



# The Skeletal System

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# The System

## The Skeletal System Provides:

- ❖ Support for the body and muscles
- ❖ Protection for organs
- ❖ Movement
- ❖ Production of red blood cells

## Our Model Represents:

- ❖ Movement/Support
- ❖ Production of red blood cells



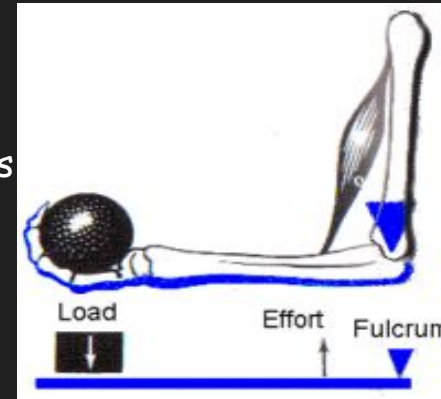
# The Principles Behind Our System

## ❖ How is blood created?

- The kidneys produce and release erythropoietin
  - A hormone that stimulates the bone marrow to produce more red blood cells
- Bone marrow produces and releases more white blood cells in response to infections.

## ❖ How does the human elbow act as a lever?

- The elbow is a third class lever
- The effort of the lever is created by voluntary motion of the tendons and muscles of the upper arm
- The fulcrum is at the joint of the elbow



# What Represents What?

## Red Blood Cell Production

- ❖ Imitated with the chemical reaction of baking soda and vinegar
- ❖ The sponge represents the red bone marrow

## Bones

- ❖ Painted PVC pipe

## Elbow Joint

- ❖ Rubber bands represent ligaments (connects the bones)
- ❖ The painted fluff on the joint is cartilage



# What Is Our Reaction?

- ❖ Red blood cell creation inside the arm is being represented using baking soda and vinegar
- ❖ Baking soda acts as a base and takes a proton from vinegar, AKA an acid
  - Releases gas because the baking soda receives a proton
  - Transforms into water and carbon dioxide



# Ideas And Changes Throughout The Project

- ❖ Using the baking soda and vinegar (with dish soap) was the first idea we had to represent the production of red blood cells, as well as the idea we continue to use
- ❖ Other Ideas
  - Mentos and soda
    - Never tested, we considered it too messy
  - Alka-Seltzer and water
    - Alka-Seltzer didn't give enough of a reaction to be used





Thanks for watching!