Horizons

Health
Grade 5

Teacher's Guide

CONTENTS

LESSON 4: BUILDING FITNESS

Preparation/Materials

- For making the puzzle:
  Student workbook activity 1
  Piece of cardboard, size desired for puzzle
  Mount the puzzle on a piece of cardboard and cut apart the puzzle pieces.
  Optional: Use a copy machine to enlarge the puzzle to at least 11" x 17".
- Student workbook activity 2
- Student books
- Choose one or more activities for Step 5 and prepare accordingly.

Objectives

- Students will recognize the specific influences of fitness on overall wellness.
- Students will choose to take responsibility for their own physical fitness.

Background

Physical fitness has four basic components: cardiorespiratory endurance, muscle strength, flexibility, and muscle endurance. "Cardiorespiratory endurance is the increasing capacity of the blood vessels, heart, and lungs to receive blood, to deliver nutrients and oxygen, and to remove waste from working muscles. The ability of muscles to develop tightness and move objects is muscular strength. Flexibility involves the ability to move a limb or body segment through a full range of movement. If over a period of time the muscles' ability to keep pushing an object is improving, then muscular endurance is improving" (M. R. CHEP [Michigan Department of Health, 1984], 48).

The benefits of physical fitness are tremendous. When we are physically fit, every body part improves in structure and function. The heart and lungs work more efficiently; the heart moves more blood through the body and the lungs hold more air. The body makes better use of nutrients; bones and muscles become stronger.

Other benefits of fitness include more energy for daily activities, better posture, reduced stress levels, and a more positive mental outlook. Overall physical appearance improves, too, which in turn contributes to a healthy self-image. Social health improves as well.

Another important consideration is this: fit children usually become fit adults (the opposite is probably true as well). The ages 9 to 11 form a crucial period because children are beginning to grow rapidly and form fitness habits that they will keep as adults.

Most schools have physical education programs that introduce students to the components of physical fitness. However, students (and families) should be aware that physical education programs at school can only provide a beginning of fitness. Students must begin to take responsibility for their own fitness and to plan ways to be active and to exercise. They should also become aware that too much time spent watching television or playing computer games is not healthy.

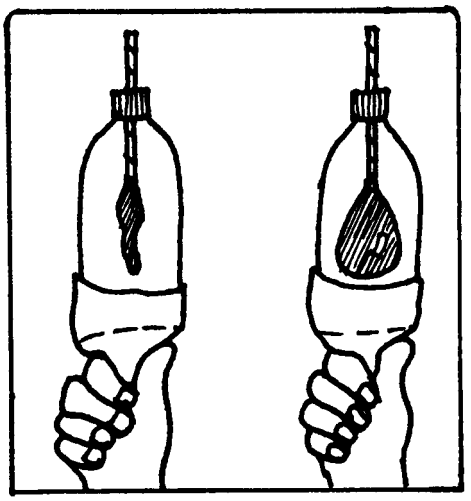
You may wish to consult with the school's physical education teacher in planning this lesson. And if the school's physical education program is very limited, you may wish to consider taking more responsibility for physical fitness and plan to incorporate exercise routines or other fitness activities into the class's daily schedule.

5. **Student workbook activity.** Use the worksheet to assess student learning. Have students fill in the names of parts of the respiratory system and then write a paragraph describing the process of respiration. Another option is to have students fill in the names during the discussion in Step 2.

6. **Closure.** Tell the class that in this unit they will be focusing on ways of keeping their respiratory system healthy. Give them a brief summary of what will be covered and when. If you plan to give students an opportunity at the end of the unit to develop a project, tell them about your plans.

Related Activities

1. Build a model to show how the lungs work. Directions:
   - Cut away the base of a clear, plastic bottle (such as a small soda bottle). Knot one end of a balloon; cut off the other end; stretch the cut end of the balloon over the cut end of the bottle.
   - Take another balloon and pull its end over the end of a drinking straw. Use a small elastic band to hold the balloon in place.
   - Push the straw and balloon into the plastic bottle, with the straw end poking out of the bottle opening.
   - Seal the opening of the bottle around the straw with plasticine.
   - Now push up the balloon that covers the bottom of the bottle. This action corresponds to exhaling. Then pull down on the balloon, an action that corresponds to inhaling. Have students describe what happens and how the parts of the model correspond to parts of the respiratory system.



2. Extend the lesson and research how other living things breathe. Students will be particularly interested in learning how fish use gills instead of lungs for breathing. Create a bulletin board display of air-breathing and water-breathing animals.

3. Study how green plants help renew and clean the air by taking in carbon dioxide and producing oxygen.

LESSON 3: GIVING ARTIFICIAL RESPIRATION

Preparation/Materials

- Invite a resource person to demonstrate techniques.
- Student workbook activities 1 and 2
- Optional: Obtain a poster on artificial respiration from Red Cross or other local health agency.

Objectives

- Students will identify mouth-to-mouth resuscitation as the first aid procedure to use when breathing stops.
- Students will learn how to administer mouth-to-mouth resuscitation.

Background

If at all possible, have a person skilled in administering artificial respiration conduct this lesson. Your school may wish to have at least one staff member complete a CPR training program so that a certified resource person is available (for emergencies as well as for teaching artificial respiration). Your local Red Cross chapter most likely will also be able to provide a person trained in teaching artificial respiration.

For this lesson to be truly helpful students need opportunities to practice artificial respiration. Again, contact local resources. Red Cross chapters and/or local emergency squads will most likely have mannequins for practice. However, inexpensive models with a plastic head attached to a disposable "lung" are also available for purchase (*see* Lesson Resources).

Lesson

1. Have students identify some type of accident in which a person might stop breathing (drowning, breathing in smoke or carbon monoxide, drug overdose, heart attack, stroke, choking on food or other object, electrical shock).

2. Elicit from students signs of breathing problems. Make a list of responses on the board. Add the following signs, if necessary, to complete the list.
   Breathing has a noisy, bubbly sound.
   Breathing is slow.
   Person is pale, grayish-blue.
   Person's chest is not moving up and down.
   No air is heard or felt at the nose or mouth.

3. Introduce the concept of artificial respiration. Ask if students have heard the term "artificial respiration." (Some Red Cross material uses the simpler term "rescue breathing"; CPR, which stands for cardiopulmonary resuscitation, is a combination of chest compressions and mouth-to mouth resuscitation.) Explain or elicit from students that artificial respiration is used to help a person who has stopped breathing. Note that artificial respiration and CPR are techniques that require special training.

LESSON 5: MIGHTY MINERALS

Preparation/Materials

- For testing activity:
  several kinds of fruit juices (good choices: orange, lemon, grapefruit, pineapple, cranberry, or prune juice)
  about one large cup of strong tea
  small glasses, one for each fruit juice
- Student books
- Student workbook comparison cards from Lesson 2
- Markers, colors as desired, class supply
- Materials for creating collages, class supply

Objectives

- Students will identify the function and source of minerals
- Students will compare sources of minerals.

Background

Minerals are nutrients from the earth that occur in small amounts in food and beverages. Several minerals may team up to fulfill a particular function in the body. They are critically essential for the structure of body cells and the regulating of body processes. Minerals build bones, teeth, and blood, and help the body use energy.

It's especially important for young people to get enough calcium and iron. As students start growing rapidly, they need more calcium to form growing bones. During puberty blood volume and muscle mass increases, and as a result, the need for iron also increases. For girls, the beginning of menstruation means additional iron requirements. Without enough iron, anemia may develop.

Lesson

1. Tell students that this lesson is about minerals. See if they can name some minerals. Then explain that they will test some beverages to see if the mineral iron is present. Do this as a demonstration or have student groups conduct their own tests, perhaps each one using one or two kinds of juice.

   Test directions:
   - Pour about one inch of tea into each glass.
   - Add an inch of a different kind of juice to each glass.
   - When iron is present, the tannic acid in the tea combines with the iron to make the mixture cloudy. Those that are clear have little or no iron. Pineapple, prune, and red-colored juices contain more iron than orange, lemon, and grapefruit juices. Compare results. (This activity is adapted from Berger, *The New Food Book*.)

2. **Student book.** Read and discuss "Mighty Minerals." Study the chart of minerals which gives their functions and food sources. Which are new to students?

   Tell students that many minerals work together. For example, iron and copper work together to build healthy red blood cells, and calcium and phosphorous together are largely responsible for the rigidity and strength of bones and teeth. Also note that a lack of calcium during childhood causes a disease called rickets, in which the bones are poorly formed.