**A Bone to Pick**

**Subject area/course:** Science, Human Anatomy & Physiology

**Grade level/band**: 11–12

**INSTRUCTOR PROCEDURES**

1. **Task overview**:

Students assume the role of a first-year medical student and write a research paper describing the various aspects of a common disorder of the skeletal system. In the paper, students address issues of system interdependence and ways in which the disorder might impact the function of other body systems.

1. **Prior knowledge required:**

Students should be able to:

* Know the basic functions of the skeletal system.
* Understand the concept of interdependence between body systems.
* Understand the impact of system disorders on homeostasis.
* Use CSE style guidelines for writing in the sciences or another format of your choice.
* Gather information and compose an explanatory work within a topic area.
* Analyze information to formulate conclusions.
1. **Common Core State Standards aligned to this task**:

[CCSS.ELA-Literacy.WHST.11-12.4](http://www.corestandards.org/ELA-Literacy/WHST/11-12/4/) Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

[CCSS.ELA-Literacy.WHST.11-12.5](http://www.corestandards.org/ELA-Literacy/WHST/11-12/5/) Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience

[CCSS.ELA-Literacy.WHST.11-12.8](http://www.corestandards.org/ELA-Literacy/WHST/11-12/8/) Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

[CCSS.ELA-Literacy.RST.11-12.1](http://www.corestandards.org/ELA-Literacy/RST/11-12/1/) Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

[CCSS.ELA-Literacy.RST.11-12.2](http://www.corestandards.org/ELA-Literacy/RST/11-12/2/) Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

[CCSS.ELA-Literacy.RST.11-12.7](http://www.corestandards.org/ELA-Literacy/RST/11-12/7/) Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

[CCSS.ELA-Literacy.RST.11-12.9](http://www.corestandards.org/ELA-Literacy/RST/11-12/9/) Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

1. **Time requirements**:

After the instructional unit on the skeletal system is complete, provide students approximately two weeks to complete the assignment. You will want to emphasize the idea of interdependence and synchronization of homeostasis during your coverage of the skeletal system.

1. **Instructor materials to use during administration**:
* Current Human Anatomy and Physiology text book
* Google Scholar
* Examples of citing works using CSE style: http://www.pc.maricopa.edu/departments/library/guides/cse\_examples.pdf
1. **Instructor procedures during administration**:
* Students should work independently throughout the task.
* Many students may not know how to perform a search of academic sources and journals. Therefore, you may want to dedicate some class time to providing a tutorial.
* As this type of research project may be daunting for some students, it would be valuable to have them submit a rough draft so that you can provide input on their progress.
1. **Student support:**

The following suggestions are examples of scaffolding that can be used to meet the diverse student needs within the classroom.

* Provide class time for research on students’ topics.
* Provide definitions of new vocabulary words ahead of time.
* For the final product, all learners will benefit from peer assistance while brainstorming their topics, as well as a peer- or teacher-edit of their papers before final submission.
* Some students will have good research skills, but some will need guidance in the determination of appropriate sources and where to look for them. It is important to spend class time in review of what constitutes an appropriate source in advance of students’ independent work time.
1. **Extensions or variations:**
* Students could present the results of their research to the class via an oral or multi-media presentation.
* A panel could be organized where students share the topics they chose and discuss the similarities and differences.
1. **Scoring and assessment considerations:**

EPIC developed the *College and Career Ready (CCR) Task Bank Scoring Rubric* to accompany this task. If your school or department uses a standardized rubric that would fit the content and requirements of this task, you may choose to use your existing rubric. The following notes and suggestions are meant to clarify the intent of the rubric and include considerations for the assessment of student work.

* When assigning the task, provide students with the rubric that will be used to score their final product and discuss it as a class.
* Unlike some rubrics, the *CCR Task Bank Rubric* does not predetermine “point values” for the scoring criteria. The rubric thus allows for flexibility with different instructors’ scoring systems and individual determination of the “weight” of each criterion.
* Student work that scores at the *Accomplished* level is considered to be entry-level college work.
* The *Exceeds* category on the rubric provides an example of how a student can go above and beyond the *Accomplished* level. These examples are intended to be only ONE way a work product can exceed expectations, thus allowing room for your professional judgment.
* If needed, consider including task-specific criteria as an additional scoring category to the rubric or providing a checklist of requirements for the task.