



Curiosity Guide #603

Muscular Science

Accompanies Curious Crew, Season 6, Episode 3 (#603)

Acting Actin

Investigation #8

Description

Have fun creating a friendly muscle model!

Materials

- Friends

Procedure

- 1) Have each person stand beside one another, shoulder to shoulder and facing the same way.
- 2) Put your elbows out to your side, your hands in front of your stomach, with one palm up and one palm down.
- 3) Everyone's elbows should remain touching.
- 4) Try to keep elbows touching while everyone slides their hands along their forearms toward their elbows.
- 5) Did you get closer together?
- 6) Can you slowly move your hands back while touching elbows?

My Results

Explanation

Together, the group represents a muscle cell or fiber. Each person is like a sub-unit of the cell, a sarcomere. Our top hands represent the actin and our bottom hands represent the myosin. When the muscle is relaxed the hands would be above one another. When the nerve stimulates the muscle, the actin and myosin pull together and overlap and cause the entire muscle to shrink. That muscle would now be contracted. When the muscle is relaxed, it would stretch out once again.

Think about it. Did you know that 40% of your body weight is muscle? It's true, and there are a lot of fibers in each of those muscle groups, too. With all of that contracting and stretching when you move, your muscles give off a lot of heat. This comes in handy, especially when you're cold. Have you ever begun to shiver without even trying to? This is your body's way of flexing some muscles to generate heat and get warmer. Brrr! Gosh, what a workout!

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