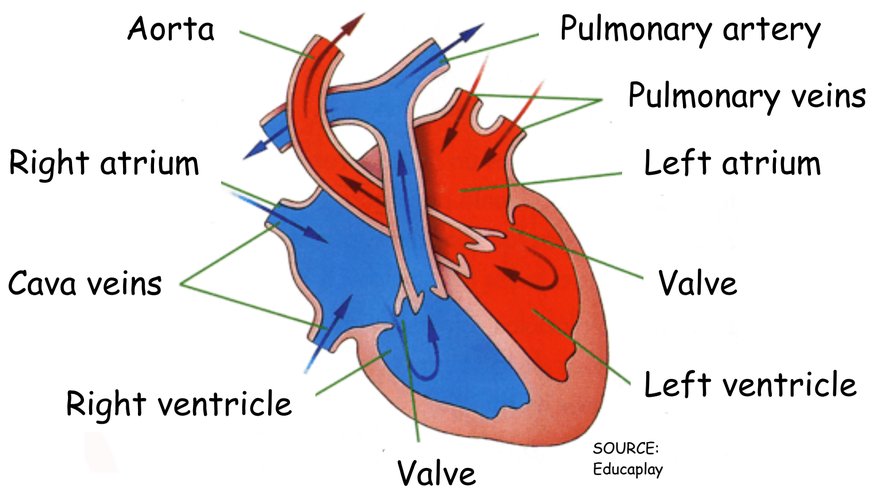
UNIVERSIDAD DE BURGOS

CARDIOVASCULAR SYSTEM

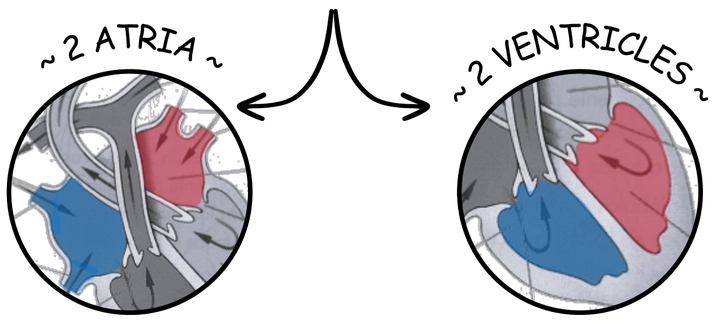
STRUCTURE

- The heart is the organ responsible for **pumping blood** around the body.
- It's walls are made of muscular tissue.



SOURCE: Educaplay

- The heart consists of 4 chambers:



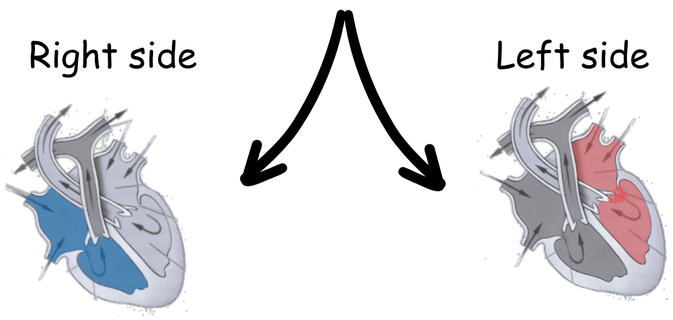
They **receive blood from the veins.**

Where **blood flows into the arteries.**

Blood goes **from the atrium to the ventricle**, but not vice versa.

- The heart is divided by a **septum** in two parts (left and rght), each one with an atrium and a ventricle.

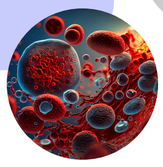
  On the **left side** is the **blood** with the greatest amount of **oxygen.**



TRANSPORT OF SUBSTANCES

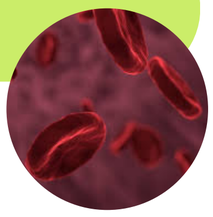
The principal substances that the blood transport are:

Nutrients, such as carbohydrates, lipids or proteins.

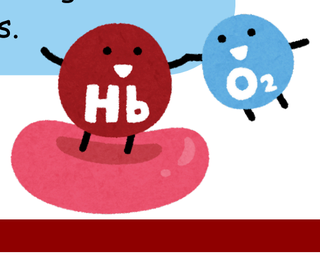


Carbon dioxide (CO_2), which is produced in a process that takes place inside the cells to obtain energy from nutrients

Toxic waste

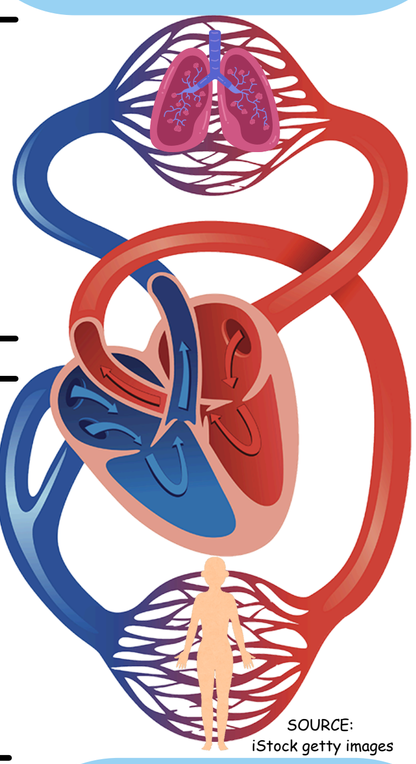


Oxygen (O_2) that comes from gas exchange in the lungs.



CIRCULATION

MINOR CIRCULATION
Route that carries blood with CO2 to the lungs where it changes into oxygenated blood.



SOURCE: iStock getty images

MAJOR CIRCULATION
Route that carries oxygen and nutrients to the organs where it picks up waste to take back to the heart and start over.

Blood circulation is a double, closed circuit because the blood goes through the heart two times in every cycle. The cycle is always repeated going through the different structures in this order:

Cava veins→right atrium→right ventricle→ pulmonary artery→ lung capillary

↓

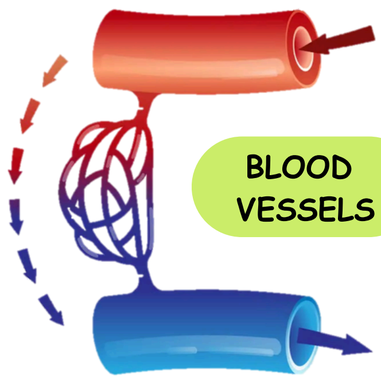
GAS EXCHANGE: CO2 from the blood to the lungs; O2 from the lungs to the blood

↓

Pulmonary veins →left atrium→left ventricle→ aorta→ body capillary

↓

GAS & NUTRIENT EXCHANGE: O2 and nutrients from the blood to the cells; CO2 and waste from the cells to the lungs



BLOOD VESSELS

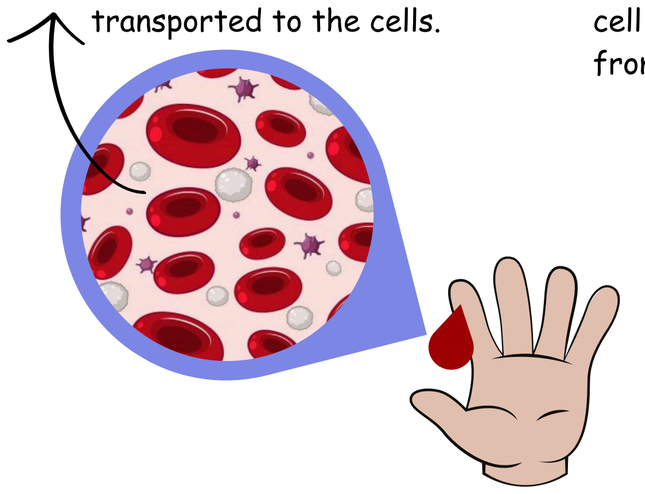
- **ARTERIES**: They carry blood from the heart to the capillaries.
- **CAPILLARIES**: Thin vessel ramifications in which exchange occurs.
- **VEINS**: They carry blood from the capillaries to the heart.

BLOOD & COMPONENTS

BLOOD IS A THICK, RED LIQUID MADE UP OF PLASMA AND CELLS.

PLASMA

A translucent yellow liquid made up of water. It carries dissolved nutrients that are transported to the cells.

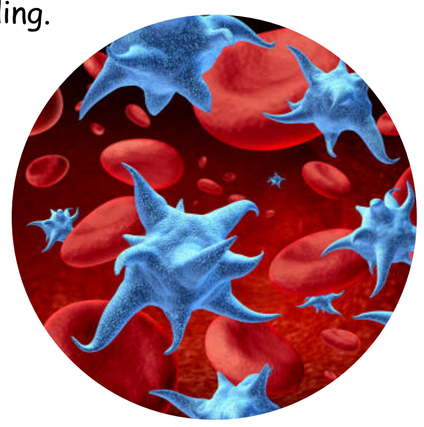


RED BLOOD CELLS/ERYTHROCYTES

The most numerous in the blood. They are disc-shaped and red in colour. They **carry oxygen** from the lungs to every cell in the body, and carbon dioxide from the cells to the lungs.

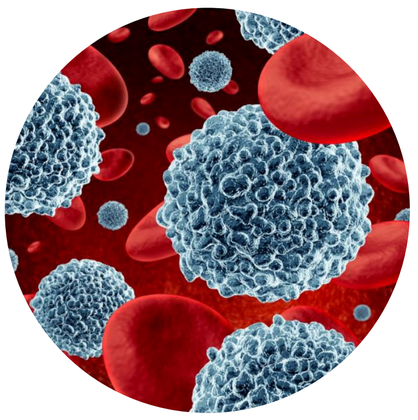
PLATELETS/THROMBOCYTES

These are the smallest, and **act when a haemorrhage occurs** (the blood vessel ruptures). They produce substances that thicken the plasma and produce clots that stops the bleeding.



WHITE BLOOD CELLS/LEUKOCYTES

They are transparent. They are responsible for the **body's defence**. When we get sick, they increase in number.



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