PLTW Principles of Biomedical Science

Lesson 1: April 6th

Learning Target / Daily Objective:

Students will be able to to draw, identify, and find specific facts about the heart including heart location and placement in the body, heart size, and draw the shape and features of the heart.
(Reference: PLTW® 4.1.1 Path of the Blood in the Heart)

Let's Get Started / Bell Ringer:

Watch Video: The Heart and Circulatory System
Read Quick Article: emedicinehelath Heart Location

Lesson/Activity:

Use these websites as references:

Map of the Human Heart Heart Anatomy Cross-Section

Heart Animation Mapping the Body

1. Introduction: Our goal is to understand the design of the heart, it is important to examine the structures of this incredible organ and trace the path of blood flow.
   a. In this lesson you will investigate the basic location, size, and shape of the human heart.
   b. Use the resource links above to complete the following activity and to answer the following questions about the heart's location, size and shape.
2. Activity: Draw a rough sketch of the human body and place the heart in the correct location in your notebook or a piece of paper. Note that you will be referring back to this image and adding on to it in future lessons. Take into account standard anatomical position.

Answer:

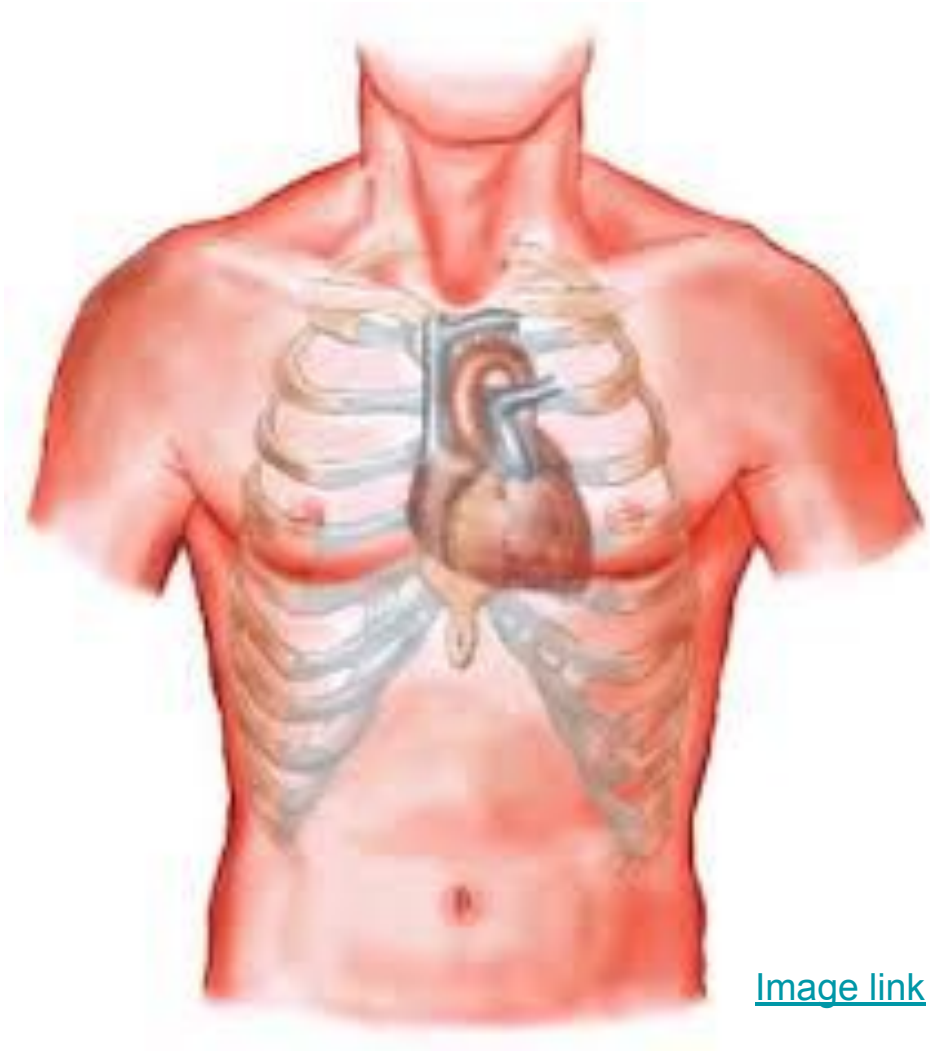


Image link

Lesson/Activity continued:

Use these websites as references:

Map of the Human Heart
Heart Anatomy
Cross-Section
Heart Animation
Mapping the Body

Questions: Answer the following questions in your notebook or piece of paper:

1. What bone is the heart approximately under? Why might this be a good location for the heart?
2. In what major body cavity do you find the heart located? If you were a heart surgeon, what cavity would you be cutting into to perform an open heart surgery?
3. What is the approximate size of the heart in an adult? A child? Your answer should have both volume (mL or cm^3) as well as mass (grams) for each.
4. What is the narrow end of the heart called? What is the wide end of the heart called?
5. If you are using the placement of the ribs to locate the heart, at which ribs would you expect to find the heart?

Answers:

Question Answers:

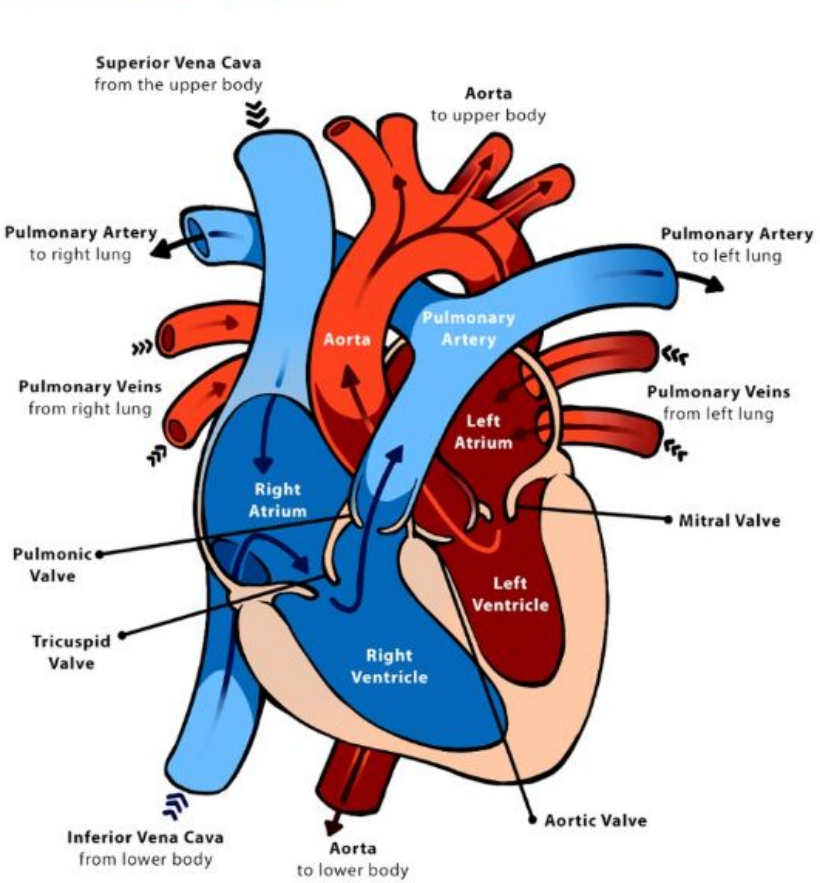
1. What bone is the heart approximately under? Why might this be a good location for the heart?
   a. Sternum… central location connection point for all ribs, very protected.
2. In what major body cavity do you find the heart located? If you were a heart surgeon, what cavity would you be cutting into to perform an open heart surgery?
   a. Thoracic
3. What is the approximate size of the heart in an adult? Your answer should have both volume (mL or cm^3) as well as mass (grams) for each.
   a. Volume 12x8x6= 576 cm3 Mass 250-350 grams.
4. What is the narrow end of the heart called? What is the broad end of the heart called?
   a. Narrow = Apex Broad End = Base
5. If you are using the placement of the ribs to locate the heart, at which ribs would you expect to find the heart?
   a. Between Ribs 2 - 6

Practice:

Practice Activity: Now that you know a little about the basics human heart, draw one showing the **anterior** and **posterior** views in your notebook or your piece of paper, make you drawing to scale. Note: you are only drawing the size, and shape right now. We will add to your heart diagram later on in our future lessons.

Answer:

Note: Only draw the shape and chambers of the heart right now. We will add the vocab terms during a future lesson.



Additional Practice and/or Resources:

Go to this website:

What Makes You Tick? Heart Facts Trivia

Test your knowledge and learn more heart trivia by clicking on the link above.