

Situation

Experiment with biomedical engineering principles!

Problem & Career Focus

Getting a large cut or a burn on the body is never fun. Large cuts can lead to more blood loss, which can cause serious problems for a patient. In a normal accident, seconds can make all the difference. If a normal bandage will not help prevent blood loss in a serious situation, can you use the engineering design process to build a better bandage? As a biomedical engineer, your job is to create solutions to problems within the medical professions that pediatricians, nurse practitioners, epidemiologists and other healthcare providers can use if a serious trauma should arise! Can you build a better bandage that would stop a large amount of blood loss?

Things to Consider

1. What is the process to stop a cut from bleeding?
2. How are typical bandages constructed, and what materials are used in them?



STEM Ahoy! Build A Better Bandage Engineering Design Challenge

Criteria:

Create a new "bandage" to be used in a trauma situation!

Constraints:

- * Use materials as directed
- * Work as a family engineering team!
- * Create your own criteria!

Materials:

- Suggested Items:
- * Red Food Coloring
 - * Eyedropper
 - * Paint tray or low container
 - * Water absorbing crystals
 - * Pipe cleaners
 - * Tape
 - * Medical gauze

Investigating Questions:

How does liquid ("blood") react with a typical bandage?

How can water absorbing crystals change the function of a typical bandage?

What steps of the engineering design process did you use?

Educational Standards Correlations

Language Arts, Engineering, Science, Healthcare, Mathematics