

**Elements of Fitness**

- Aerobic Capacity (Cardiovascular Fitness) is the body’s ability to take in oxygen so muscles can keep working
  - Any exercise over 3 minutes
- Body Composition is the ratio of fat to muscle in the body
- Flexibility is the ability of the joints and muscles to move through their full range of motion
- Muscular Strength is the amount of force the muscles can produce
  - Less than 15 seconds or 10 repetitions
- Muscular Endurance is the ability to use your muscles many times without tiring
  - Between 15 seconds and 3 minutes, more than 10 repetitions

**Definitions for the Heart and Circulatory System**

Blood – the liquid that carries oxygen throughout our bodies

Circulatory – the name for the system that includes our heart and blood vessels

Contracts – what the heart does to send blood rushing out

Heart – what you can listen to with a stethoscope

Lungs – the part of the body that takes in oxygen

Muscle – what our heart is made of

Oxygen – a gas that our bodies need

Pump – what the heart works like

Vessels – the tubes that carry blood

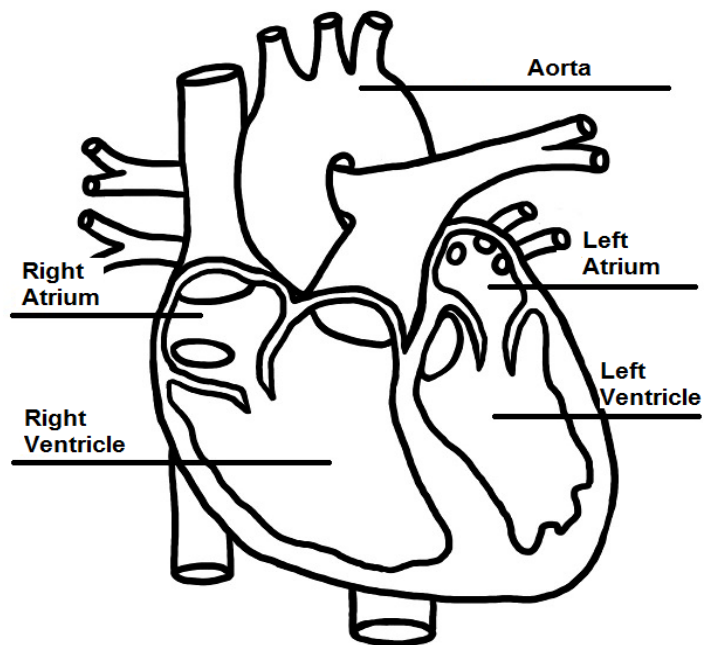
**What is the Heart?**

- The heart is a pump made up of muscle
- A heart is about the size of a fist
- The heart is a hollow organ that weighs a little less than 1 pound in an adult.
- The heart is in the middle of the chest located in between the two lungs, the pointed tip at the bottom of the heart touches the front wall of the chest

**Know the path the blood follows through the Circulatory System and be able to diagram the heart.**

Pathway of the Blood

- Body (Veins)
  - Right Atrium
  - Right Ventricle
  - Lungs
  - Left Atrium
  - Left Ventricle
  - Aorta
  - Body (Arteries)
  - Capillaries
- ...then the process starts over again by returning to the heart through the veins



**Blood Vessels** – The tubes blood travels through are called blood vessels

- Arteries carry blood away from the heart
  - The aorta is the largest artery in the body located at the top of the heart
- Veins carry blood back to the heart
- Capillaries the smallest blood vessels
- Blood vessels are like a tree, the closer to the heart the fewer and bigger they are, the farther away from the heart the more and smaller they are

**Target Heart Rate Zone and Maximum Heart Rate**

Maximum Heart Rate ((MHR)

- When exercising you should be below maximum heart rate.
  - $220 - \text{AGE} = \text{Maximum Heart Rate (MHR)}$
- Target Heart Rate Zone
  - This is the range where you want your heart rate to be during exercise
  - The Target Heart Rate is a percentage of the Maximum Heart Rate
    - $\text{MHR} \times .70 = \text{The lower range of your target heart rate zone}$
    - $\text{MHR} \times .85 = \text{The higher range of your target heart rate zone}$

Example: Calculating the Target Heart Rate Zone

Marcus is 10 years old. The steps to calculate his target heart rate would be

$$220 - \text{AGE} = \text{MHR} \text{ ----- } 220 - 10 = 210 \text{ (This gives you the maximum heart rate)}$$

Target Heart Rate Zone:

$$\text{MHR} \times .70 = \text{THR} \text{ ----- } 210 \times .70 = 147 \text{ --- (This gives you the lower range of THR)}$$

$$\text{MHR} \times .85 = \text{THR} \text{ ----- } 210 \times .85 = 178.5 \text{ --- (This gives you the higher range of THR)}$$

So Marcus' Target Heart Rate Zone is 147 to 178.5 beats per minute meaning he wants to keep his heart rate in between 147 and 178.5 beats per minute when he is exercising.

**\*\*You should be familiar using these equations; here is an extra sample so you can practice by selecting different ages\*\***

- Find the Maximal Heart Rate (MHR):

$$220 - \text{AGE} = \text{_____ heart rate (MHR)}$$

- Find 70% of the MHR

$$\text{MHR} \times .70 = \text{_____}$$

- Find 85% of the MHR

$$\text{MHR} \times .85 = \text{_____}$$

ANSWER: The Target Heart Rate Zone for a ? year-old person is \_\_\_\_\_ - \_\_\_\_\_ beats per minute.