

Megan Reed MIDTERM: Phase 1 of Major Project
OLS assignment due 9/24

Phase I – Research and Planning – Due Date: Midterm

1. Identify the “Big” concept to be covered by the engineering design challenge.
 - The big concept will be for students to design a skeleton for a differently-shaped creature (perhaps a Minecraft sheep or Pokemon - something they are familiar with)
2. Research appropriate learning standards associated with the topic.
 - MS-LS1-1: Conduct an investigation to provide evidence that living things are made of cells or many different types of cells
 - MS-LS1-2: Develop and use a model to describe the function of a cell as a whole and ways cells contribute to the function of the organism
3. Identify and discuss the different types of problem solving and declarative/procedure knowledge needed.
 - Declarative knowledge: Students will apply their knowledge of cellular levels of organization to demonstrate that groups of bone cells (osteocytes) comprise bone tissue, which composes bone and a skeletal framework/system that serves to provide structure support for an organism. This relates to a multicellular organism’s ability to carry out life processes such as growth & development, response to stimuli, and movement.
 - Procedural knowledge: Students will engage in discussion and brainstorming, modeling, and prototyping. Parameters will be set so that success can be measured (materials and weight constraints).
4. Explore objectives and ancillary concepts/content covered by the project.
 - Students will research features of different skeletons and what makes these skeletons useful for particular organisms.
 - Students will be able to document their process and progress in an engineering notebook
5. Identify possible activities.
 - After prototypes are built, we can test the maximum weight each skeleton can hold
 - A mock symposium can be held in the classroom, where each design team communicates their results
6. Select the best activity for your classroom.
 - I need to find appropriate resources so that students can gather background information on various skeleton types
 - I’d like to design a pamphlet-style “Engineering Notebook” for the students to use to document their process; based on the engineering notebook template provided

