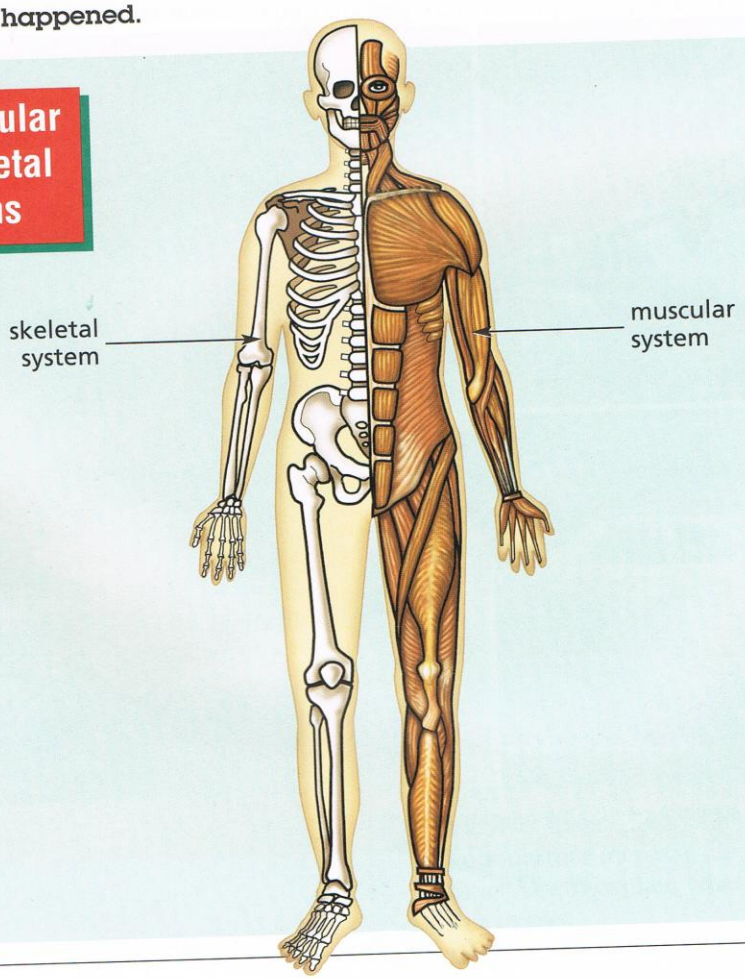
6 Muscles and Bone: Making Us Move

Get Started

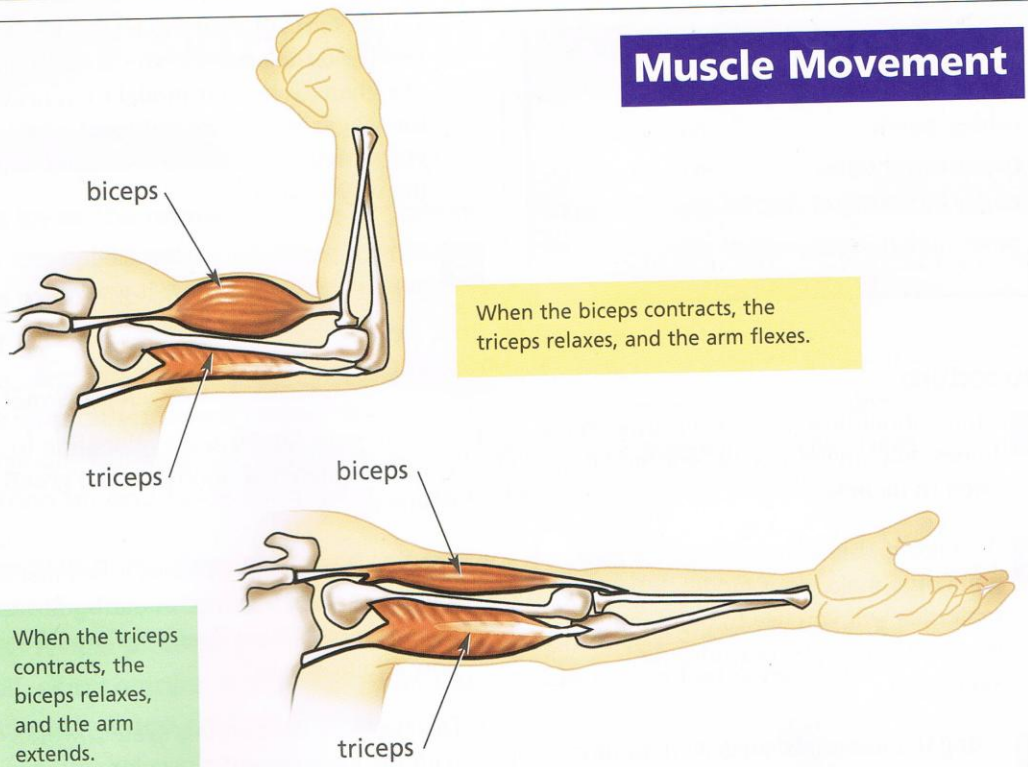
Make a **muscle!** You already know that you can do that because your brain sends a message to your muscle to do it. But what's the point? The point is movement. Muscles and **bones** work together with the nervous system to let us move.

Hold your right arm out straight in front of you with your palm up. Place your left had over your upper arm. Now flex your arm to make a muscle. Did you feel a change in the muscle of your arm? Discuss with a partner what you think happened.

The Muscular and Skeletal Systems



Muscle Movement



Work On It

Your bones form a **skeleton** that holds up your body and gives it a shape. Your muscles are attached to your bones. Your bones and muscles also protect your internal organs. A bone is a living organ. The outside is hard and made of minerals such as calcium. The inside is softer, sometimes containing bone marrow which makes your blood cells.

A **joint** is formed where two bones come together. Your elbow is a joint. Muscles pull on the bones at a joint to cause movement. When you want to move, your brain sends an electrical signal to your muscles and tells them to contract, or shorten. As they contract, they pull on the bones they are attached to and the body part moves. Muscles can only pull, not push, so they often work in pairs. As one muscle contracts, the other relaxes, and you get movement.

Hold a book in front of you and flex, or bend, your arm. Touch the muscles on the front and back of your upper arm. The main muscle in the front of your arm is the **biceps**. The main muscle in the back of your arm is the **triceps**. When you flex your arm, the biceps contracts, and the triceps relaxes. When you extend, or stretch out your arm, the triceps contracts while the biceps relaxes.

In the following activity, you will work with your group to design and make a model of the bones and muscles in the human arm to see how they work together. You will sketch your model, build it, describe it, and demonstrate how it works.

Materials for each group:

- corrugated cardboard
- rubber bands
- paper towel tubes
- paper fasteners
- other materials as needed
- tape
- balloons
- scissors
- pipe cleaners

Procedure

1. Think about how your arm moves. What bones and muscles does your model need to include?

2. As a group, brainstorm ideas for how you could make your model. What materials will you use to build the model? Choose the best idea and sketch it.

3. Using the materials suggested, or any other materials you need, build your model of a human arm.

4. Do the parts of your model work? Can you bend the arm? Do you need to make any changes to your model to improve the way it works? Rebuild and retest your model until you are satisfied with the way it works.

5. Write a paragraph to describe your model and explain how it works.

Communicate

1. Present your model and explanation to your classmates or another small group of students.

2. How does your model show how muscles and bone work together in our bodies to help us move? How does your model show how a joint works?

3. Discuss how the nervous system works with the skeletal and muscular systems to make you move. Can you think of a way to show nerves on your model?

4. Why do we need strong bones?

5. If muscles can only contract, how can the body work to make joints move?

6. Sit in a chair. Lift one leg from the knee so the leg is parallel to the floor. What muscles contract when you do this?

7. Smile and frown. What muscles contract when you do these actions? Are all muscles connected to bones? If you are not sure, do some research to find out.

Build On What You Know

Give some shape to your Body Poster! Add the skeletal and muscular systems.