

GRADE 5: LESSON PLAN 3

EXERCISE: WHAT CAN I DO FOR MY HEART?

Goals

Students will understand the benefits of daily physical activity and learn the factors that affect physical performance.

Instructional objectives

Students will be able to

1. Relate ways that aerobic exercise strengthens and improves the efficiency of the heart and lungs.
2. Self-monitor heart rate during exercise.
3. Define the principles of frequency, intensity, and time, and describe how to incorporate these principles into their daily lives.

Background information

The heart muscle—like every other organ or tissue in the body—needs oxygen- and nutrient-rich blood to function. The heart pumps blood throughout the body to deliver oxygen and nutrients to the cells and to remove waste.

Cardiovascular exercise (aerobic, endurance) makes your heart beat faster, makes you breathe harder, and drives your body to use oxygen more efficiently.

Exercise is actually muscles contracting when nerves send electrical signals to the muscles. The contracting muscles use increased amounts of oxygen and nutrients (glucose) and release increased amounts of waste (carbon dioxide). This increased activity results in a higher demand for blood flow to the muscles. The heart muscle responds to exercise the same way other muscles do, increasing its consumption of oxygen and glucose. The heart muscle is also signaled by nerves to beat more frequently and forcefully. When the frequency and force of the contractions increase, the ventricles push more blood out of the heart and into the vessels, where it is carried to muscle cells throughout the body.

Strenuous exercise causes the cardiovascular system to respond by increasing the cardiac output (blood volume) to about 5 times the normal amount, which results in 20 times more blood flowing to the working muscles and less blood flowing to the inactive tissues. The body can efficiently adapt to changing needs of the muscles by delivering oxygen- and nutrient-rich blood to the areas of the body most in need. You might explain the reasoning behind the theory of not swimming immediately after eating. Blood leaves the extremities and goes to the body's core to assist the digestive system which results in less blood being directed to the arm and leg muscles which can cramp if they are not receiving enough oxygen and nutrients.

The lungs also work harder during exercise. The rate and depth of each breath increases to gather more oxygen and expel more carbon dioxide. All of this activity is good for the body; muscles that are used often grow stronger, the cardiovascular system becomes more efficient, and regular exercise lowers blood pressure because the blood vessels dilate.

Materials

Worksheet: "My Activity Journal" (Activity 5-I)

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Introduction

This lesson is about teaching students the life-long benefits of exercising to improve their cardiovascular system.

Parents, teachers, and friends have the ability to encourage and motivate children to be active and continue a healthy level of activity throughout life. The President's Council on Physical Fitness and Sports research digest suggests that at about age 10, children begin to become competitive.

Students who believe they are physically competent are more likely to enjoy activity and remain interested in physical activity into adulthood. To begin the process of developing an intrinsic desire to be physically active, we must first make physical activity enjoyable and fun and then keep them motivated. Self esteem is directly related to positive experiences with physical activity and exercise. Activities that students participate in must be more fun and appealing than alternative unhealthy activities. It is up to us to motivate the next generation to be physically fit and heart healthy.

Lesson procedures/activities

1. Begin the lesson with a review of what happens in the body when we exercise. Ask students to define aerobic exercise and give examples. During the discussion make a list of every kind of aerobic exercise they mention. Make two lists on the board: one list of activities that can be done individually and another list for group activities. For example, dance vs. play softball. Talk about where and when you can do the activity and whether you need a partner, team, or group. Have students pick their top 3 favorites and write them down.
2. Review the method of checking the pulse at the carotid artery. (See Grade 3, activity 4-I.) Demonstrate checking the pulse before exercising (while resting). Explain that the increase in pulse they detect after exercising demonstrates that the heart is working harder (the heart is exercising too).

You can find your pulse in 2 places: at the base of your thumb on either hand (called the radial pulse), or at the side of your neck (called the carotid pulse). Put your first 2 fingers over your pulse and count the number of beats within a 10-second period. (It helps to have a buddy time the 10 seconds.) Multiply this number by 6 and you will have the number of heartbeats in a minute. For example, if

you counted your pulse to be 20 during the 10-second pulse count, your heart rate would be 120 beats per minute.

3. Discuss the principles of cardiovascular exercise:

Frequency	how often one exercises
Intensity	how hard one exercises
Time	how long one exercises

Remind students that cardiovascular health depends on consistency. They must consistently eat a well balanced diet, and consistently participate in physical activities to stay healthy and physically FIT.

4. Explain to students that they are beginning a week-long activity designed to help them determine their preferences and impressions of different types of physical activity. This week-long activity can be done during recess to ensure participation and group motivation. Plan 2 days for group activities and 3 days for individual activities to add variety and divide the schedule during the week. Begin by giving them the worksheet: *My Activity Journal*. Explain that they will be choosing several physical activities, and trying them on different days during the week. Students will record the amount of time they participated in each activity, and what their heart rate was after about 20 minutes. They should also decide whether the activity can be considered helpful to the cardiovascular system (it made their heart work harder) and what muscle groups were exercised during each of the activities. (For example, are their legs tired or their arms sore?) Also, students should state on the worksheet if they liked the activity well enough to make it a part of their regular routine. To ensure that students are interested in succeeding, ask them to think creatively about methods to keep themselves and each other motivated.
5. *Group Activity* From the *list of group activities*, choose several activities and ask students to pick their favorite. Divide the students according to their choices. Have them strategize as a group to address motivation, and adding fun to the activity. For example the speed walkers could write a cadence to recite while walking to keep them on time and in step. Groups could also make up new games to play while participating in their activity. For example the basketball players could think

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up new and fun rules for the game to keep it interesting. Ask each group to present their plan for adding fun and motivation for their chosen activity to the class. Explain to students they will be participating in this activity two times during the activity week.

6. *Individual Activity* From the list of individual activities, have students choose several they are going to perform. Encourage them to think about activities that can be done inside or out, in a big space or small. Ask them to find ways to make each activity fun so they are motivated to continue.

7. *Conclusion* At the end of the activities week, evaluate the results of the worksheet. Discuss which activities they liked best, and whether they would likely continue them and why. Review the value of each activity: heart rate, what muscle groups they used, and whether they considered it a good cardiovascular (aerobic) exercise. Ask students if they feel different after a week of added activity. Are they more energetic? less tired? and do they have a different attitude about physical activity or life in general?

Independent practice

Ask students to research age-appropriate frequency, intensity, and time recommendations for children in their age group and write a report on the results. The report should also include an overview of why cardiovascular health is important to them now and when they become adults.

Adaptations

For those students who are physically challenged and can't walk, plan to have a parent volunteer or classroom aide available to assist with alternative exercises that the students can perform.

Extension

For those students motivated to learn more, ask them to research physical activity recommendations for each member of their family and design a week-long family activity chart. At the end of the week ask family members to comment on the activity both from a health and family fun perspective.

Assessment

Objective	Demonstrated lesson objective	Partially demonstrated lesson objective	Did not demonstrate understanding of the objective
Relate ways that aerobic exercise strengthens and improves the efficiency of the heart and lungs	X		
Self-monitor heart rate during exercise		X	
Define the principles of frequency, intensity, and time and describe how to incorporate these principles into daily life			X