

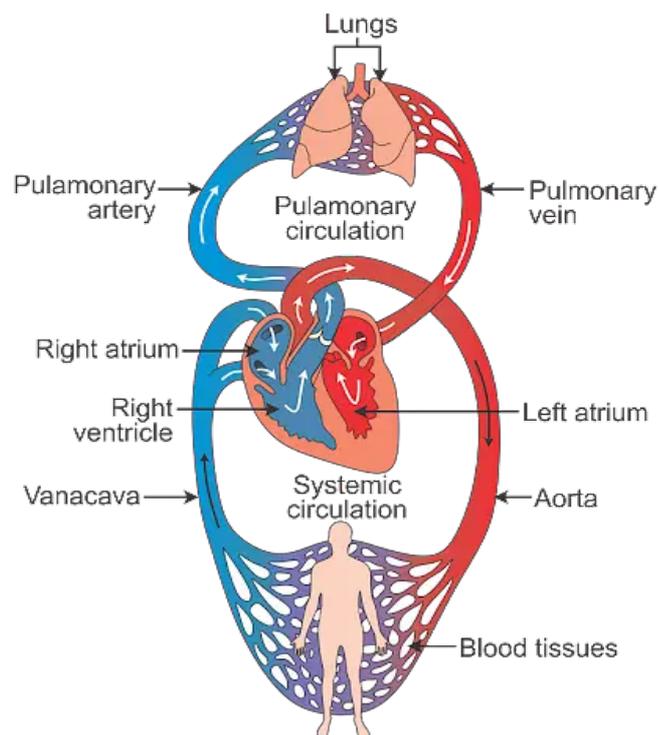
Circulatory system- The Heart

1- Circulatory system:

This system carries food and oxygen to every cell of the body. It also carries waste collection from the cell and removed from the body.

2- Heart- the double circulatory system

- The human heart is part of a **double-circulatory system**
- The circulatory system is a system of:
 - blood vessels
 - a pump (the heart)
 - valves that maintain a one-way flow of blood around the body
- The heart has **four chambers** separated into two halves:
 - The **right side** of the heart pumps blood to the **lungs** for gas exchange (this is called **pulmonary circuit**)
 - The **left side** of the heart pumps blood under high pressure to the body (this is called **systemic circulation**)



3- Structure of Heart

a) Right side of heart:

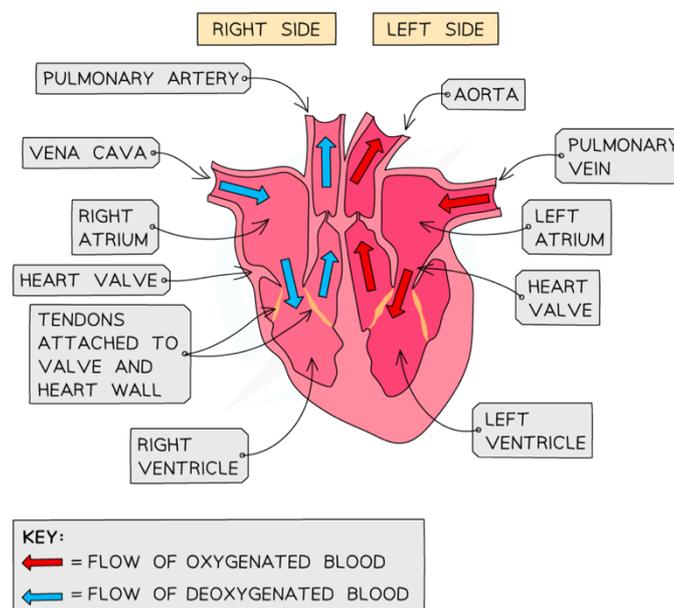
- The **right side** of the heart **receives deoxygenated blood** from the body and pumps it to the **lungs**
- This is the place where oxygen diffuses in from the **alveoli** and **carbon dioxide diffuses out**

b) left side of heart:

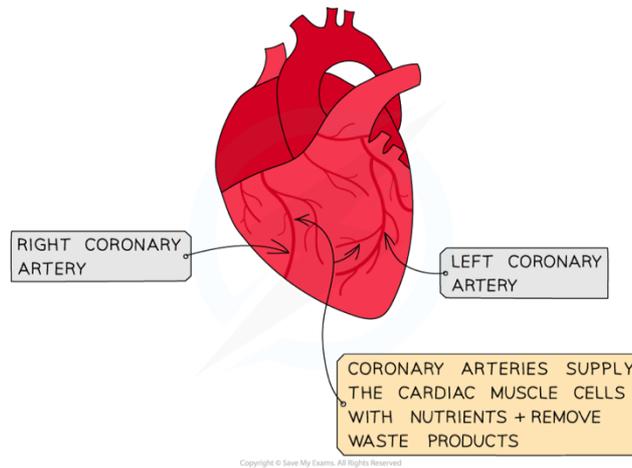
- The **left side** of the heart **receives oxygenated blood** from the lungs and pumps it to the **body**
- Blood is pumped **towards** the heart in **veins** and **away** from the heart in **arteries**

c) Chambers

- The four chambers of the heart are divided into top and bottom:
 - Chambers at the **top** are the **atria**
 - Chambers at the **bottom** are the **ventricles**



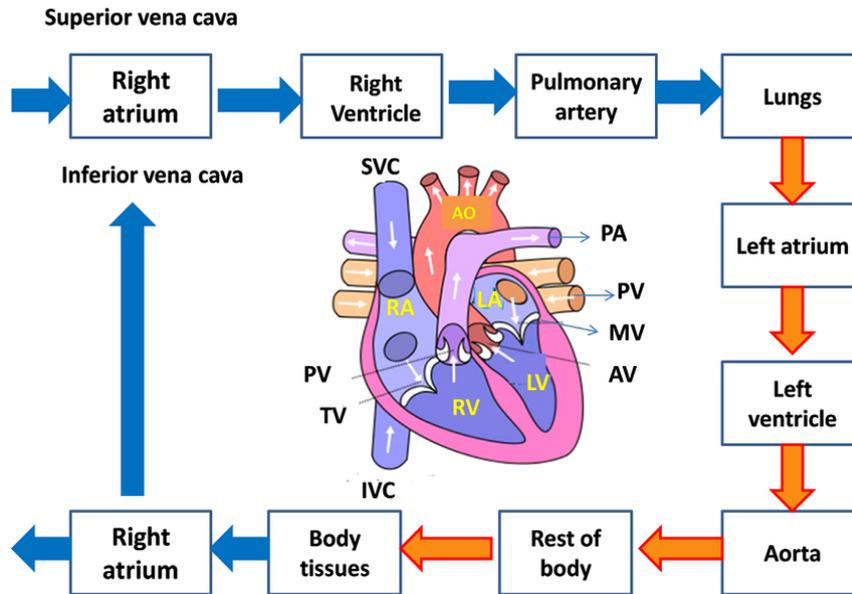
Heart diagram: the inside



Heart diagram: the outside

4- Pathway of blood through Heart:

- **Deoxygenated blood** enters the heart via the **vena cava**, emptying into the right atrium
- Blood flows down through a set of valves into the right ventricle
- When the ventricles contract, blood travels up through the **pulmonary artery** to the nearby lungs where **gas exchange** occurs (and the blood becomes oxygenated)
- **Oxygenated blood** returns to the heart via the **pulmonary vein**, emptying into the left atrium
- Blood flows down through a set of valves into the left ventricle
- When the ventricles contract, blood travels up through the **aorta**, and to the rest of the body



5-Heart- The Peace maker

➤ **Definition:**

Resting heart is controlled by group of cells that is called **peace maker**

➤ **Function :**

These cell produce small **electric impulse** which spreads surrounding muscles and causing them to **contract**.

➤ **Artificial Peace maker:**

Artificial peace maker work same to control heart beat when natural peace maker don't work properly. If the patient has continuously **irregular heartbeat**, a little device implant under the skin and has a wiring to the heart. It produces electric impulse to keep heart beat regular.

Here is the picture of peacemaker:

