



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
2019 Volume III: Human Centered Design of Biotechnology

Prototyping Projects: A Hands-On Approach to Understanding Injuries to the Human Body's Largest Organ Through the Design Thinking Process

Guide for Curriculum Unit 19.03.04
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Through this unit, 7th grade students will use the engineering design thinking process to create a prototype for a solution to an injury to the integumentary system. Students will begin by learning about healthy, functional skin and then learn about two major injuries to skin: burns and skin cancer. Following their research on healthy and injured skin, students will walk through the steps of the design process to create a prototype of a solution to the problem. At the end of the unit, students will present their work and findings. This unit was designed for 7th graders but can be adapted for students in 6th through 12th grade.

The unit is framed around the engineering design process to intentionally bring an interactive approach to learning which emphasizes the importance of the process to finding answers to problems, rather than simply the outcome. At the middle school stage of their academic career, many students are often simply asking questions to directly learn the answers, rather than valuing the process of discovering the solution. Through this unit, students will become equipped with problem-solving skills that will shape their thinking in and outside of the classroom. This unit is designed with hopes of engaging students in a new way of thinking by pushing creativity, inquiry, and inspiring students to value the process of discovering solutions.

(Developed for Science, grade 7; recommended for Science, Middle School grades)

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