

PE INSTRUCTIONS

Hello PE Families!

We are going to take a break from tracking our daily activity. However, I do encourage you to get up and get out for 30 - 60 minutes of activity daily.

This week, we are going to combine science and fitness also known as exercise physiology. That's right, exercise and science go together! Physiology is the study of the functions, chemical reactions, and activities of living matter such as organs, muscles, tissues and cells. Basically how all of the parts of an organism work together. My favorite type of science! It's cool stuff!

In your activity you will observe how your heart changes at rest and during activity. To do so, you will need to calculate your resting heart rate (RHR), maximum heart rate (MHR), and your target heart rate zone (THRZ). There will be some math involved and you may use a calculator. After you calculate your different heart rates you will complete several activities of various intensity levels. You will observe, track your heart rate, and determine how your heart rate changes with different intensity levels. The digital copy on Google Classroom is color coded for the calculations.

Items needed:

1. Pencil and eraser (for mistakes!)
2. Calculator
3. Stopwatch or timer
4. Chair
5. Space

Have fun!

Ms. Z

Vocabulary	
Heart Rate (HR)	Number of times your heart beats per minute.
Beats Per Minute (BPM)	Unit of measurement for heart rate.
Resting Heart Rate (RHR)	Number of times your heart beats per minute at rest.
Maximum Heart Rate (MHR)	The maximum number of times your heart can beat per minute safely during exercise. This number is used as a guide. A person's true MHR may be higher or lower depending on their individual fitness level.
Target Heart Rate Zone (THRZ)	Range of how fast your heart should be during exercise between 65% - 85% of your maximum heart rate. Helps determine intensity levels for exercise.

Name: _____

HEART RATE ACTIVITY

Read the background information and then follow the instructions to calculate your resting heart rate, target heart rate, and maximum heart rate. Next, complete the activities on the second page and see how your heart rate changes with intensity levels.

Background Information: Heart rate (HR) is how fast your heart pumps blood throughout your body per unit of time, usually in **beats per minute (bpm)**. It is important that we know our **resting heart rate (RHR - heart rate at rest)**, **maximum heart rate (MHR - a baseline number that determines how fast our heart can beat safely)**, and our **target heart rate zone (THRZ - a range of how fast our heart should beat while exercising usually 65% - 85% of MHR)**. Knowing your target heart rate can help you determine intensity levels in your workouts - if you are working too hard or not hard enough. *This will be different for each individual.* It is a helpful tool to determine your fitness levels and how hard you are working. We need to track our **resting heart rate, maximum heart rate and target heart rate** to determine how to get the most out of our exercises.

Calculate your Resting Heart Rate (RHR), Maximum Heart Rate (MHR), and Target Heart Rate (THR)		
1) Resting Heart Rate (RHR) Determine number of beats per minute (bpm) Find your pulse on wrist or neck. Count number of beats for 10 sec. Multiple that number by 6	$\frac{\text{_____}}{\text{(# beats in 10 sec)}} \times 6 = \frac{\text{_____}}{\text{(RHR)}} \text{ bpm}$	My Resting Heart Rate: _____ bpm
2) Maximum Heart Rate (MHR) Subtract your age from 220 This is a baseline number May be higher or lower	$220 - \frac{\text{_____}}{\text{(your age)}} = \frac{\text{_____}}{\text{(MHR)}} \text{ bpm}$	My Maximum Heart Rate: _____ bpm
3) Target Heart Rate Zone (THRZ): This is a range of 65% - 85% of your maximum heart rate. You will calculate this in two steps by finding your THR at 65% and then your THR at 85%. Then write your THR range in the last row.		
Target Heart Rate (THR) at 65% (MHR - RHR) x 0.65 = THR at 65%	Range at 65% of Maximum Heart Rate: $\frac{\text{_____}}{\text{(MHR)}} - \frac{\text{_____}}{\text{(RHR)}} = \frac{\text{_____}}{\text{(MHR - RHR)}} \text{ bpm}$ $\frac{\text{_____}}{\text{(MHR - RHR)}} \times 0.65 = \frac{\text{_____}}{\text{(THR @ 65%)}} \text{ bpm}$	My Target Heart Rate @ 65%: _____ bpm
Target Heart Rate (THR) at 85% (MHR - RHR) x 0.85 = THR at 85%	Range at 85% of Maximum Heart Rate: $\frac{\text{_____}}{\text{(MHR)}} - \frac{\text{_____}}{\text{(RHR)}} = \frac{\text{_____}}{\text{(MHR - RHR)}} \text{ bpm}$ $\frac{\text{_____}}{\text{(MHR - RHR)}} \times 0.85 = \frac{\text{_____}}{\text{(THR @ 85%)}} \text{ bpm}$	My Target Heart Rate @ 85%: _____ bpm
My Target Heart Rate Zone (THRZ) _____ bpm - _____ bpm (THR @ 65%) (THR @ 85%)		

Next, observe how your heart rate changes after each physical activity. You will need a stopwatch. After you complete each activity count your number of heart beats for 60 seconds and record your results. Be sure to rest 1 - 2 minutes after each activity to let your heart rate recover before starting the next activity. Use the Intensity Levels Chart to Rate the intensity level of each activity.

Intensity Levels

11 year olds MHR - 209 bpm

12 year olds MHR - 208 bpm

Max Activity Level: 90% - 100%

Vigorous Activity Level: 80% - 90%

Moderate Activity Level: 70% - 80%

Light Activity Level: 60% - 70%

Very Light Activity Level: 50% - 60%

Activity	Heart Rate	Intensity Level
Sitting in a chair for 1 minute		
Standing relaxed for 1 minute		
Walk at a leisurely pace for 3 minutes		
Speed walk for 2 minutes		
Jog for 2 minutes		
25 Jumping Jacks		
Sprinting for 30 seconds - 1 minute		

Questions:

1. Which activity did your heart beat the fastest?
2. During recovery time between activities, what happened to your heart rate?
3. Could you tell when your heart rate was increasing or decreasing?
4. Could you tell when your heart was in the target heart rate zone?
5. Could you tell when your heart was close to or at it's maximum heart rate?