

## Math Lesson Plan 1

### Heart Zone

**Quick summary:** Students will learn how to calculate their maximum heart rate and target heart rate zone. Students will graph their heart rates while participating in a variety of physical activities.

**How long will it take:** 45 minutes

**What do I need:** Stopwatch (or clock/watch with second hand), graph paper, pencil, student worksheet with discussion questions  
(Pages 10-11 in *Worksheet Booklet* in zip file)

**How does it work:** Begin by teaching students how to calculate their maximum heart rate and target heart rate zones using the following equations:

- Maximum Heart Rate (MHR) =  $220 - \text{age}$
- Target Heart Rate Zone (THRZ) = 50 % to 85% of maximum heart rate  
Review with students how to find their heart beat and calculate their heart rate per minute:
- For instructions on calculating heart rate, see Science Lesson Plan 2 *What Happens When You Move? A Look at Cardiovascular Health* on page 32.

Remember to listen to your own body. Realize everyone will be moving at a different pace to stay within their target heart rate zone. If your friend can run the mile in 6 minutes and you run the mile in 12 minutes, you might be working just as hard as they are. You may not be as fast, but both of you could be working within your target heart rate zones. If you try and keep up with your friend your heart rate will probably climb to your maximum heart rate and you will not be able to keep up the pace. It would be more beneficial for you to jog or walk within your target heart rate zone and finish the mile than to work so hard that you are unable to complete the mile.

**Activity:** Students will count their heart beat and record their heart rate:

After each physical activity below provide the students 1 to 2 minutes to let their heart rate recover before starting the next activity.

1. Sitting in a chair - relaxed
2. Standing - relaxed
3. After walking at a leisurely pace for 3 minutes
4. After speed walking for 2 minutes
5. After 2 minutes of jogging in place
6. After doing 25 jumping jacks
7. After running in place as fast as possible for 1 minute

After students have recorded their heart rate as instructed, students will do a bar graph of the information. Once the bar graphs are completed have a class discussion.

#### Discussion questions:

- Did anyone hit their maximum heart rate, if so, what activity were they doing?
- What activities were you doing when you were within your target heart rate zone?
- During the recovery time after an activity, did your heart rate drop below your target heart rate zone?
- What physical activities do you think will get your heart beating at the maximum heart rate?
- Could you tell when your heart rate was within your target heart rate zone?
- Could you tell when your heart rate was at your maximum heart rate?

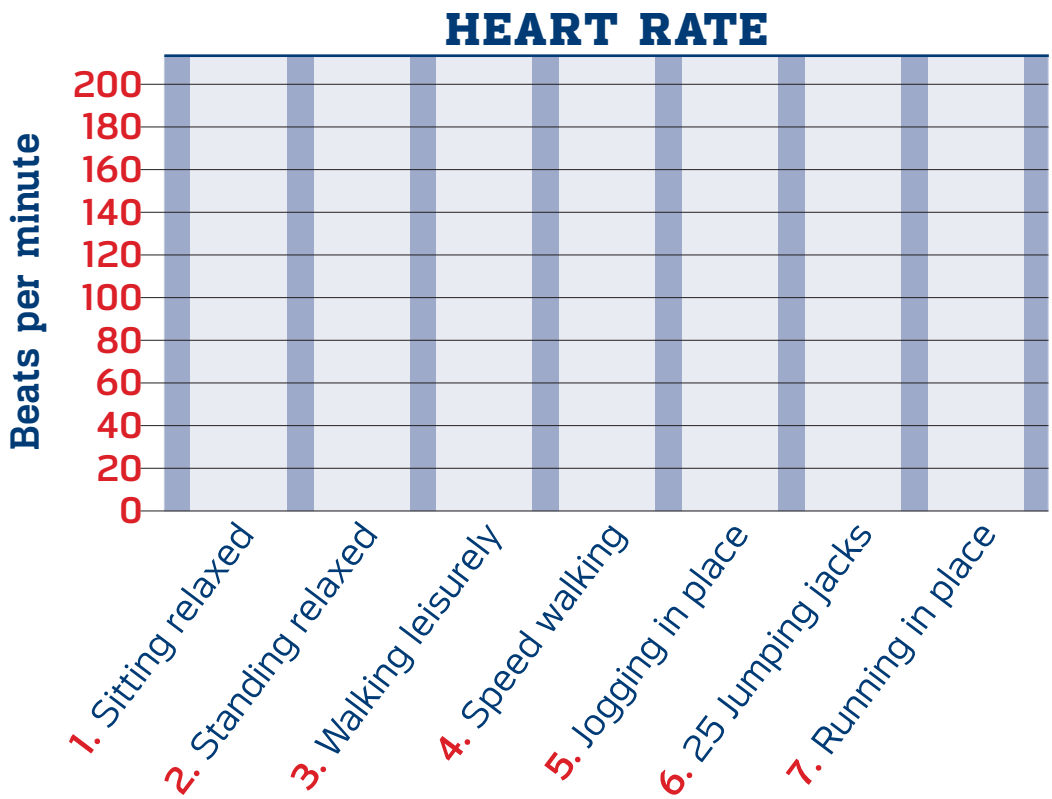
**Heart Zone**

Student Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

**Directions:** Count your heart beat and record your heart rate after each activity. The information will be used to plot a bar graph.

<b>PHYSICAL ACTIVITIES</b>	<b>HEART RATE</b>
1. Sitting in a chair-relaxed	
2. Standing-relaxed	
3. After walking at a leisurely pace for 3 minutes	
4. After speed walking for 2 minutes	
5. After jogging in place for 2 minutes	
6. After doing 25 jumping jacks	
7. Running in place for 1 minute	

Create your graph here:



---

1. What activity were you doing when your heart beat the fastest?

---

2. During the recovery time after an activity, what happened to your heart rate?

---

3. Could you tell when your heart rate was increasing or decreasing?

- Describe how you felt physically.

---

4. Could you tell when your heart rate was within your target heart rate zone?

- What activity were you doing?

---

5. Could you tell when your heart rate was at or close to your maximum heart rate?

- What activity were you doing?