Measuring Heart Rate with Your Own Stethoscope

Name: _____

Date: _____

Student worksheet

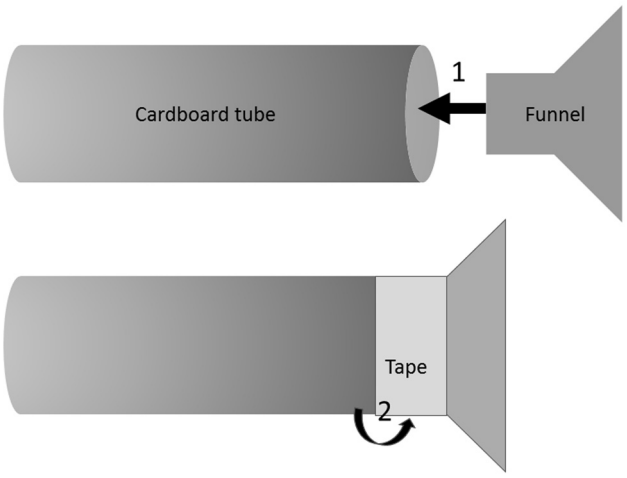
Directions: Answer the question below to prepare for the experiment and then build your stethoscope.

Prepare for the Experiment

1. Write down your prediction about how exercising will affect how fast the heart beats. Write 1–3 sentences explaining why this is your prediction.

Build and Test

1. Follow the sketch to build a stethoscope. Put the funnel into the cardboard tube and secure it with tape.



2. Test the stethoscope by listening to the heart of another student.

Measuring Heart Rate with Your Own Stethoscope—Page 2

Name: _____

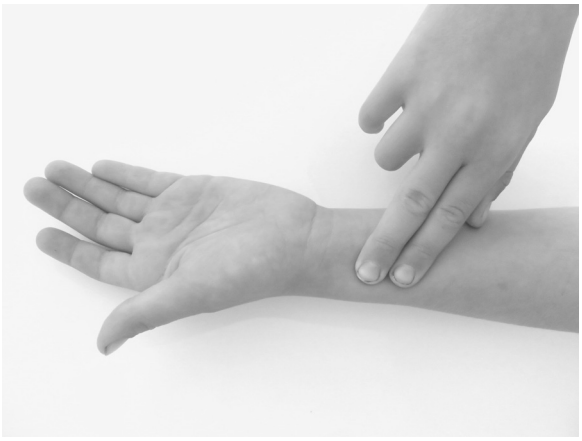
Directions: Follow the steps below to conduct your experiment and record the data.

3. Choose who will be measured first. You will switch roles later. Use your stethoscope to count the number of heartbeats heard in 15 seconds. Record your measurements in the data table. In the tables, you are Student 1, and your partner is Student 2.

Data Table 1 – Measurements
Counts/beats in 15 seconds

Activity Level	Student 1		Student 2	
	Number of beats	Number of pulses	Number of beats	Number of pulses
At rest				
Exercising				

4. Switch roles and repeat step 3.
5. The picture below shows where to find the pulse. Count the number of pulses felt in 15 seconds. Record your measurements in the data table.



6. Now, repeat the experiment, but this time, exercise vigorously (doing jumping jacks or high knees) for 30 seconds before you count the pulses felt for 15 seconds. Start the measurements *instantly* after exercising. Write your results down in the data table.

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Directions: Answer the questions below about your experiment.

7. Use the measured counts in 15 seconds (as listed in Data Table 1) to calculate the heart rate and pulse in beats per minute (BPM). Write the calculated values in Data Table 2.

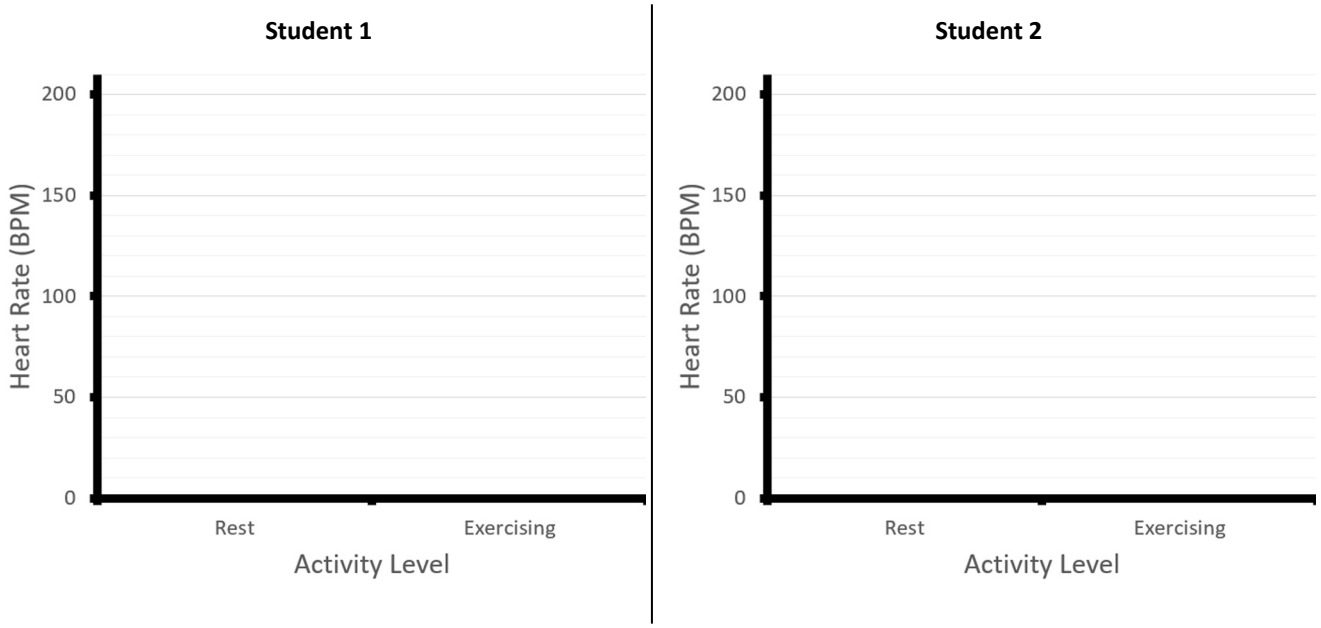
   Heart rate = (# of heartbeats in 15 seconds) x 4

   Pulse = (# of pulses in 15 seconds) x 4

Data Table 2 – Calculated Heart Rate in Beats Per Minute (BPM)
(Beats Per Minute = 4 X counts in 15 seconds)

Activity Level	Student 1		Student 2	
	Heart Rate (BPM)	Pulse (BPM)	Heart Rate (BPM)	Pulse (BPM)
At rest				
Exercising				

8. Use the calculated heart rate or pulse (in BPM) from Data Table 2 to make a bar graph of your results.



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Name: _____

Directions: Answer the question below about your experiment.

Reflect on the Experiment

1. How does the heart rate change when you exercise? Write 1–3 sentences explaining why you think that happens.