

# Grade 09 - science

## 06. Human circulatory system

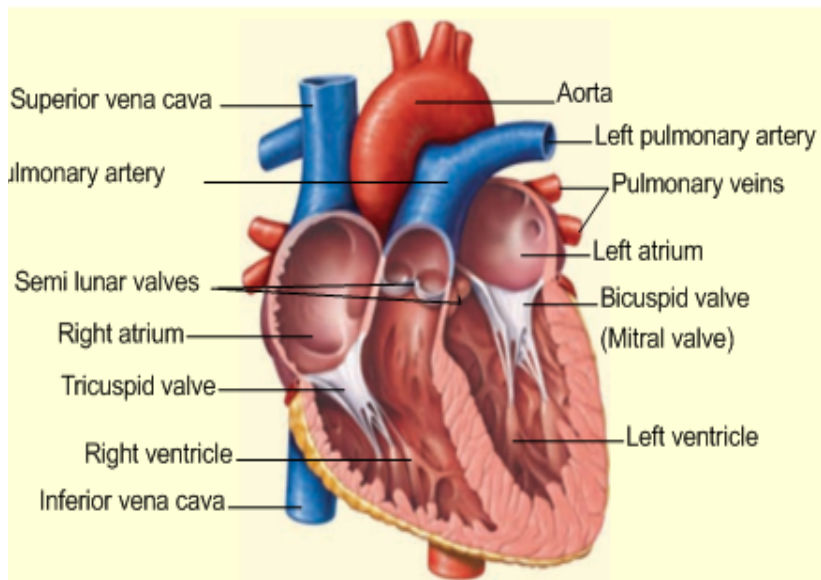
- The circulatory system transport blood throughout the body. It is a closed system. The heart pumps blood into the blood vessels.

### 6.1 structure of the human Heart

- Location of the human heart

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### Longitudinal section of the human heart



- Human heart consists of 4 chambers. Upper chambers are called atria and lower chambers are called ventricles.

1.....  
2.....  
3.....  
4.....

- There are different blood vessels which are connected to each chamber of the heart.

1. Right ..... auricle  
.....

2. Right ..... ventricle  
.....

3. Left

auricle

4. Left

ventricle

➤ There are different 2 valves in between atria and ventricles.

1. ....

2. ....

➤ There are semi lunar valves present at the starting point of the main arteries.

1. ....

2. ....

### **6.3 Arteries, veins and blood capillaries**

➤ Arteries

are

➤ Veins

are

➤ The functions of the blood vessels of the heart.

✓ Superior vena cava

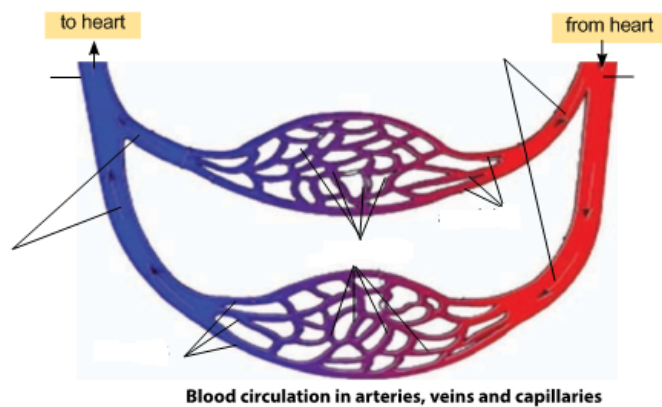
✓ Inferior vena cava

✓ Pulmonary artery

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.....  
✓ Pulmonary veins

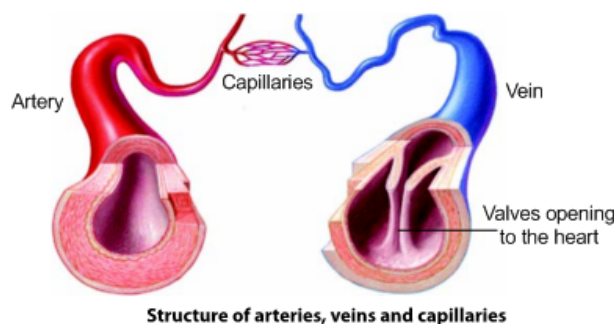
.....  
.....  
✓ Aorta

- .....  
.....
- Arteries further divides into arterioles and then into capillaries.
  - The capillaries join together to form venules and venules join together to form veins.



### Differences between arteries and veins

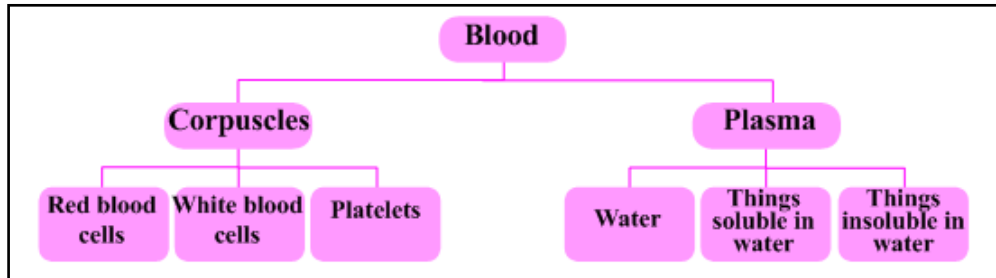
<u>Arteries</u>	<u>Veins</u>



- Blood capillaries ,
  - Wall of the capillaries consists of a single cell layer.
  - They spread among the cells the nutrients and gases in blood diffuse into the cells and the waste matter in the cells diffuse into the blood capillaries.

**6.2 Components of blood and their functions**

- Blood is a red fluid; only 55% of its volume is in liquid form and called the plasma.
- The other 45% of its volume consists of corpuscles which are in solid form.



- Blood consists of three types of blood cells.

Type of blood cell	Description	Function

- The main function of blood plasma is .....

Eg :-  
 .....  
 .....  
 .....

**6.4 Blood transfusion**

- Blood transfusion .....

➤ Donor

.....  
 .....

➤ Recipient

.....  
 .....

➤ There are 2 factors needed to be considering when doing Blood transfusion.

1. ....
2. ....

Compatibility of blood group

➤ There are four blood groups A, B, AB and O depending on the protein component in blood cells.

➤ Compatibility of blood groups in transfusion

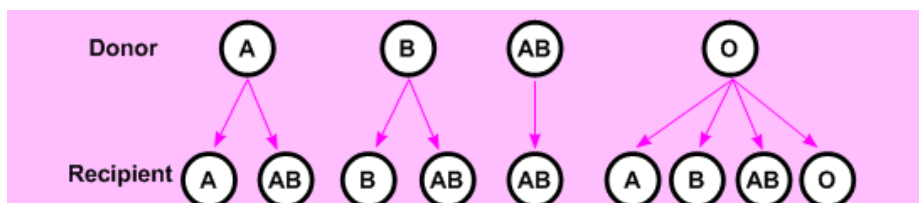
Donor	Recipient				
	Blood type	A	B	AB	O
A					
B					
AB					
O					

➤ Universal donor - AB

.....  
 .....

➤ Universal recipient - O

.....  
 .....



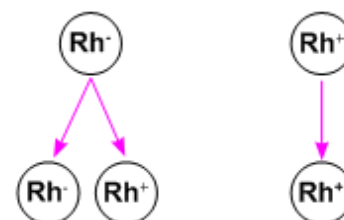
Compatibility of Rhesus factor

➤ Rhesus factor is one of the components present in the blood.

➤ If the Rhesus factor is present in the blood it is considered as Rh<sup>+</sup> and if Rhesus factor is absent it is considered as Rh<sup>-</sup>.

➤ Compatibility of blood with Rhesus factor

Donor	Recipient	
	Rh <sup>+</sup>	Rh <sup>-</sup>
Rh <sup>+</sup>	√	×
Rh <sup>-</sup>	√	√



- Both the blood group and Rhesus factor have to be matched to donate blood.
- Both blood group and the Rhesus factor is considered when expressing the blood group of an individual.

A<sup>+</sup>, B<sup>+</sup>, AB<sup>+</sup>, O<sup>+</sup>, A<sup>-</sup>, B<sup>-</sup>, AB<sup>-</sup>, O<sup>-</sup>

**Blood agglutination**

- Blood agglutination

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- The coagulation mechanism differs from the coagulation mechanism of agglutination.

- **Favourable habitats to maintain healthy blood circulation system.**

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