



American Heart Association.
KIDS HEART CHALLENGE | **AMERICAN HEART CHALLENGE™**

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TARGET HEART RATE CALCULATION

STEAM Lesson Plan

The American Heart Association recognizes the importance of building healthy bodies and minds. This lesson is an introduction into combined concepts of Science, Technology, Engineering, Arts and Math; better known as STEAM.

Objective:

Students will learn how to calculate their maximum heart rate and target heart rate zone and gain an understanding of why it's important to exercise for a healthy heart. Through a series of active movements, students will learn why a strong heart is more effective at circulating oxygen throughout your body.

Materials Needed:



Stopwatch



Pencil



Student worksheet



Overview:

A **heart rate**, or pulse, is the number of times the heart beats per minute.

A **resting heart rate** is the heart pumping the lowest amount of blood needed when not exercising. When calmly sitting or lying, an average heart rate is normally between 60 (beats per minute) and 100 (beats per minute). An athlete or more active person may have a resting heart rate as low as 40 beats per minute. It usually means the heart muscle is in better condition and doesn't have to work as hard to maintain a steady beat.

Note: Resting heart rates for children and adolescents are typically faster than adults' because they have smaller bodies.

When exercising determine if the exercise is too much or not enough. There's a simple way to know. A **target heart rate** helps to hit the bullseye to get the maximum benefit from every step, swing and squat.

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Activity:

1. Students will calculate their heart rate, resting heart rate; and target heart rate.
2. After each physical activity below, provide the students 1 to 2 minutes to let their heart rate recover before starting the next activity.
3. After students have recorded their heart rates as instructed, have a class discussion.

Discussion questions:

- What activity were you doing when your heart beat the fastest?
- During the recovery time after an activity, what happened to your heart rate?
- What physical activities do you think will get your heart beating at the maximum heart rate?
- Could you tell when your heart rate was increasing or decreasing?
- Could you tell when your heart rate was at or close to your maximum heart rate?



Heart Zone

Student Name: _____

Teacher: _____

Date: _____

STEP 1.

Find your estimated **PEAK** heart rate

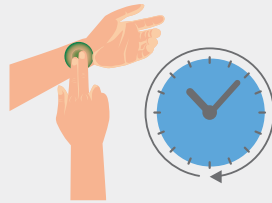
Subtract your age from 220



STEP 2.

Find your **RESTING** heart rate

Take your pulse for 10 seconds. Multiply your answer by 6 (example 12 beats x 6=72)



$$12 \times 6 = 72$$

RESTING HEART RATE

STEP 3.

Find your heart rate **RESERVE**

Subtract your peak heart rate from RESTING heart rate

$$\begin{array}{r} 170 \text{ (PEAK)} \\ - 72 \text{ (RESTING)} \\ \hline 98 \text{ (HEART RATE RESERVE)} \end{array}$$

STEP 4.

Find your **TARGET** heart rate

Multiply your heart rate RESERVE by 50 percent, then add that number back to your RESTING heart rate.

$$\begin{array}{r} 98 \text{ (RESERVE)} \\ \times .5 \\ \hline 49 \end{array} \quad \begin{array}{r} 72 \text{ (RESTING)} \\ + 49 \\ \hline 121 \text{ (TARGET HEART RATE)} \end{array}$$

Maximum Heart Rate

220 - Age _____ = _____

Resting Heart Rate

- Take your pulse on the inside of your wrist, on the thumb side.
- Use the tips of your first two fingers (not your thumb) and press lightly over the artery.
- Count your pulse for 10 seconds and multiply by 6 to find your beats per minute.

Heart rate _____ x 6 = _____

Heart Rate Reserve

Peak Heart Rate _____ - Resting Heart Rate _____ = _____

Target Heart Rate

Heart rate reserve _____ x .5 = _____

Resting heart rate _____ + 50% heart rate reserve _____ = _____

Task	Heart Rate After Task
Standing relaxed	
After 30 seconds of squats	
After 1 minute of jumping jacks	
After 45 seconds of burpees	
After walking at a leisurely pace for 3 minutes	
After jogging in place for 2 minutes	
After running for 1 minute (you can also run in place)	
Activity of your choice for 1 minute. List the activity you chose here:	