



You Gotta Have Heart!

- Lesson Concept** The structure of the heart enables it to oxygenate and pump blood throughout the body.
- Link** In the previous lesson, students investigated the structure and function of the lungs. In this lesson, they begin their study of the circulatory system by investigating the structure and function of the heart. In the next lesson, students will dissect and learn more about the heart.
- Time** 45 minutes
- Materials**
- Whole class
- Tray with pig's heart
- Document camera
- Human Body: Have a Heart video found on SBCEOportal.org
- Individual
- Science notebooks
- Heart diagram
- Advance Preparation**
1. Use the following resources for teacher background:

<http://www.gwc.maricopa.edu/class/bio202/Cardiovascular/models/hartint0.htm>

<http://www.wfu.edu/~claybrsd/grad/5420final/labinstructions.pdf>

<http://www.hometrainingtools.com/heart-dissection-project/a/1318/>

YouTube videos of dissection:
<http://www.youtube.com/watch?v=mNjATiS7d30>
<http://www.youtube.com/watch?v=U0BHYvGSp40>
 2. Review the Human Body: Have a Heart video
 3. Order pig hearts at least two weeks ahead (try Sclaris off Milpas or Santa Cruz market). You need one as a demo for this

lesson and then enough so that every group has one for the next lesson.

4. Dissect the demo heart and become familiar with the parts. Optional, use colored coded pins for the different parts so that you can find them easily.
5. Prepare a space for a word wall for lessons 5.5-5.7.
6. Prepare a class chart (see Step 8).

Procedure:

Engage (5 minutes) *The heart is located in the chest; it pumps blood.*

1. Ask students to place their hand over their heart. What do they notice?
2. In partners, ask students to think about the structure and function of their heart. What do they know?
3. Ask several groups to share what they know. Record their ideas in a T chart labeled structure and function (e.g., heart (structure) pumps blood (function); atrium (structure) receives blood from body (function)).

Teacher Note: Students may not know any of the parts of the heart. That is ok. This part of the lesson is to reveal what they do know. Keep the chart to review at the end of the NEXT lesson (Lesson 5.6).

Explore (25 minutes) *The heart has four chambers to oxygenate and pump the blood throughout the body.*

4. Ask students to review the ideas on the Engage chart and make a sketch in their notebook with their regular pencil of what they think the heart looks like in their body. Label any parts they drew.
5. Hold up the pig heart and show it to the class. Ask students to compare and contrast what this heart looks like to their drawing.

Teacher Note: When you are done with the heart, re-bag it. You will use it again in the next two lessons. If these lessons are not taught consecutively, freeze the heart to keep it from rotting. Or, since the hearts are relatively inexpensive, consider ordering multiple hearts for the upcoming lessons.

6. Ask if anyone drew the inside of the heart. If they did, have them share their ideas.
7. Place the heart on the document camera to show the 4 chambers and the aorta (artery) and superior and/or inferior vena cava (veins). Compare what the real heart looks like to their drawings.
8. Point to each part of the heart (4 chambers, aorta and vena cava) and ask students what they think it is and what the purpose might be. Record their ideas in a class chart (example below):

Structure	Function...	Actual name...	Actual purpose...
1. large tube	Carry blood		
2. curved tube	Carry blood		
3. lower right space	Hold blood		

9. Tell students they will view a video of the heart. Ask them to record any new words related to the heart. Show the video (Have a Heart) for 15 minutes; stop 2/3 of way in before it discusses heart diseases.
10. Ask students to think-pair-share the words they wrote in their notebooks and discuss what the structure or function may be. As they share out, create a word wall of the structures and functions noted in the video (e.g. right atrium (receives blood from body); left atrium (receives blood from lungs); right ventricle (pumps blood to the lungs); left ventricle (pumps blood to the body, etc).

Explain (10 minutes) *The structures of heart enable it to oxygenate and pump the blood throughout the body.*

11. Distribute the diagram of heart. In partners ask student to use the word wall and what they learned in the video to label their diagram. Monitor as students are working to ask clarifying questions if necessary.
12. Return to the class chart and ask students to attach an actual name and purpose to their initial observations.

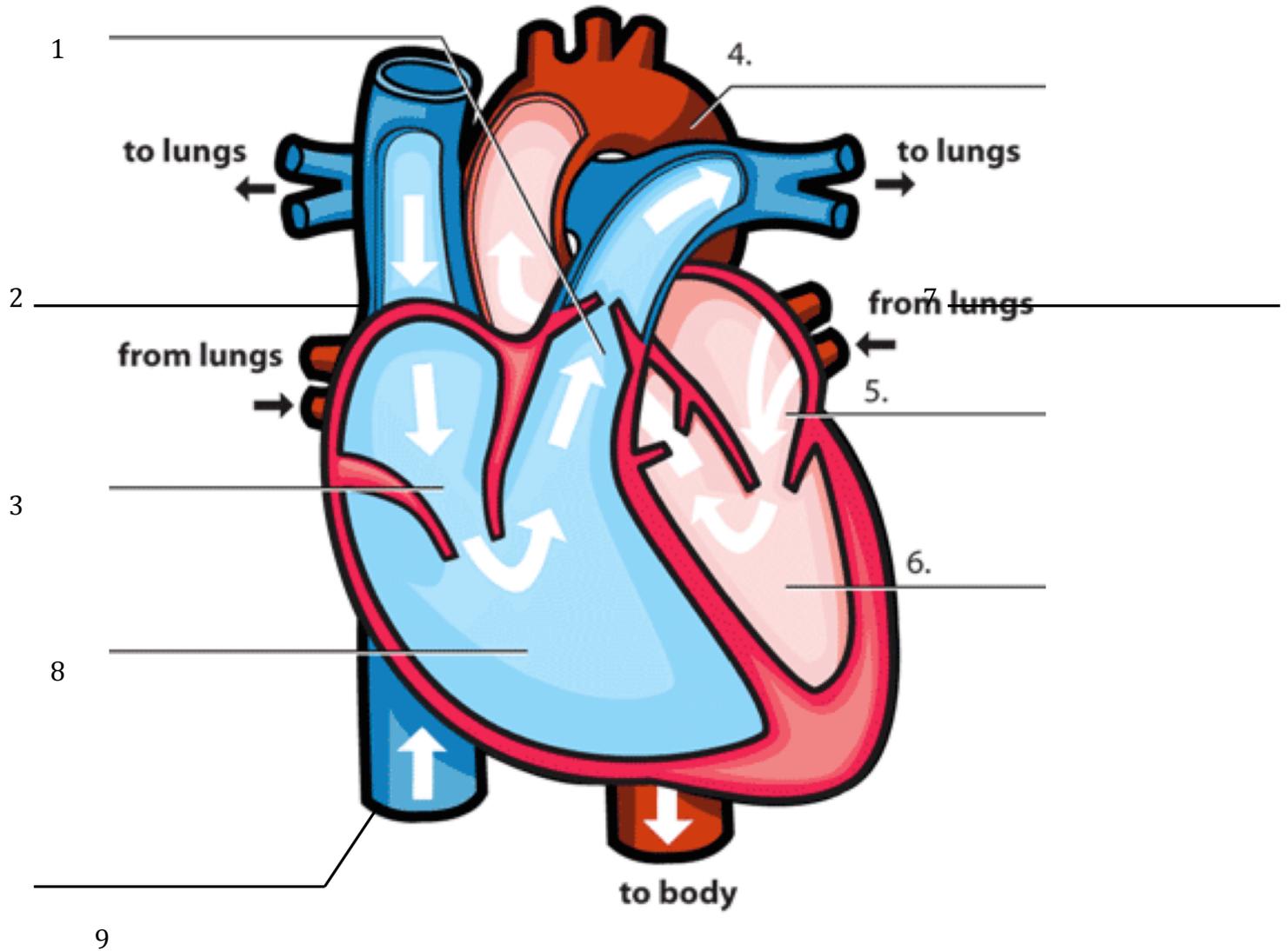
Extend/Evaluate (5 minutes) *The heart has many structures with specific jobs.*

13. Have students record and complete the following sentence frame in their science notebooks: I used to think _____ about the heart, now I think _____.

HOW THE BODY WORKS

The Heart

Directions: Print out, label the parts of the heart, and circle the four valves.



WORD BANK		
Inferior vena cava	pulmonary artery	aorta
Left ventricle	right atrium	left atrium
Pulmonary vein	superior vena cava	right ventricle