Life Processes

Blood Vascular System (Heart)

❖ Blood Vascular System

The crucial features of the human circulatory system are as follows:

- The human circulatory system consists of blood, heart, blood vessels, and lymph.
- The human circulatory system circulates blood through two loops (double circulation) – One for oxygenated blood, another for deoxygenated blood.
- The human heart consists of four chambers – two ventricles and two auricles.
- The human circulatory system possesses a body-wide network of blood vessels. These comprise arteries, veins, and capillaries.
- The primary function of blood vessels is to transport oxygenated blood and nutrients to all parts of the body. It is also tasked with collecting metabolic wastes to be expelled from the body.
- Most circulatory system diagrams do not visually represent its sheer length. Theoretically, if the veins, arteries, and capillaries of a human were laid out, end to end, it would span a total distance of 1,00,000 kilometres (or roughly eight times the diameter of the Earth).

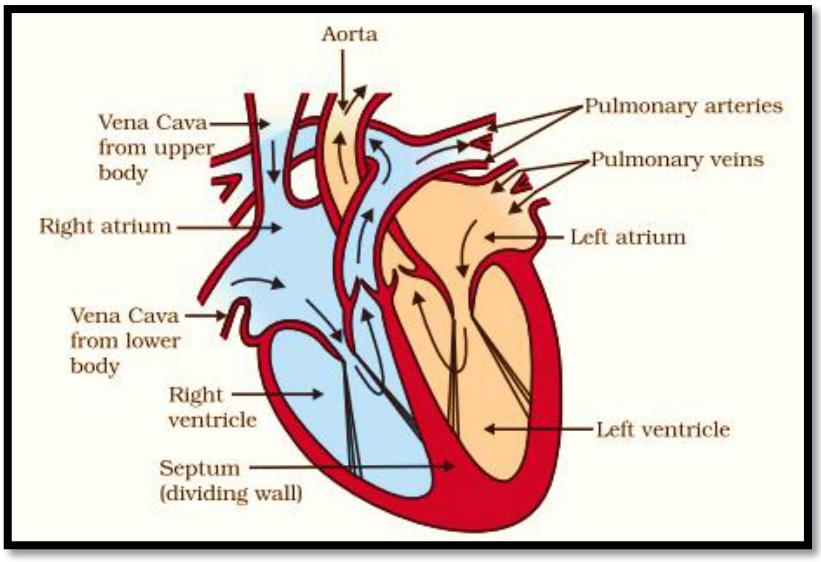
Organs of Circulatory System

The human circulatory system comprises 4 main organs that have specific roles and functions.
The vital circulatory system organs include:

- Heart
- Blood (technically, blood is considered a tissue and not an organ)
- Blood Vessels
- Lymphatic system

❖ Heart

the heart has different chambers to prevent the oxygen-rich blood from mixing with the blood containing carbon dioxide. The carbon dioxide-rich blood has to reach the lungs for the carbon dioxide to be removed, and the oxygenated blood from the lungs has to be brought back to the heart. This oxygen-rich blood is then pumped to the rest of the body. Oxygen-rich blood from the lungs comes to the thin-walled upper chamber of the heart on the left, the left atrium. The left atrium relaxes when it is collecting this blood.



It then contracts, while the next chamber, the left ventricle, relaxes, so that the blood is transferred to it. When the muscular left ventricle contracts in its turn, the blood is pumped out to the body. De-oxygenated blood comes from the body to the upper chamber on the right, the right atrium, as it relaxes. As the right atrium contracts, the corresponding lower chamber, the right ventricle, dilates. This transfers blood to the right ventricle, which in turn pumps it to the lungs for oxygenation. Since ventricles have to pump blood into various organs, they have thicker muscular walls than the atria do. Valves ensure that blood does not flow backwards when the atria or ventricles contract.