



Heart to 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 heart. In this lesson, they continue their study of the heart by dissecting the heart and using various media to learn more about the heart. In the next lesson, students will learn about how the arteries distribute oxygen and nutrients to tissues via capillaries and how veins remove carbon dioxide and waste.
Time	60 minutes
Materials	<u>Whole class</u> Tray with pig's heart (from Lesson 5.5) Document camera <u>Stations (with direction cards)</u> <ul style="list-style-type: none">• Dissection: tray with pig's heart for each group; scalpel; 4-6 laminated labeled heart diagrams (duplicate from Lesson 5.5)• Reading: bucket of heart/circulatory system related books with post its and pencils• Art: markers, crayons, any art medium• Computers: at least 2; web site: KidsHealth.org/kids/htbw• Pulse rate tester: plastic bottle tops, straws, tennis balls, scissors• Word games: Word Search and Fill in/ one each per student <u>Individual</u> Gloves for dissecting
Advance Preparation	<ol style="list-style-type: none">1. Gather materials and set up the 6 stations with the direction cards found at the end of the lesson. If you wish for each student to have a pulse tester, be sure to gather tops and straws for each student.2. Defrost hearts if necessary (see ordering in lesson 5.5); have a place to dispose of hearts quickly.

3. If you have access, view the Bill Nye video (Blood and Circulation) for reference to the pulse rate tester. Note--It is not necessary to preview this to do the activity; the directions are on the station card.
4. Decide how to group students for the rotation at stations.

Engage **(5 minutes) The heart has four chambers to oxygenate and pump the blood throughout the body.**

1. In a think-pair-share, ask students to recall the parts of the heart and their functions. Chart their responses.
2. Build on their answers to introduce the stations that students will be moving through to learn more about the heart.

Explore **(25 minutes) The heart has four chambers to oxygenate and pump the blood throughout the body; it has arteries to carry blood to the body and veins to return blood to the heart.**

3. Explain the stations, how students will rotate through them, and that they will have 7 minutes at each station.
4. Divide the class into small groups of 3-5 students and assign them to their first rotation.

Teacher Note: The 6 activities are:

1. *Dissection with teacher: reinforce key vocabulary and have students identify parts and function.*
2. *Reading: students browse heart-related books and use post-its to ask questions or mark an interesting page or idea for other students to see; they also write questions/notes in their notebook.*
3. *Pulse Rate Tester: Students make and use tester.*
4. *Art: students create a heart that can be decorated or labeled in a variety of ways and label and explain major parts of the heart such as the chambers and the valves. If it fits into their notebooks, ask them to add it their notebook.*
- 5a/b *Word Games: students complete word search and fill in puzzle. Ask them to add these to their notebook.*
6. *Computers: Students go to KidsHealth.org/kids/htbw to find heart related resources and videos. Ask them to write what they learned in their notebook.*

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

5. Re-display the T chart from Lesson 5.4 with the students' original ideas about the structures and function of the heart.

6. As a class, review what the students now think about the structure and function of the heart. Make corrections or additions as needed
7. Ask each student to complete the following prompts in their notebooks: Before this lesson I knew about _____ and I was right. Before this lesson I thought _____ but learned that it really is _____. I am still wondering about _____.
8. See **Formative Assessment #2**.

Station 1 is dissection with teacher

Station 2: Book Research Directions

Choose a book that looks interesting to you. Browse the book and use the post-its to comment on interesting points or ask a question for other groups to look at when they get to this station.

Station 3: Pulse Rate Tester

Make a pulse rate tester! Cut a small slit in each side of your straw.

- 1) Attach it to the bottle top.
- 2) Lay your arm flat with your palm facing up.
- 3) Place the tester on your “inner elbow.”
- 4) Watch the straw move as your vein pulses.

Next, take the tennis ball and squeeze it 25 times. Then, put your tester back on your wrist and see if it moves faster than it did before. Keep testing it with different movements, for example: do sit ups, push-ups or jumping jacks.

Station 4: Art for your Heart!

What does *your* heart look like?

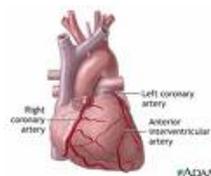
Use the colors to represent how you feel in your heart. What people and things are close to your “heart?”

Cut it out and glue it on the black background. Put your name on the back.

Station 5a: How the Body Works

Word Search

Work with your group and see if you can be the ones to complete the word search puzzle first! If you finish any other station early you can always come back to this! Good Luck!



Station 5b: Circulatory System Fill In

Work together as a team to fill in the blanks using the words from the word bank. Use your inquiry notebook, posters on the wall, or science books to find any answers you don't know. When you finish any other station you can always come back to this! Good Luck!

Station 6: Computer Research

Visit the website:

www.kidshealth.org/kid/htbw

Find and click on the heart. Watch a movie, read an article, take a quiz, and have fun!

HOW THE BODY WORKS

Cardiovascular System Word Find

Directions: Print out the word find. See how many words you can find from the list below.

A L E T I T F L O W Y M S Y E
N T M C J F Z D A F I L N T W
X A R W I O V A S P H L A R N
R S N I E V N G J L N H F U B
M C Q Y U U W W H C Y P T L C
V W W V O M X H W C D R O J N
W T A E T S A W E A I O B A Y
J B N N E G Y X O E D F R Z G
A R T T P K M S N W F T N I W
H E A R T S R T L S E V L A V
F B U I S W S B G R B H L Q R
C I R C U L A T I O N E R M C
V X Z L G V X E G Y Q D A Y W
S L P E P A S H V S G C O T O
B V U S S E A D H X T H Y R E

ARTERIES

ATRIUM

BEAT

BLOOD

CIRCULATION

HEART

NUTRIENTS

OXYGEN

VALVES

VEINS

VENTRICLES

WASTE



The Circulatory System

Use the words in the box to fill in the blanks.

veins	transport	circulatory	blood
arteries	oxygen	lungs	heart
nutrients	energy	carbon dioxide	pumped
capillaries	dark	bright	intestine
away	heat	to	atmosphere

All animals need to _____ materials around to the different parts of their body. This is the job of the _____ system. The circulatory system consists of a liquid called _____, a pump called the _____ and a series of vessels called _____ and _____.

One thing that must be transported around is a gas called _____. Oxygen enters the blood through the _____. It is then _____ through the heart and around the body where it is used along with food to make _____. The body produces another gas called _____, which is a waste product. This gas is carried back to the heart and then to the lungs where it is released back into the _____.

The vessels that transport blood _____ from the heart are called arteries. The blood in arteries is _____ red because it is rich in oxygen. The vessels that transport blood _____ the heart are called veins. The blood in veins is _____ red because it is low in oxygen. _____ are small vessels that join the arteries and veins.

_____ from food are also transported around the body by the circulatory system. They enter the blood from the small _____. The circulatory system also helps to regulate temperature by transporting _____ around the body.

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