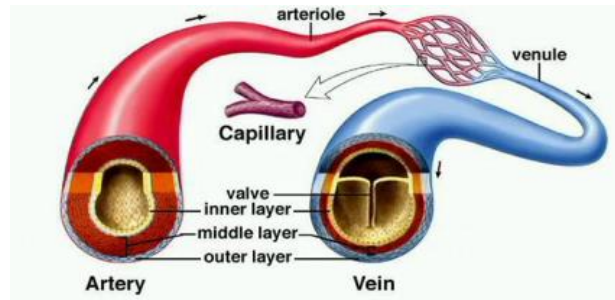


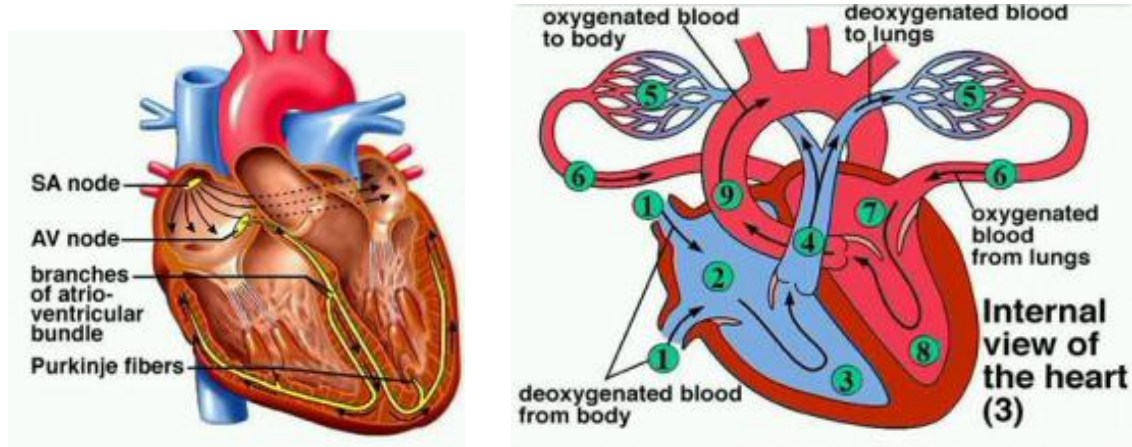
Cardiovascular System

Monitors the growth and maintenance of cells through the transportation of nutrients and waste products.

Blood Vessels: Heart pumps blood through arteries which branch into arterioles then capillaries (microscopic tubes with walls one cell thick). Capillaries drain into venules, which join to become veins before returning to the heart. Arteries contain a thick layer of smooth muscle which contracts to regulate blood pressure and flow, veins have valves to prevent backward flow.



Process: Deoxygenated blood is carried from the body in the vena cava which enters the right atrium. Blood is then pumped to the right ventricle via the pulmonary artery to the lungs where it is oxygenated. Oxygenated blood returns via the pulmonary vein to the left atrium, left ventricle, into the aorta toward the capillary beds of the body.



Heartbeat: Contraction by the ventricles drives blood circulation. The surge reaches artery walls and is responsible for the pulse, blood pressure which peaks on ventricular contraction (systole) and is lowest on ventricular relaxation, passive (diastole)

Sinoatrial node in upper wall of right atrium is the natural pacemaker. It signals the **atria** to contract stimulating the **atrioventricular node** to send signals via the **atrioventricular bundle** and **purkinje fibres** that cause ventricles to contract. An electrocardiogram uses the electrical signals from SA and AV nodes to detect abnormalities.

