

**Unit of Study:** Body Systems, Chemistry, Adaptations

**Classroom:** Biology, Physiology

**Number of Students:** whole class

**Grade Level:** 7-12

**1. Teacher Objectives:**

**Major Curricular Concept:**

Design, analyze and make conclusions based on the data collected regarding different prosthetic material options.

**STEM Applications:**

Science= medical advancements and medical technology

Technology and engineering= set up and execute experiment

Math= collection of and analysis of data

**Common Core or Standards' Reference:**

**Grades 6-8 Reading: Science & Technical Subjects**

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.

RST.6-8.1. Cite specific textual evidence to support analysis of science and technical texts.

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

RST.6-8.7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

RST.6-8.8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

**CCSS: Literacy in History/Social Studies, Science, & Technical Subjects 6-12 CCSS: Grades 9-10  
Reading: Science & Technical Subjects**

Key Ideas and Details

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.

RST.9-10.1. Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

RST.9-10.7. Translate quantitative or technical information expressed in words in a text into visual form

(e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

RST.9-10.8. Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.

**What students will know/understand and be able to do as a result of the lesson:**

Students will practice scientific methodologies, lab safety, design

Student will know the workings behind prosthetics and technologies used to manufacture and test them

Students will strengthen their scientific literacy

**2. Class activity:**

Students can complete experimentation of prosthetics through a variety of the following options:

- Background research through literature
- Measurement of dimensions and weight of different prosthetic materials
- Describe and categorize chemical and physical properties
- Evaluate environmental conditions on prosthetics (UV, water, tensile strength, salt, etc.)

\* This can be modified to be teacher directed or student centered

**3. Materials:**

- Prosthetic sample materials (possible donations)
- Ultraviolet lights
- Other engineered tools

**4. Other Factors:**

**5. Observation Notes regarding objectives:**

Teacher may observe students during process for possible opportunities for formative assessment

**6. Other Comments (regarding expected Outcomes):**

Does the body reject corrosive materials?

What prosthetic materials are best for different parts of the body?

**7. How will student success be measured?**

An argumentative response assignment using the data they obtained from the experiment towards either a hypothetical doctor or patient that may be evaluating an option