Section 1

Understanding Life Systems



How do muscles help us move?

Discover how muscles enable movements.

The muscles in our bodies work together to help us live and move. Some muscles, like our heart, work automatically, while others, such as our arm muscles, can be controlled by us to accomplish different tasks. How do muscles work? Do they all work alone like the heart does? If not, what do they team up with?



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Try this experiment to learn how muscles enable movement.

Steps:



Tie the muscle to the bones. Make sure this string is taut.

Materials:

- 3 paper towel tubes
- a balloon
- 6 straws
- tape
- string
- a hole punch
- a glue gun

Insert the balloon. Make sure the opening is outside the muscle.



Hold the "upper arm" gently. Have a helper blow into the balloon. Observe what happens.



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How do muscles help us move?

You have just created a model of your arm. This includes:

- muscles (the straw structure)
- bones (the paper towel tubes)
- tendons (the string)

Initially, the arm with the deflated balloon was in a relaxed position. When your helper blew into the balloon, the straw structure inflated and shortened. This pulled the string to bend the arm.

This model works the same way as the muscles in your arm. When the muscles in your arm contract, they become shorter. This pulls the tendons and causes the arm to bend.

