

GROW YOUR PALS PROGRAM GUIDE



THE NATIONAL FFA MENTORING PROGRAM

Sponsored by



LESSON 3.12

Heart Smart!

Unit:
EXERCISE

PRECEPTS

G Physical Growth

G3. Participate in a fitness program

NATIONAL STANDARDS

CS.02.01.03.a. Describe practices that must be maintained to achieve long term health.

NL-ENG.K-12.12 – Applying Language Skills

NM-NUM.6-8.1 – Understand Numbers, Ways of Representing Numbers, Relationships among Numbers, and Number Systems

NM-NUM.6-8.2 – Understand Meanings of Operations and How They Relate to One Another

NS.5-8.6 – Science in Personal and Social Perspectives



Lesson Type:
Small Group

STUDENT LEARNING OBJECTIVES

As a result of this lesson, the student will ...

- Describe how exercise affects the heart.
- Measure resting heart rate.
- Calculate target heart rate.





TIME

Instruction time for this lesson: **30 minutes.**



RESOURCES

None Available



TOOLS, EQUIPMENT AND SUPPLIES

- ✓ Red construction paper – one per student
- ✓ Scissors – one per student
- ✓ Pencil or marker – one per student
- ✓ PALS3.12.SG.TM.A
- ✓ PALS3.12.SG.TM.B
- ✓ PALS3.12.SG.ASSESS.A – one per student
- ✓ Stopwatch

KEY TERMS



The following term is presented in this lesson and appears in ***bold italics***:

Pulse



CONTENT OUTLINE

Objective 1. | Describe how exercise affects the heart.

- I. Cardiovascular - Heart strengthening exercise
 - A. Running
- II. Non-cardiovascular - Does not strengthen heart
 - B. Bowling

Objective 2. | Measure resting heart rate.

- I. Find ***pulse*** - the beating of the heart that can be felt by pressing on an artery.
- II. Calculate resting heart rate
 - A. number of heartbeats for 10 seconds x 6

Objective 3. | Calculate target heart rate.

- I. $(220 - \text{age}) \times .7$

INTEREST APPROACH

Gather the necessary materials including the stopwatch. Also, before class you will write PALS3.12.SG.TM.1 on a writing surface or be ready to display it.

Give each student a piece of red construction paper and have them make a really big heart, as big as they can, as you model the directions below for them. They will cut the heart out. It is important that your PALS be calm and quiet during this activity because we will be determining their resting heart rate in the next activity.



Lets start off today by cutting our construction paper into the largest heart we can. Fold our paper hamburger style and draw a half of a heart on the paper making it as big as we can!

Model the process for the students and give them time to cut out their hearts.



What does the heart symbol represent?

Allow time for student responses. You should talk about what the heart symbol represents and “love” should come out of that conversation. Be sure to go into how we need to love ourselves and love our bodies, which requires that we must take care of our bodies.



Yes, the heart does represent the symbol for love and we not only need to be able to love and be loved by others, we also need to love ourselves and that includes loving and caring for our own bodies. Today we will be learning how to calculate our heart rate and learning how exercise affects our heart rate.

You will ask the students to draw lines to divide the heart into quadrants by drawing a line down the fold line. Demonstrate the procedure as you give them the directions.



When I say DRAW, we will separate the front and back of our heart into two sections by drawing a line down the middle. What questions do you have?

DRAW

They have just created what they will use to take notes on, calculate their heart rate, etc. In other words they will write on the heart information about their heart.



Great job! Those are some interesting hearts and we have just created the surface we will be using today to capture some very important information about our own hearts! It looks like we are all ready to get started so lets be attentive learners as we discover how exercise positively affects our hearts!

SUMMARY OF CONTENT AND TEACHING STRATEGIES

OBJECTIVE 1. | Describe how exercise affects the heart.



- I. Cardiovascular - Heart strengthening exercise
 - A. Running
- II. Non-cardiovascular - Does not strengthen heart
 - B. Bowling

Display PALS3.12.SG.TM.A or copy the information onto a writing surface and show to the class.



Let's begin by labeling two columns on our heart. Label one side "Strengthens" and the other side "Does Not Strengthen" just like you see on the example columns.

Allow students time to complete this step.



Now, who can give examples of physical activities in which we participate regularly (walking to school, soccer, basketball, etc.)?

Allow students in the small group to answer. As they answer they will write the activity in the correct column on their heart. Be sure to monitor and assist them to put the activities in the correct column. You should discuss the benefit of each activity on the heart. For example, running track would strengthen the heart, while bowling would not be considered a heart-strengthening cardiovascular exercise. If some of the PALS don't participate in many heart-strengthening activities, brainstorm ways they can incorporate these types of activities into their daily routine and explain why it is important to do so.



Be sure to write each activity in the appropriate column as we discuss everyone's activities.

Allow all students in the small group to complete the columns on their heart with several activities in each column so that they get a good understanding of the difference between cardiovascular strengthening activities and those that don't strengthen the heart.



The list we have generated has given us a great introduction to what exercises can play a major role in helping us to keep our heart healthy. We are now going to delve a little deeper into how we can determine the effects of exercise on our hearts by learning how to calculate our target heart rate. Turn your heart note page over and use the blank side to capture the information on PALS3.12.SG.TM.B.

Display PALS3.12.SG.TM.B and allow students time to copy the information onto their heart note pages.



Heart rate is widely accepted as a good method for measuring intensity during running, swimming, cycling and other aerobic activities. Exercise that doesn't raise our heart rate to a certain level and keep it there for 20 minutes won't contribute significantly to cardiovascular fitness. The heart rate we should maintain is called our target heart rate. By learning to calculate our target heart rate we can ensure we are exercising at a level that strengthens our heart.

OBJECTIVE 2. | Measure resting heart rate.



I. Find **pulse** - the beating of the heart that can be felt by pressing on an artery.

Read over PALS3.12SG.TM.B to help the students to get the formulas copied correctly on their heart notes.

RESTING HEART RATE = the number of heartbeats for 10 seconds x 6

TARGET HEART RATE = $(220 - \text{age}) \times .7$

Exercise @ TARGET HEART RATE for 20 minutes or more to build cardiovascular fitness!



Great job getting those notes! Now, let's calculate our resting heart rate. We will begin by running our index and middle fingers across our neck or wrist until we find our **pulse**. Our **pulse** is the beating of the heart that can be felt by pressing on an artery. Because arteries are close to the surface at the wrist and neck, this is where we feel to find our **pulse**.

Assist PALS in finding their **pulse**. Have the stop watch ready.

II. Calculate resting heart rate

A. number of heartbeats for 10 seconds x 6



Great, now that everyone has found their pulse, we will count heartbeats for 10 seconds, What I say GO we will count our heartbeats until I say STOP.

GO

Use the stopwatch to time the 10 seconds.

STOP



Now, write the number of heart beats you counted on your heart notes page. What is the next step to determine our resting heart rate?

Allow students to answer. If needed refer them to their notes. The answer is multiply by 6.



Yes! Multiplying by six will give us our resting heart rate! Now when I say MULTIPLY, we will multiply the number of heartbeats we counted in 10 seconds by six and write our number for our resting heart rate on our notes page. What questions do you have?

MULTIPLY

Allow students time to answer and check student multiplication for correctness.



Great job calculating how many times your heart beats each minute! Now we know our resting heart rate. Everyone should write their resting heart rate on our heart notes.

Guide students to write their resting heart rate next to their notes on resting heart rate.

OBJECTIVE 3. | Calculate target heart rate.



I. $(220 - \text{age}) \times .7$



Now that we can calculate our resting heart rate, we will move on to calculating our target heart rate so that we can determine what level of exercise we need to work at to help strengthen our hearts. Who can tell me how we calculate our target heart rate?

Allow a student to read the formula they just copied into their notes for calculating target heart rate.



Yes! Thank you and that is correct. The formula is $(220 - \text{age}) \times .7$ (70%) When I say CALCULATE, we subtract our age from 220 and then multiply by .7. Please do your calculations on your heart notes and write your target heart rate answer down as well. What questions do you have?

CALCULATE

Give the students time to do their calculations and assist your PALS as they calculate their target heart rate. The use of a calculator to quickly check each student's math could be helpful.



Great job on those calculations! Now we know our target heart rate and it is time to see how exercise changes our heart rate and at what level we need to exercise to stay in our target heart rate zone. When I say EXERCISE, we will (run in place, or jump rope, or do jumping jacks) for five minutes. I will keep the time and call stop at the end of the five minute exercise period. We will stop exercising, find our **pulse** and count the heart beats for 10 seconds. Just as we did for the resting heart rate, we will begin and end our 10 second heartbeat count on my signal. What questions do you have?

EXERCISE

*You should model this process for the students, especially how to stop exercising and immediately find the **pulse**. Be sure you have your stop watch ready to time the five minutes and 10 second intervals.*

Time the exercise session for five minutes.



OK, stop and find your **pulse**. Start counting now.

Time for 10 seconds.



Stop and write down the number of heart beats you counted on your heart note page.

Allow time to write the number of beats the students counted.



Now take the number of heart beats you counted in the 10 seconds and multiply it times six to get your heart rate for a minute.



Help students to calculate their heart rate.



REVIEW / SUMMARY

Congratulations! Now we have the tools to determine how much exercise effort we must exert to stay at our target heart rate for 20 minutes or more in order to strengthen our hearts. We know what our target heart rate is and how to calculate our heart rate during exercise to see if we are working within our target heart rate zone. This will help us to make sure our fitness program is giving us the cardiovascular work out we need to help us stay healthy and fit. How about a round of applause for all our hard work today!

APPLICATION



Large Group Idea

Create a cardiovascular fitness program that incorporates the use of calculating heart rate to ensure that the program provides the opportunity for students to work out effectively.



One-on-One Idea

Have students keep a journal for one week, writing down what exercise they did each day and record what their heart rate was at the beginning, middle and end of their exercise period. In addition, they should write down the length of time they exercised. At the end of the week evaluate how effective the exercises were for heart health benefits.



EVALUATION

PALS3.12.SG.ASSESS.A | EVALUATION ANSWER KEY

Answers will vary depending on student.

PALS3.12.SG.ASSESS.A

Name _____

Measure your pulse rate after each of these activities.

Activity	Pulse Rate 10 seconds	10 Second Pulse Rate x 6
Lying down for three minutes		
Walking for three minutes		
Jumping jacks for three minutes		

1. Which activity had the highest heart rate? _____
2. Which activity had the lowest heart rate? _____
3. Which activity/activities met your target heart rate? _____

PALS3.12.SG.TM.A

Strengthens	Does Not Strengthen



PALS3.12.SG.TM.B

RESTING HEART RATE = the number of heartbeats for 10 seconds x 6

TARGET HEART RATE = (220-age) x .7

Exercise at TARGET HEART RATE for 20 minutes or more to build cardiovascular fitness!