other with feedback on those issues.

EDITING: Ability to proofread and format a piece to make it more effective.

LONG CONSTRUCTED RESPONSE
Revise draft to have sound spelling, capitalization, punctuation, and grammar. Adjust formatting as needed to provide clear, appealing text.

Scoring Guide: work meets expectations if:
• Provides draft free from distracting surface errors. * Uses format that supports purpose.

Teaching Strategies:
• Briefly review selected skills that many students need to improve.
• Review a short list of proofreading marks that are used in English classes and provide a handout that the students can use when proofreading.
• Students will be placed into their previous groups to proofread each other's texts a second time.

COMPLETION: Ability to submit final piece that meets expectations.

LONG CONSTRUCTED RESPONSE
Turn in your complete set of drafts, plus the final version of your piece

Scoring Guide: work meets expectations if:
• Fits the “Meets Expectations” category in the rubric for the teaching task.
**Teaching Strategies:**

- Students will turn in their final piece before the unit test.
Resources

Selected Articles

**THE SUPER CELL.**
(http://modulecreator.com/ModuleCreator/#page=login&moduleId=139&scrollTo=articles)
Discover (Nov2009)—Lenzer, Jeanne
The article discusses stem cell treatments for cancer, blood diseases, and immune disorders. An example is given of U.S. teenager Paizley Carwell-Bowen who has sickle-cell anemia. Bowen had a stroke when she was 6-years old and was not expected to live past her eighteenth birthday. Topics include how a bone marrow transplant changed Bowen's life, the benefits of stem cell therapies, and a historical overview of embryonic stem cell research in the U.S.

**Blood disorder cured -- a first for gene therapy.**
(http://modulecreator.com/ModuleCreator/#page=login&moduleId=139&scrollTo=articles)
New Scientist (9/18/2010)—Coghlan, Andy
The article discusses a report in an issue of "Nature," by researchers at the University of Paris, France, and Harvard Medical School in Boston, who have cured a blood disorder called beta-thalassaemia through gene therapy. Topics include an overview of the dangers of gene therapy, such as the cell transfer of viral genes that could activate oncogenes, and the activation of the gene HMGA2 during the treatment of beta-thalassaemia.

**Please Pass the....**
(http://modulecreator.com/ModuleCreator/#page=login&moduleId=139&scrollTo=articles)
American Fitness (Jan/Feb2011)—SAMPLES, EVANGELINE YVONNE
The article discusses health issues related to sodium in one's diet. Information is presented on the role of sodium in the development of hypertension and in future cardiovascular diseases. It relates the high sodium content of processed foods such as canned soups, frozen meals and processed meats. Examples of condiments with high sodium content are ketchup, gravy and French dressing.

**Pediatric Pressure.**
(http://modulecreator.com/ModuleCreator/#page=login&moduleId=139&scrollTo=articles)
Time (5/17/2004)—Gorman, Christine
Discusses how blood-pressure rates among children across the U.S. have increased according to a report from the 'Journal of the American Medical Association.' Likelihood that children with high blood pressure will develop heart disease and stroke as adults; Treatment of hypertension in younger patients with lifestyle changes such as weight loss and an increase in physical activity; Findings that caffeine may increase blood pressure in African
Americans; Effect of beta-blockers and diuretics on children.

## Uploaded Files

1. **Pamphlet Layout Computer Directions.doc**
   - [Link](http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/139/857596678_May_30_2012_222543218.doc)
   - Computer instructions for the pamphlet with layout. This layout was created by the class.

2. **Hard Copy of Pamphlet for Student Planning.doc**
   - [Link](http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/139/1664819599_May_30_2012_222650688.doc)
   - Hard copy of pamphlet layout for students to use during development. The layout was created as a class.

## Keywords

## Links*

1. **A Body Basics Article: Heart and Circulatory System (1170L)**
   - [Link](http://kidshealth.org/parent/general/body_basics/heart.html)
   - The article defines the function of the heart and cardiovascular system as well as the problems that can occur.

2. **American Society of Hematology (1510L)**
   - [Link](http://www.hematology.org/Patients/)
   - The site gives information on blood basics and blood disorders.

3. **The National Institute of Health (N/A)**
   - [Link](http://www.nih.gov/)
   - Provides wealth of health information including information on blood disorders.

4. **Mayo Clinic (240L)**
   - [Link](http://www.mayoclinic.com/)
   - Provides health information on hundreds of conditions.

5. **Centers for Disease Control and Prevention (780L)**
   - [Link](http://www.cdc.gov/)
   - Provides a link to connect students to information about blood disorders.
<table>
<thead>
<tr>
<th><strong>Other Resources</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hole's Human Anatomy and Physiology Textbook</td>
</tr>
<tr>
<td>Chapters 14 and 15, which cover the cardiovascular system and blood</td>
</tr>
</tbody>
</table>
Section 4: What Results?

Classroom Assessment Rubric

<table>
<thead>
<tr>
<th>Focus</th>
<th>Not Yet</th>
<th>Meets Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attempts to address prompt but lacks focus or is off-task.</td>
<td>Addresses prompt with a focused response.</td>
<td></td>
</tr>
<tr>
<td>Attempts to present information relevant to prompt.</td>
<td>Presents and applies relevant information with general accuracy.</td>
<td></td>
</tr>
<tr>
<td>Controlling idea is weak and does not establish a purpose and/or address a research question.</td>
<td>Establishes a controlling idea that states the main purpose and/or question for the tasks. L2 Addresses the credibility of sources.</td>
<td></td>
</tr>
<tr>
<td>Tends to retell rather than present information in order to answer questions, solve problems; lacks details to develop topic. *L2 Implications are weak or not relevant to topic. L3 Does not identifies a relevant gap or unanswered question.</td>
<td>Presents sufficient information in order to examine or convey topics or issues, answer questions, solve problems; identifies salient themes or features; explains key information with sufficient detail. *L2 Discusses relevant implications to topic. L3 Identifies a gap or unanswered question.</td>
<td></td>
</tr>
<tr>
<td>Applies an ineffective structure; composition does not address requirements of the prompt.</td>
<td>Applies a generally effective structure to address specific requirements of the prompt.</td>
<td></td>
</tr>
<tr>
<td>Demonstrates a weak command of standard English conventions; lacks cohesion; language and tone are inappropriate to audience and purpose.</td>
<td>Demonstrates a command of standard English conventions and cohesion; employs language and tone appropriate to audience and purpose.</td>
<td></td>
</tr>
</tbody>
</table>

Classroom Assessment Task

After researching medical websites and the Hole’s Human Anatomy and Physiology textbook on the cardiovascular system, write a medical informational pamphlet that defines healthy blood and explains three blood diseases including one genetic blood disorder. Support your discussion with evidence from your research.

Exemplar Work

Uploaded Files

Example of Advanced.doc (Advanced)

Blood Disorder Pamphlet

Example of Meets.doc (Meets Expectations)
### Comments

<table>
<thead>
<tr>
<th>Author Notes</th>
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<table>
<thead>
<tr>
<th>Other Comments</th>
</tr>
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</table>