

## GRADE 4: LESSON PLAN 3

### EXERCISE: HOW DOES EXERCISE HELP MY HEART?

#### Goals

Students will understand the relationship between life-long physical activity and a healthy heart.

#### Instructional objectives

Students will be able to

1. List the types of exercise that develop endurance, strength, and flexibility.
2. Understand how aerobic exercise helps the heart.
3. Set personal goals for exercising to increase their physical fitness.
4. Design their own fitness plan and help develop a family fitness plan.

#### 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. When the blood cell delivers its oxygen to the muscle cell, it removes carbon dioxide (CO<sub>2</sub>) from the cell, and returns to the right atrium. From there it is pumped into the lungs to give off CO<sub>2</sub> and absorb more oxygen. Refer to the flash illustration, “Circulatory System,” in the Project Heart, Look section.

Cardiovascular exercise, also known as aerobic exercise, uses the large muscles and can be continued for long periods of time. Aerobic exercise makes your heart beat faster, and makes you breathe hard. This type of exercise drives your body to use oxygen more efficiently, delivering maximum benefits to your cardiovascular (heart and blood vessels) and pulmonary (lungs) systems. People who regularly participate in exercise have a healthier heart and lungs, stronger muscles and bones, and a leaner body. Exercise also helps people think more clearly, boost their self esteem, and maintain a more positive outlook on life.

There are three aspects to fitness: endurance, strength, and flexibility. Examples of endurance (aerobic) exercise are bicycling, playing ball, walking, jogging, running, jumping rope, and swimming. Examples of strength exercise are push-ups, pull-ups, lifting weights, stomach curls, and stomach crunches. Examples of flexibility exercises are stretching, reaching, bending, and tumbling. Many activities combine two or all three aspects of fitness.

The number of obese children has actually doubled in the last 30 years. Children should be getting 30 to 60 minutes of exercise each day (or on most days). Instead, they are exercising less and becoming more sedentary (inactive). Watching TV and playing video or computer games decrease the amount of time children spend actively playing and those sedentary activities contribute to poor eating habits, poor health, and weight gain.

#### Materials

1. Pedometer (one for each group)
2. Worksheet: “Taking Your Pulse” (Activity 4-I)
3. Film or pictures of a rocket launch
4. Worksheet: “Designing Our School Trail Map” (Activity 4-J)
5. Worksheet: “My School Day Step Record” (Activity 4-K)
6. Worksheet: “Family Exercise Plan” (Activity 4-L)

## **Project Heart**

**Activities for the Classroom**

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### **Introduction**

Show students a film, video, or pictures of a rocket launching. Talk about the energy or fuel that the rocket needs to blast out of the atmosphere and how the rocket needs to reserve some fuel for course corrections and the return trip to Earth. Ask students to think about and discuss what would happen if the rocket used all of its fuel before it reached its destination. Relate the discussion to endurance. Discuss how people need fuel to make it through the day. Reinforce what they have been learning—we need the right kind and amounts of food and exercise to keep our hearts and bodies healthy.

### **Lesson procedures/activities**

1. Define aerobic exercise and give one example. Ask students to list other types of exercise that can be considered aerobic (“cardio” or endurance). The body responds to exercise by increasing the heart rate to pump more oxygen-containing blood to the muscle cells. Guide students through a discussion of energy/fuel usage when comparing the rocket analogy to aerobic exercise. (Their muscles need continuous fuel/oxygen to function during endurance exercise.)
2. Discuss the other two aspects of fitness, strength and flexibility. If appropriate, allow students to demonstrate flexibility exercises such as stretching and reaching. Explain that they are lengthening their muscles and warming them up (preparing them) for vigorous exercise. Ask why it is important to do strength and flexibility exercises.
3. Ask about activities (exercises) that students can do alone, with friends, or with their families. Ask them how they could, for example, make walking a fun activity for the whole family.
4. Introduce the methods of checking the pulse. Demonstrate and have students try both ways. Refer to the worksheet, “Taking Your Pulse.”

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.

### **Guided Practice**

Introduce the idea of designing a walking trail at school. Divide students into groups and have them wear a pedometer while stepping off sections of a trail winding throughout the hallways inside the school building. Have them designate where 100-step landmarks occur. Design signs showing these landmarks along the trail. To encourage other students to join in with the heart-healthy walking activity, ask your students to think of slogans and encouraging phrases that can be made into signs to be posted along the route.

After the trail has been laid out, have the students take their resting pulse, record it, and then try out the walking trail while strolling, walking at a normal pace, speed walking, and skipping, each time taking a 10-second pulse and calculating how many heartbeats per minute they reach. Be sure to allow rest time between each activity so their heart rates can return to normal resting rate. Using the worksheet provided, ask students to fill in their heart rate for each category of activity. Discuss the differences between activity level and amount of work their hearts are doing. Relate their answers back to the concept of endurance and building a strong heart.

Continuing the rocket theme, create a Blast Off to Exercise bulletin board in a prominent place in the school. Students can color their own personal rocket and add their school picture or name to track their progress through the solar system. Use the moon, space station, planets, and stars to designate success points. Allow students to help you build the bulletin board and provide special recognition for students who reach their goals.

### **Independent practice**

Students can design their own trail maps and name their own routes to track their accumulated steps throughout the school day. Use the worksheet, “My School Day Step Record.” Remind them to record all their steps, every time they leave the classroom. For example, each time they visit the library or cafeteria, or walk to the playground at recess, they should record the number of steps they took there and back. Calculate how many steps they take in a day and convert them to miles. Record steps for different days to help build the habit and an awareness of the benefits of regular exercise.

## Project Heart

### Activities for the Classroom

Ask students to talk with their families about designing a family exercise plan. (Even a weekly 20-minute walk provides meaningful family time and encourages outside activity.) Ask students to make a concentrated effort to watch 30 minutes less TV per day or play 15 minutes less video or computer games per day and replace that time with physical activity. Provide the worksheet “My Weekly Activity Record” for students to record exercise time and type (outside of school) and their daily actual TV or gaming time vs. goal TV or gaming time. Ask parents to sign the sheet each day. Present Heart-Smart Student certificates to each student who is successful at reaching his or her goals for a week and getting the family up and moving.

Ask students to interview their parents or other adults and write a 1-page paper discussing the physical, mental, and social benefits of regular exercise.

#### 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

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can perform. Have students team up to help coach each other toward exercise goals. Keep track of everyone's individual progress on the bulletin board.

#### Extension

For those students who are ready for more complex learning and more difficult tasks, have them do a web search to find how many calories (how much energy) are consumed by different kinds of exercise. They should consider weight, gender, and age when making their calculations. As a result, they could create a classroom chart showing some of the different, unique exercises performed by members of the class and/or popular stars (a baseball player, a soccer player, a TV star, a teacher, etc.).

#### Challenge

Students could design and log a step trail at a local park or shopping mall using landmarks like trees or store names on their maps. Present Heart-Smart Student certificates to students completing a map of a new local step trail.

### Assessment

	Demonstrated lesson objective	Partially demonstrated lesson objective	Did not demonstrate understanding of the objective
Objective			

**List the types of exercise that develop endurance, strength, and flexibility.**

**Understand how aerobic exercise helps the heart.**

**Set personal goals for exercising to increase physical fitness.**

**Design their own fitness plan and help develop a family fitness plan.**