NAME DATE Month 3 CLASS PE

ACTIVITY 17

WHAT CAN HEART RATE TELL YOU ABOUT FITNESS?

HEALTH LAB

INTRODUCTION

The heart pumps blood to every cell in your body. Your body's heart rate is measured by the pulse. Your heart rate increases during exercise. How much it increases depends on your level of fitness. In this lab you will examine the effect of exercise on your heart rate.

OBJECTIVES

- Measure your resting pulse and your pulse after exercise.
- Describe your state of fitness based on the return of your heart rate to normal.
- Describe what added weight does to your heart rate after exercise.

MATERIALS

Book bag or backpack, 1 per pair of students
Books weighing 4.5 kg (10 lbs.), 1 per pair of students

PROCEDURE

Part A—Resting Pulse

1. Locate your pulse on the thumb side of your wrist. Use only the first two fingers of your hand, not your thumb.
2. Count your pulse for 20 seconds. Multiply the number of pulses by 3 to find your heart rate for one minute. Repeat this procedure four times. Record your data in Table 1 in **Data and Observations.** Calculate your average resting pulse.

Part B—Fitness Estimate

3. Make a hypothesis about how your heart rate will change after exercise. Write your hypothesis here.

_____

_____

NEXT - Do the exercises described in #4 unless you have knee or heart problems. In that case, see your teacher for suggestions.

4. Do 20 deep knee bends in 40 seconds. To do this, you must go down in one second and up in the next second. Take your pulse immediately after this exercise. Record this figure in the space provided in Table 2.
5. Rest for three minutes. Take your pulse again. Record the figure in Table 2.
6. If your heart rate has not returned to normal after three minutes, rest for three more minutes. Check your pulse once more. Record this figure.

Part C—Effect of Added Weight on Heart Rate

7. Make a hypothesis about what effect added weight will have on heart rate. Write your hypothesis here.

_____

_____

_____

8. Jog in place for three minutes. Take your pulse immediately after you stop. Record the figure in Table 3 in **Data and Observations.**
9. Put on a back pack or carry a book bag with 4.5 kg of books. This will effectively increase your body weight by 10 pounds.
10. Jog in place for three minutes. Take your pulse immediately after you stop. Record the figure in the space provided.

DATA AND OBSERVATIONS

TABLE 1

TRIAL	PULSE COUNT IN 20 SECONDS	RESTING PULSE (BEATS/MIN)
1		
2		
3		
4		
AVERAGE RESTING PULSE (BEATS/MIN)		

TABLE 2

RESTING PULSE FROM PART A _____

HEART RATE (BEATS/MIN) IMMEDIATELY AFTER EXERCISE _____

HEART RATE (BEATS/MIN) AFTER RESTING 3 MINUTES _____

HEART RATE (BEATS/MIN) AFTER RESTING 3 ADDITIONAL MINUTES _____

TABLE 3

RESTING PULSE FROM PART A _____

HEART RATE (BEATS/MIN) AFTER JOGGING FOR 3 MINUTES _____

HEART RATE (BEATS/MIN) AFTER JOGGING FOR 3 MINUTES WITH WEIGHT _____

ANALYSIS

1. How does your resting pulse compare to the average resting pulse for someone your age?

_____

2. What is your fitness estimate? Why do you think your estimate came out the way it did?

_____

3. Why is the time it takes the heart rate to return to normal after exercise important in determining fitness? _____

4. Was your heart rate higher after exercise with or without the added weight? Why?

_____

5. Do the data support your hypotheses? _____

SAMPLE DATA

Part A Average pulse will be 50–85 beats per minute.

Part B Answers will vary. Refer to Fitness Estimate Chart below.

Part C Pulse after jogging will vary, but will increase with added weight.

Average fitness: Pulse is 10 to 20 beats higher immediately after knee bends and returns to normal after 3 minutes.

Above average fitness: Pulse is less than 10 beats higher immediately after knee bends and returns to normal after 3 minutes.

Below average fitness: Pulse is more than 20 beats higher immediately after knee bends but does return to normal after 6 minutes.

Poor fitness: Pulse is more than 30 beats higher immediately after knee bends and