

What is the Heart?

Introduction: Students learn that the heart is a muscle similar to leg and arm muscles, but it is one that works automatically to pump blood to all parts of a body. They will also recognize that each heartbeat is a pumping action and the faster the heart pumps, the stronger it becomes. This lesson is adapted from a lesson idea on the American Heart Association's website at: <http://www.americanheart.org/presenter.jhtml?identifier=3003094>.

Grade Level and Subject: Kindergarten and 1st Grade Health Education and Science

TEKS: Kindergarten Language Arts: 1A, 1B, 1C, 1D, 3C, 4C
Kindergarten Science: 2A, 2B, 2C, 2D, 2E, 4A, 4B
Kindergarten Health Education: 4B
1st Grade Language Arts: 1A, 1B, 1C, 1D, 3C, 4C
1st Grade Science: 2C, 6B, 7A
1st Grade Health Education: 4B

Materials: "How Muscles Work" activity sheet, round balloons, bicycle pump, empty liquid detergent bottles, kitchen basters, large sheets of red construction paper

Activity

1. Ask children to point to and feel the muscle in their front upper arms (biceps). Have children bend their arms up and down as they feel their biceps. *What do you feel your muscle doing as you move your arm up and down?* (Moving or stretching) Point out that as the arm is moved, the muscle contracts and relaxes. When the muscle contracts, it feels thicker and harder. When it relaxes, it feels thinner and softer.

Can you make your arm muscle get harder (contract) and get softer (relax) anytime you want to? (Yes) Explain that muscles we can control are called *voluntary muscles*. Let children practice contracting and relaxing other voluntary muscles in their bodies. Point out that the more they contract and relax a muscle, the stronger it becomes.

2. Ask children where their hearts are located. Have them place their right hands on their chests, slightly left of the center.

What do you feel? (Children may say they feel a thump.) *What is making that thump?* (The heart) Point out that the thump, or beat, is made by the heart when it contracts, or gets harder. The heart relaxes, or gets softer, between beats.

Can you make the muscles in your face contract, or get harder, and relax, or get softer, whenever you want? (Yes) *Can you make your heart contract and relax whenever you want?* (No) Point out that although the heart is a muscle, it cannot be controlled like the face muscles. Muscles we cannot control are called *involuntary muscles*. They work

automatically. Even though the heart muscle is involuntary, we can make it stronger, too. When we exercise, our hearts beat faster and our hearts get stronger.

Give children the “How Muscles Work” activity sheet. Have them place their own arms in the same position as they see pictured on the page. As they do, have them feel the muscles in their upper arms. Tell children to write a *C* next to the arm muscle that is contracting and an *R* next to the arm muscle that is relaxing. Ask them to explain how they knew which was which. Then tell them to write a *V* next to the picture of the voluntary muscle and an *I* next to the picture of the involuntary muscle. Ask them to explain how they knew which was which.

3. Help children use the bicycle pump and the balloon to demonstrate how a pump works. Push the pump handle several times, and have children feel the air coming out of the pump. Connect the balloon to the bicycle pump. Have a volunteer slowly raise and lower the pump’s handle.

What is happening to the balloon? (It is filling with air.) Explain that when the pump handle is raised, the inside of the pump fills with air. When the pump handle is lowered, the air is pushed out of the pump into the balloon. Point out that the heart works in much the same way. When it relaxes, it fills with blood. When it contracts, it pushes the blood out.

Have children work in small groups of four or five. Give each group a balloon and a kitchen baster, an empty liquid detergent bottle, or other pump. Let each group figure out the best way to attach its balloon to its pump; then practice pushing air into and out of the balloon.

Evaluation: Observe students for participation in the activities. Take up and check the “How Muscles Work” activity sheet.



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