A Heart in Motion

Read, mark, and model the paths blood takes through the heart.

HS-AP8-5 "Use a diagram and/or a model of the heart to illustrate the external and internal structures, the vessels entering and exiting, unidirectional blood flow and how the heart supports pulmonary and cardiac circulation."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB In paragraph 2, number the structures blood passes through in order from the venae cavae to the aorta. Throughout the passage, underline chamber names and circle vessels that enter or leave the heart.

A Runner's Two Blood Routes

1. At a track meet, a runner's heart pumps faster to supply working muscles. Its pointed lower end, called the apex, sits below the wider base. Inside, a muscular septum divides the heart into right and left sides. Each side has an upper atrium that receives blood and a lower ventricle that pushes blood out. The right ventricle has a thinner wall than the left ventricle, which must pump blood across the body. Four valves act as one-way gates: the tricuspid and mitral valves sit between atria and ventricles, while pulmonary and aortic valves guard the exits.

2. Follow one drop returning from the runner's legs. The superior and inferior venae cavae bring oxygen-poor blood from the body into the right atrium. Blood passes through the tricuspid valve into the right ventricle, then through the pulmonary valve into the pulmonary arteries. In the lungs, blood releases carbon dioxide and takes up oxygen. Pulmonary veins return oxygen-rich blood to the left atrium. It crosses the mitral valve into the left ventricle and passes through the aortic valve into the aorta. The aorta sends blood toward body tissues, where oxygen leaves the blood.

3. The heart muscle needs its own blood supply. Just above the aortic valve, coronary arteries branch from the aorta and carry oxygen-rich blood over the heart's outer surface to its muscle. Coronary veins collect oxygen-poor blood from that muscle; most of it enters the coronary sinus, which empties into the right atrium. This route is coronary circulation, while the trip between the heart and lungs is pulmonary circulation. When the runner speeds up, the heart pumps more blood through both routes. The septum limits mixing between the two sides, and closing valves prevent blood from flowing backward.

2 ANSWER WITH EVIDENCE

Use the passage

1. On a heart sketch, where would you draw the two venae cavae entering, and which chamber receives their blood?

2. Trace an arrow from the right atrium to the lungs. Name the chamber, valves, and exiting vessels it passes in order.

3. Trace an arrow from the lungs to the aorta. Name the entering vessels, chambers, and valves it passes in order.

4. To show how the heart muscle receives and returns its own blood, what arrow route would you add from the aorta back to the right atrium?

3 YOUR TURN

Your own words

Draw a simplified heart cutaway with four labeled chambers, the septum, four valves, and the vessels entering and leaving the heart. Use arrows to show blood traveling through the lungs and body, then add a branch showing blood reaching the heart muscle from the aorta and returning to the right atrium.

ANSWER KEY

A Heart in Motion

PART 1 · READ AND MARK

In paragraph 2, number the structures blood passes through in order from the venae cavae to the aorta. Throughout the passage, underline chamber names and circle vessels that enter or leave the heart. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	On a heart sketch, where would you draw the two venae cavae entering, and which chamber receives their blood?	**Draw the superior and inferior venae cavae entering the right atrium. They carry oxygen-poor blood from the body.**
2	Trace an arrow from the right atrium to the lungs. Name the chamber, valves, and exiting vessels it passes in order.	**Right atrium → tricuspid valve → right ventricle → pulmonary valve → pulmonary arteries → lungs.**
3	Trace an arrow from the lungs to the aorta. Name the entering vessels, chambers, and valves it passes in order.	**Lungs → pulmonary veins → left atrium → mitral valve → left ventricle → aortic valve → aorta.**
4	To show how the heart muscle receives and returns its own blood, what arrow route would you add from the aorta back to the right atrium?	**Aorta → coronary arteries → heart muscle → coronary veins → coronary sinus → right atrium.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The sketch labels the right and left atria, right and left ventricles, septum, tricuspid valve, pulmonary valve, mitral valve, and aortic valve. Arrows show body → venae cavae → right atrium → tricuspid valve → right ventricle → pulmonary valve → pulmonary arteries → lungs → pulmonary veins → left atrium → mitral valve → left ventricle → aortic valve → aorta → body. A separate branch shows aorta → coronary arteries → heart muscle → coronary veins → coronary sinus → right atrium.

Accept simplified shapes and either page orientation if chamber labels and arrow directions are correct. Coronary return through the coronary sinus is expected in the drawing because the passage names that route.