

Teacher:
Date:
Grade:

Subject / Course: ELA, Science, Math
Unit Title: Heart Matters (Can be used in conjunction with teaching the Body Systems)
Duration: 20–30 Minutes

Mississippi Science Framework:

INQUIRY

- 1a. Form hypotheses and predict outcomes of problems to be investigated. (DOK 3)
- 1d. Use simple sketches, diagrams, tables, charts, and writing to draw conclusions and communicate data results. (DOK 2)

LIFE SCIENCE

- b. Classify the organs and functions of the nervous, circulatory, and respiratory systems of the body. (DOK 1)
-

CCRS:

ELA

- W.4.2d Use precise language and domain-specific vocabulary to inform about or explain the topic.
- RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
- RF.4.4a Read grade-level text with purpose and understanding.
- L.4.1f Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.
- L.4.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling, when writing.
- L.4.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.

MATH

- 4. NBT.4 Fluently add and subtract (including subtracting across zeros) multi-digit whole numbers using the standard algorithm.
- 4. NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

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Summary of Unit:

Circulatory System. Discussing the heart, where it is located, and its function within the body. Includes information on the first heart transplant, which took place in Mississippi.

Lesson Objectives:

- Explain the role of the heart and how it functions within the body
- Model how the heart works through activities (pulse and flow throughout the body)
- Give examples of what can happen if the heart doesn't work and include information about transplant
- Learn about the first heart transplant, who performed it, and where it took place

Lesson Structure:

- The teacher will have students read the “Heart Matters” handout to learn information about the heart and how it works. This can be done as a whole group, in partners, or individually, depending on your students’ needs.
- Students will work through the vocabulary crossword. You can review their responses to help them improve their understanding.
- Students need to be separated into small groups or pairs to complete the “Finding Pulse” activity.
- After a group discussion of how the heart works, students will complete the “All About the Heart” handout. This can be used as classwork, homework, or an assessment.
- The teacher will talk to the students and will discuss their answers to question number four on the “All About the Heart” handout to introduce discussion about heart transplants and other options when the heart stops working.
- The teacher will read “Heart Transplants” and discuss what happens in a heart transplant.
- The teacher will show students the *Mississippi, Believe It!*TM transplant poster, and discuss Dr. James Hardy.

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Guiding Questions:

1. What is the heart?
2. Where is your heart located, and what does it do?
3. What is a pulse?
4. What body system is your heart a part of?
5. What happens if your heart stops working?
6. What is a heart transplant?
7. Where was the first heart transplant performed?

Activity:

Finding Pulse

The student will find his or her pulse by placing two fingers (index and middle) on the neck or inside of wrist. The students will count beats for 10 seconds and then multiply that number by 6. The student will write down his or her resting pulse. Next, have students do jumping jacks or jog in place for 1 minute and then find the pulse again, using the same method as before. Have the students compare the two pulses.

Materials needed – pencil and paper

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Key Vocabulary:

- Veins
- Circulatory
- Pulse
- Heart
- Oxygen
- Blood
- Arteries
- Transplant
- Patient
- Donor

Resources & Materials

- Whiteboard
- Charts/Maps
- Computer
- Smartboard
- Video/Audio
- Textbook Pages
- Workbook Pages
- Handout
- Manipulatives
- Other:

Assessments:

- Pre-Test
- Post-Test
- Observation
- Oral
- Writing Assessment
- Journal
- Homework
- Demonstration
- Other:

Learning Styles Addressed:

- Visual
- Auditory
- Kinesthetic
- Tactile

Guided Practice:

Notes:

Interventions:

- Small Group
- Modified Assignments
- Accommodations
- One-on-One
- Tutoring (Peer and Teacher)
- Manipulatives
- Other:

Independent Practice:

Name _____

Date _____

Heart Matters

Complete the crossword below.

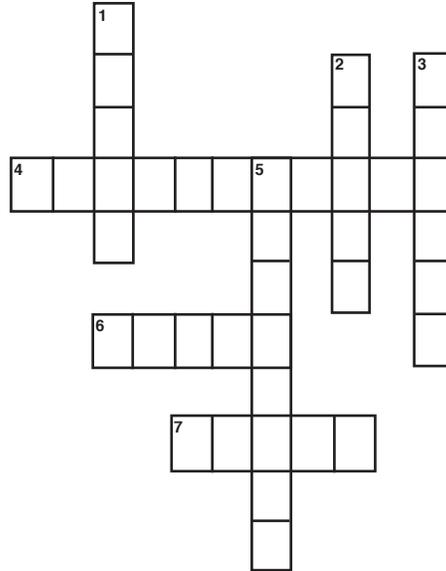
veins **circulatory** **pulse** **heart**
oxygen **blood** **arteries**

Across

- 4. The bodily system of blood, vessels, and the heart
- 6. The push of the blood through your arteries
- 7. Return blood to the heart

Down

- 1. Organ that pumps blood
- 2. Liquid that carries oxygen and nutrients through your body
- 3. Gas your body needs to survive
- 5. Carries blood away from the heart



Name _____

Date _____

Heart Matters

Complete the crossword below.

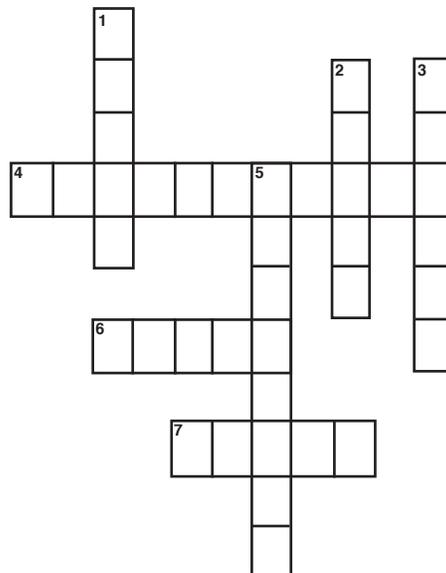
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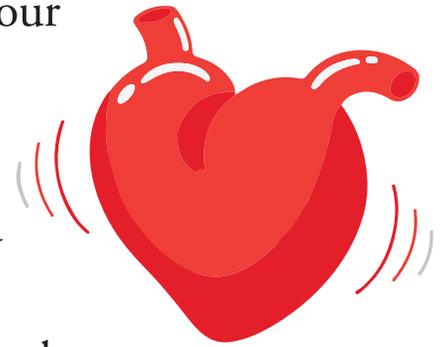
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Heart Matters

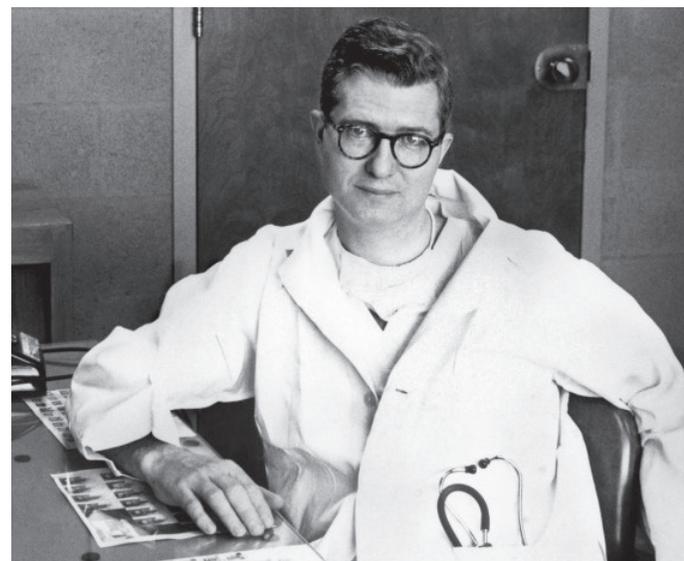
The heart is one of the most important organs in your body. The heart is part of the circulatory system, which is also made up of blood vessels. It is located in the middle of your chest under your ribs. Your heart's job is to pump blood throughout your body to other body parts, including your lungs, brain, muscles, and kidneys. You can feel the push of blood through your pulse. If you put two fingers on the inside of your wrist or on your neck, you can feel the thump of your heart. A doctor hears this using a stethoscope on your chest. The blood that the heart pumps contains oxygen, a gas your body needs to survive. Your heart sends out oxygen-rich blood to the body parts through arteries. The oxygen is deposited to each body part. The arteries carry the blood away from the heart with oxygen, and the veins return the blood without oxygen back to the heart. Your heart does this about 100,000 times per day! The heart never stops pumping blood, even when you are sleeping.



Heart Transplant

A heart transplant is performed by a surgeon and it replaces a patient's heart with a donor's heart. The world's first heart transplant happened in Mississippi at the University of Mississippi Medical Center in Jackson.

Dr. James Hardy performed this transplant, placing a chimpanzee's heart into a man in 1964.



Dr. James Hardy

Name _____

Date _____



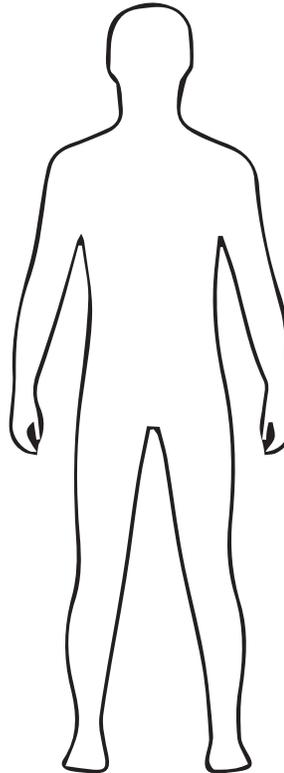
All About the Heart

Answer in complete sentences.

1. Where is the heart located in your body?

2. What is the heart's job?

3. Draw the circulatory system on the picture below. Use blue for the arteries and red for the veins.



4. Predict what you think will happen if your heart can't pump blood to the rest of your body. Use vocabulary words to explain.
