

Go With the Flow

Lesson Two: Students will learn about the path blood takes through the heart and out to the body.

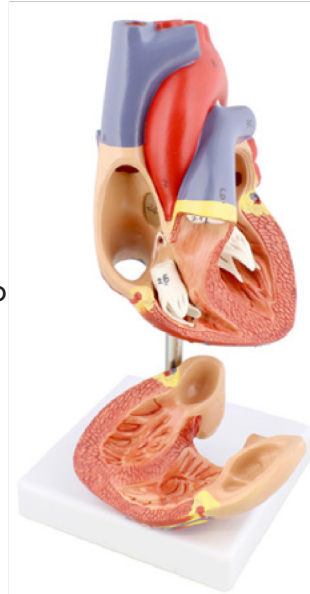
MATERIALS FOR EACH PAIR OF STUDENTS:

1. Copy of the 2-page printable "Go With the Flow"
2. 12" x 18" sheet of construction paper
3. Scissors
4. Glue

SETUP:

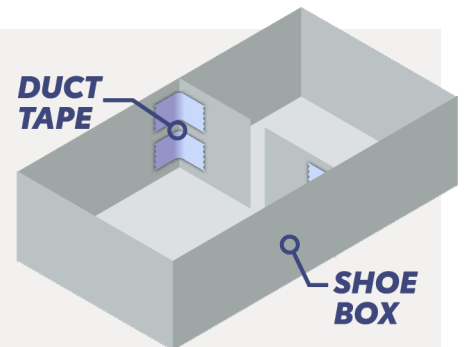
To help your students understand how blood flows through the heart and out to the body, try this simple activity.

1. Begin by showing students the heart model. Point out the many numbered parts of the heart, making sure to separate the model into its two parts.
2. Ask students to name any parts that they recognize from your study of the heart.
3. After the discussion, give each student the materials listed.
4. Read the directions on the first page of the "Go With the Flow" printable together. Then have each student complete the activity independently or with a partner.
5. If desired, have students color the diagrams using blue and red crayons or colored pencils to show the oxygen-poor blood and oxygen-rich blood as it travels through the heart.



EXTEND WITH STEM

- The four valves that keep blood moving in the right direction are among the most important parts of the heart. Each valve is a one-way valve, meaning that the blood can only travel through the valve in one direction. When muscles in the heart contract to pump blood, the valves open or close to make sure the blood is pumped in the right direction. Give each group of students a shoebox in which you have added a partial dividing wall made from the box's lid (see the illustration). Explain that the shoebox represents two BOX adjacent chambers of the heart. Challenge each group to create and test a valve that allows "blood" (marbles, beads, small pasta pieces, etc.) to move in one direction only from one chamber to the other when the box is tipped. Provide students with materials such as cardboard, duct tape, popsicle sticks, and other items to create and test their valve designs.
- The human heart is enclosed in a protective membrane called the pericardium. The pericardium secretes a fluid that reduces friction as the heart beats. After sharing this information with students, explain that friction is the resistance of motion when one object rubs against another. Then divide the class into small groups. Give each group two bowls; a pair of tongs; 60 interlocking, plastic counting cubes; a cup filled with water; a cup filled with dishwashing liquid; and a cup filled with cooking oil. Direct students to put 20 cubes in one bowl and place it beside the other bowl. Challenge students to take turns using the tongs to move the cubes to the empty bowl. Then have them pour one of the liquids over the cubes and repeat the activity. (Students will need to wash the bowl and cubes after the trials with the dishwashing liquid and oil). Have students identify the liquid that made it harder to move the cubes. Guide them to see that this liquid did the best job of reducing friction between the cubes and the tongs. Relate this to how the fluid produced by the pericardium reduces friction in the heart so it can keep pumping blood throughout your body.



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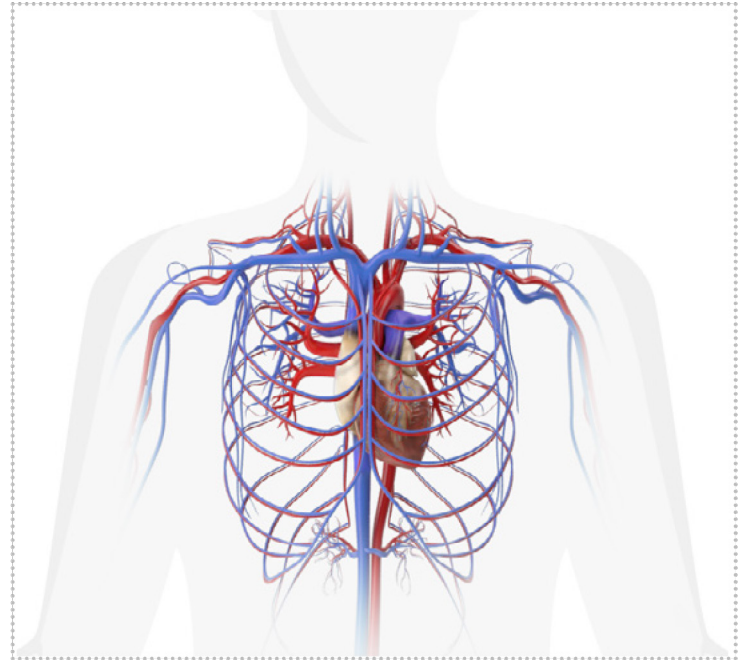
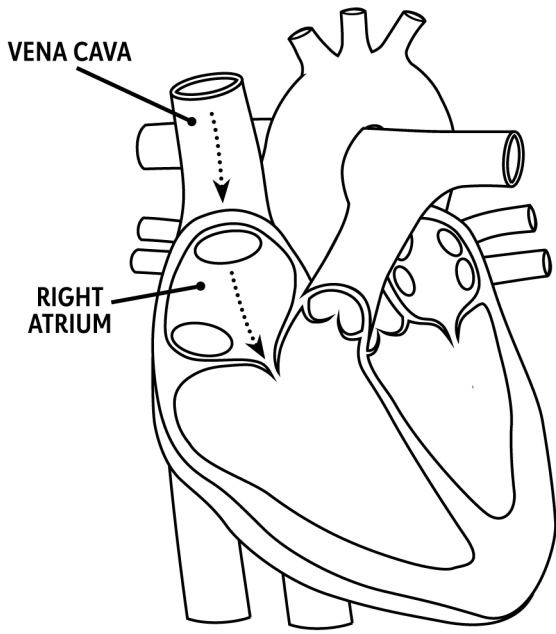
Name:

Date:

INSTRUCTIONS:

As your heart beats, it pumps blood through a system of blood vessels called the circulatory system. Arteries carry oxygen-rich blood from your heart to the rest of your body. Veins return oxygen-poor blood to your heart. Follow these steps to make a chart about the path blood takes through your heart.

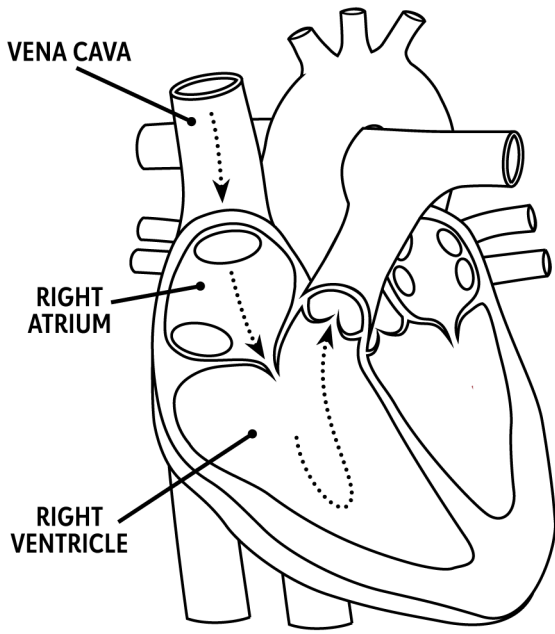
1. Cut out the heart diagrams. Glue the heart diagrams in order on the construction paper.
2. Cut out the phrases below. Pair the phrases to make five sentences.
3. Glue each sentence under the matching heart diagram.

VENA CAVA

RIGHT ATRIUM

to the right atrium through the vena cava.



VENA CAVA

RIGHT ATRIUM

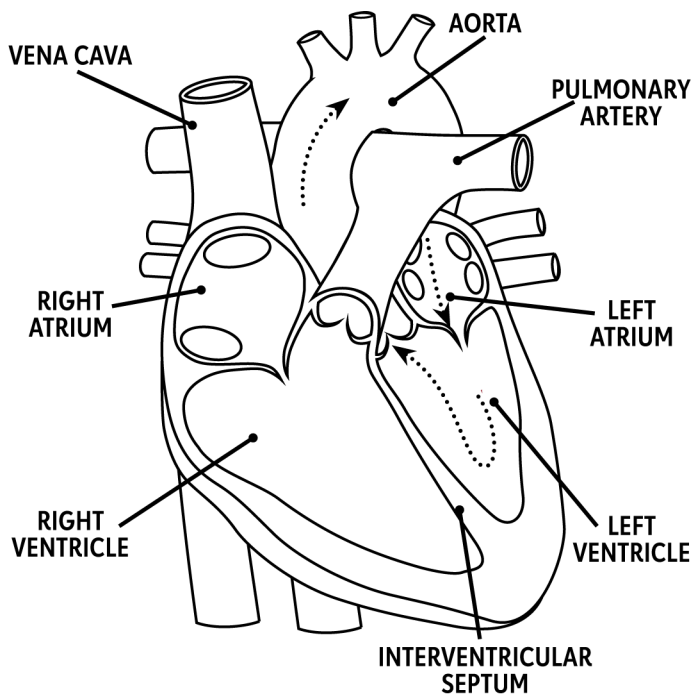
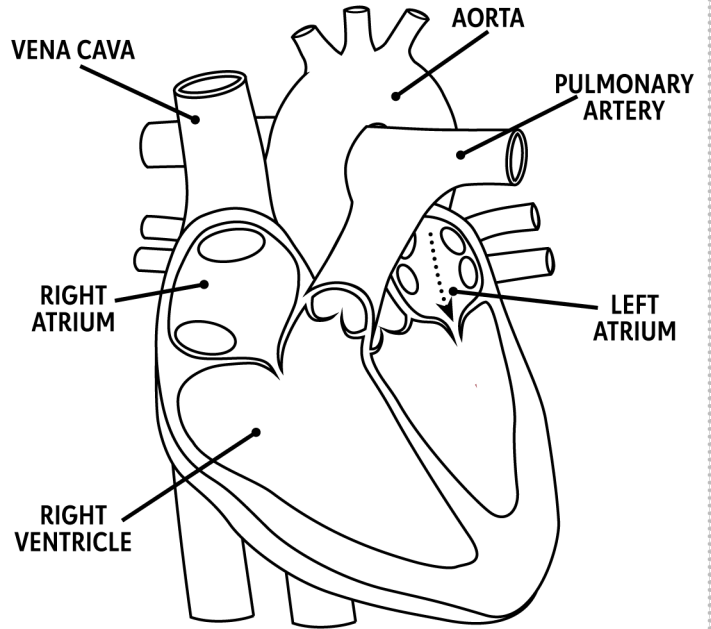
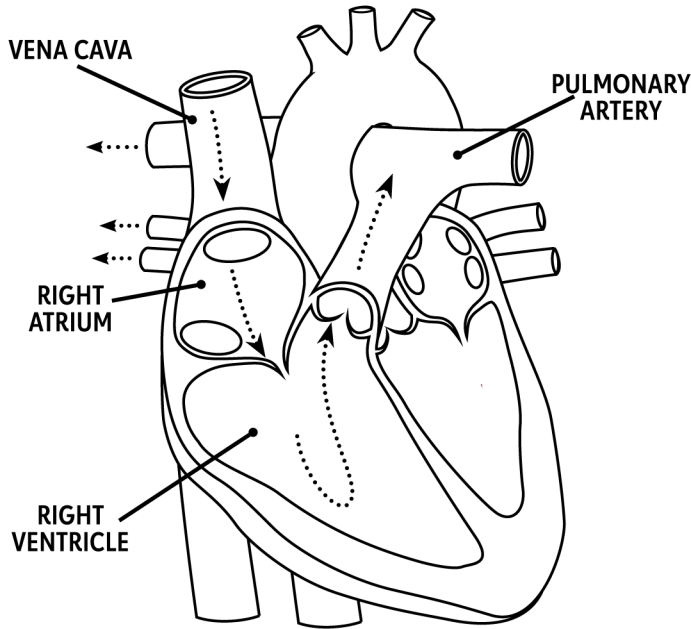
RIGHT VENTRICLE

and is pumped into the left atrium.

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Name: _____

Date: _____



Oxygen-poor blood from the body returns

Oxygen-rich blood returns from the lungs

into the pulmonary artery to go to the lungs.

blood is pumped into the right ventricle.

When the right atrium is full,
the left ventricle, and then into the aorta to
go to all parts of your body.

Blood from the right ventricle is pumped

Blood from the left atrium is pumped into

Go With the Flow

Answer Key

- 1.** Oxygen-poor blood from the body returns to the right atrium through the vena cava.
- 2.** When the right atrium is full, blood is pumped into the right ventricle.
- 3.** Blood from the right ventricle is pumped into the pulmonary artery to go to the lungs.
- 4.** Oxygen-rich blood returns from the lungs and is pumped into the left atrium.
- 5.** Blood from the left atrium is pumped into the left ventricle, and then into the aorta to go to all parts of your body.