

## Lesson 1 – Be the Beat®: It's All About the Beat

Lesson Description: Students will discuss various types and levels of physical activity/exercise. They will measure and graph the effects of each one on their heart rates, as well as the heart rates of others.

Curriculum Connections: health, mathematics

National Health Education Standards:

Students will:

- demonstrate an understanding of concepts related to health promotion and disease prevention to enhance health.

Common Core Standards for Mathematics:

Students will:

- draw informal comparative inferences about two populations; and
- summarize, represent, and interpret data on two categorical and quantitative variables.

Health Intended Learning (objectives):

Students will:

- collect and interpret data on the relationship between the amount of exercise people get and their resting and working heart rates;
- compare and contrast how the intensity of varied physical activities affect heart rates; and
- examine the ways that heart rate is different for different people, under different circumstances.

Mathematics Intended Learning (objectives):

Students will:

- use a clock or stopwatch to make time measurements;
- record data on a graph; and
- interpret recorded data on a graph and make comparisons to other sets of data.

Class Time: 60 minutes

Materials:

- **Activity Log** handout
- clock/watch with second hand or stopwatch (enough for each pair)
- [General Physical Activities Defined by Level of Intensity](#)
- [AHA Article: Physical Activity and Blood Pressure](#) (see heart rate table)

Launch (Anticipatory Set):

Discuss with students:

- Participating in daily physical activity and exercise is important because increasing physical activity improves overall health and fitness.
- Some benefits of physical activity include increased strength and endurance, weight control, improved heart health, reduced blood pressure, decreased cholesterol levels, reduced risk of some diseases, and feelings of well-being.
- A balanced plan that includes both moderate and vigorous physical activities is important. Moderate intensity activities benefit heart health, improve physical fitness, and can help you lose or maintain your weight. Vigorous activities burn more calories and are more physically challenging.
- Knowing your target heart rate helps you to exercise with enough intensity to benefit your heart—without going over the target and pushing yourself to the point where you feel pain or are short of breath.

Explore/Activity:

- Have students brainstorm ways they can and do get physical activity during the day (including everyday activities, such as walking to class, housework, walking the dog, and gardening.)
- Have them record their activities on the **Activity Log** handout. After reviewing the activity logs, have students work in groups to brainstorm ways to add additional physical activity/exercise to their daily activities.
- Next, have students identify physical activities (from those they listed) that could be performed in the classroom and record them in the Activity Logs.
- Have students use the Center for Disease Control's [guidelines for physical activity intensity levels](#), to determine the intensity level of each of their chosen activities (light, moderate, vigorous), and then write the level on the handout.
- In pairs, students should then select two activities (one moderate-intensity, one vigorous-intensity) and measure their heart rates both at rest and 1-2 minutes following each of the chosen activities. (Students should take turns so they can rest between activities until their heart rates return to their resting rate.) Partners should assist by keeping time for each activity.
- Have students record their measurements and then graph the results on a bar graph.
- Finally, have students compare their results to others' and discuss how different activities can affect heart rates. Have them use the [heart rate table](#) found in the AHA article to locate their target heart rates. Explain that during exercise,

their pulses should be within this range, which changes as they get older. Then have students compare their results to their target heart rates.

#### Summary:

#### Discuss with students:

- What effect does the intensity level of an activity have on heart rate?
- How might the effect of jogging in place compare to walking in place? Doing jumping jacks versus doing yoga?
- Which activity increased heart rate the most and the least?
- Why do moderate-intensity activities also benefit health? Why do both types of activities have a place in an activity plan?
- How does the target heart rate help you stay fit? (Knowing your target heart rate helps you to exercise with enough intensity to benefit your heart.)
- Did you reach your target heart rate during the vigorous activity?

#### Assessment:

Students show proficiency by participating in a final discussion and discussing the results of their heart-rate graphs.

#### Extensions:

- Complete the activity with a classroom at the elementary grade level and compare the results. Are there differences between the results from middle or high school students versus elementary students?
- Have staff measure their own heart rates in a similar way and compare/contrast the results.
- Have athletes at school take similar measurements and compare the results.

#### Resources:

- American Heart Association ([www.heart.org/](http://www.heart.org/))
- Centers for Disease Control and Prevention (<http://www.cdc.gov/>)
- Get Fit and Be Active! President's Challenge Handbook (<http://www.presidentschallenge.org/tools-resources/docs/getfit.pdf>)
- Be the Beat (<http://bethebeat.heart.org/>)

## Activity Log and Heart Rate Measurements

Write down all the physical activities you did during the day. Fill in the intensity and heart rate measurements.

Physical Activities		Intensity
Resting Heart Rate:  _____  _____ beats per minute	Heart Rate after Activity 1:  _____  _____ beats per minute	Heart Rate after Activity 2:  _____  _____ beats per minute