

Name: _____

CHAMBERS OF THE HEART

CN: Use blue for A-A⁴, red for H-H⁴, and your lightest colors for B, C, I, and J. All dotted arrows (A⁴) receive a blue color; all clear arrows (H⁴) receive a red color. (1) Begin with the arrows A⁴ above the title list and above the superior vena cava (A) in the illustration at upper right and color the structures in the order of the title list (A-H³). (2) Color the circulation chart at lower right, beginning with the arrow A⁴ leading into the right atrium (numeral 1). Color the numerals in order from 1 to 4 and related arrows. Do not color the chambers or the vessels in this drawing at lower right.

A⁴
 SUPERIOR VENA CAVA_A
 INFERIOR VENA CAVA_{A'}
 RIGHT ATRIUM_B

RIGHT VENTRICLE_C
 A-V TRICUSPID VALVE_D
 CHORDAE TENDINEAE_E
 PAPILLARY MUSCLE_F

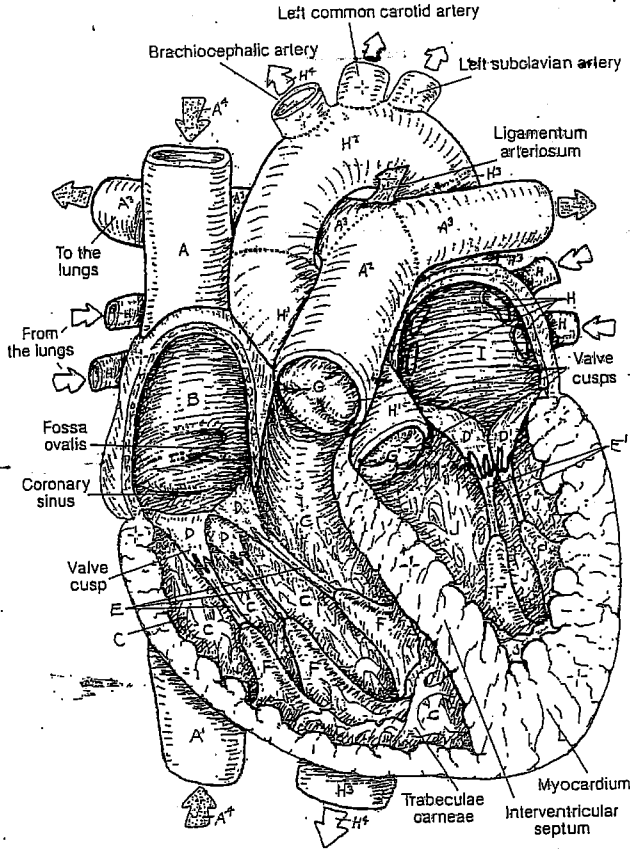
PULMONARY TRUNK_{A²}
 PUL. SEMILUNAR VALVE_G
 PUL. ARTERY_{A³}

H⁴
 PULMONARY VEIN_H
 LEFT ATRIUM_I

LEFT VENTRICLE_J
 A-V BICUSPID (MITRAL) VALVE_K
 CHORDAE TENDINEAE_L
 PAPILLARY MUSCLE_{F'}

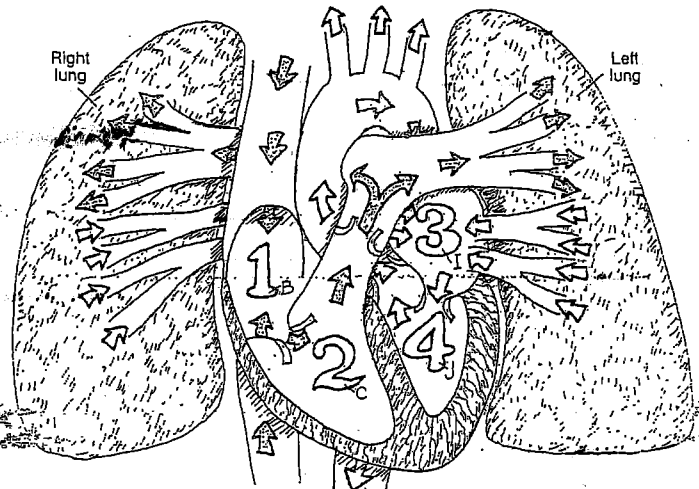
ASCENDING AORTA_{H'}
 AORTIC SEMILUNAR VALVE_{G'}
 AORTIC ARCH_{H²}
 THORACIC AORTA_{H³}

ANTERIOR VIEW OF HEART CAVITIES AND GREAT VESSELS



CIRCULATION THROUGH THE HEART

OXYGEN-RICH BLOOD H⁴ →
 OXYGEN-POOR BLOOD A⁴ →



The heart is the muscular pump of the blood vascular system. It contains four cavities (chambers): two on the right side (pulmonary heart), two on the left (systemic heart). The pulmonary "heart" includes the right atrium and right ventricle. The thin-walled right atrium receives poorly oxygenated blood from the superior and the inferior vena cava and from the coronary sinus (draining the heart vessels). The thin-walled left atrium receives richly oxygenated blood from pulmonary veins. Atrial blood is pumped at a pressure of about 5 mm Hg into the right and left ventricles simultaneously through the atrioventricular orifices, guarded by the 3-cusp tricuspid valve on the right and the 2-cusp bicuspid valve on the left. The cusps are like panels of a parachute, secured to the papillary muscles in the ventricles by tendinous chordae tendineae. These muscles contract with the ventricular muscles, tensing the cordae, resisting cusp over-flap as ventricular blood bulges into them during ventricular contraction (systole). The right ventricle pumps oxygen-deficient blood to the lungs via the pulmonary trunk at a pressure of about 25 mm Hg (right ventricle), and the left ventricle pumps oxygen-rich blood into the ascending aorta at a pressure of about 120 mm Hg simultaneously. This pressure difference is reflected in the thicker walls of the left ventricle compared to the right. The pocket-like pulmonary and aortic semilunar valves guard the trunk and aorta, respectively. As blood flows back toward the ventricle from the trunk/aorta during the resting phase (diastole), these pockets fill, closing off their respective orifices and preventing reflux into the ventricles.