

## Learning Objectives

1. Students are able to understand the components of blood
2. Students are able to analyze the structure of the heart and its function
3. Students are able to sequence blood circulation correctly

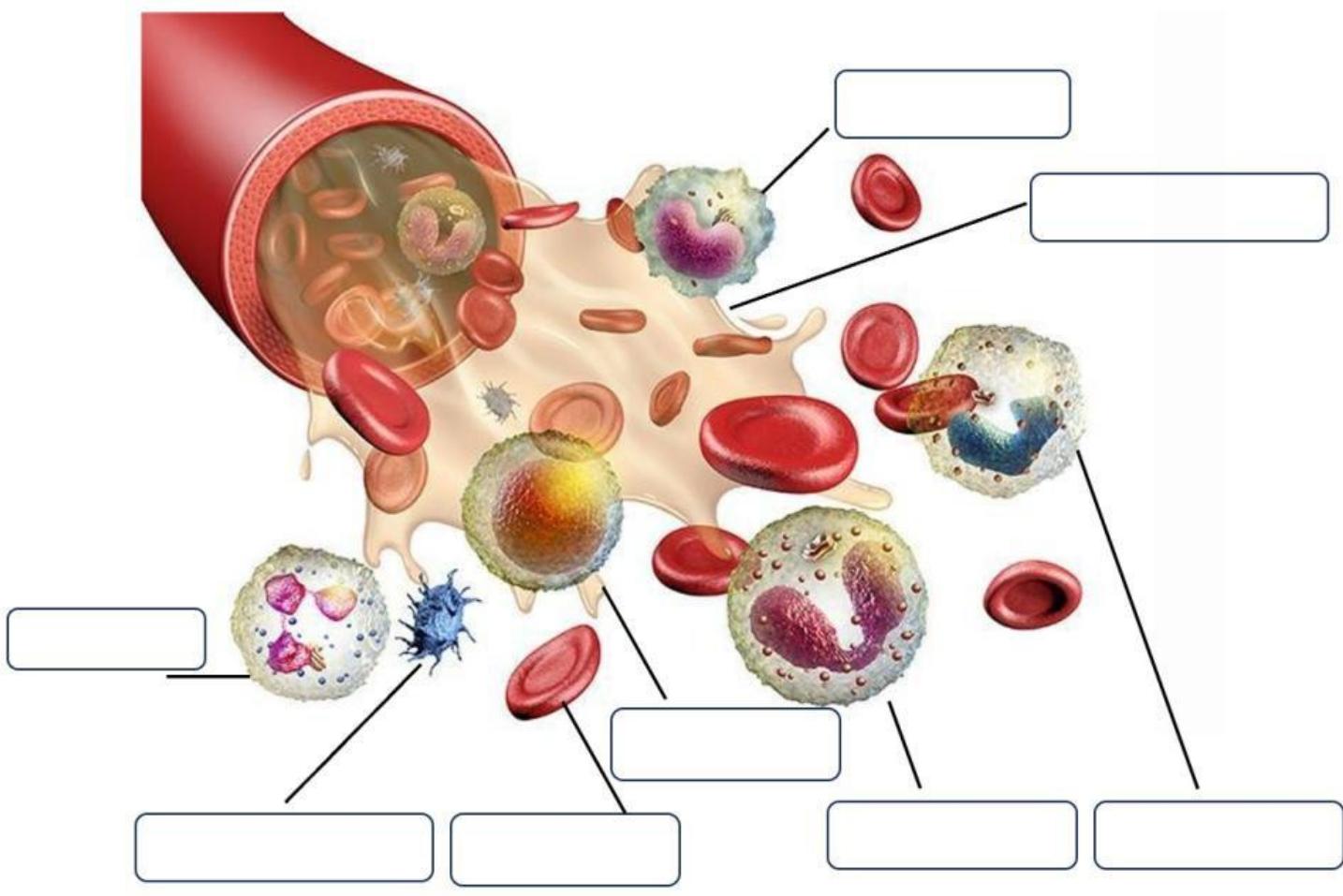
## Materials

The components of blood are containing of red blood cells, white blood cells, platelets and blood plasma. Blood supplies essential substances, such as sugars and oxygen, to cells and organs, and removes waste from cells. Our heart and blood vessels make up the circulatory system. The main function of the circulatory system is to provide oxygen, nutrients and hormones to muscles, tissues and organs throughout your body. Another part of the circulatory system is to remove waste from cells and organs so your body can dispose of it. (source: InformedHealth.org)

Our heart pumps blood to the body through a network of arteries and veins (blood vessels). Your circulatory system can also be defined as your cardiovascular system. Cardio means heart, and vascular refers to blood vessels. There are 3 kinds of blood vessel that is artery, vein and capillaries. The circulatory system's function is to move blood throughout the body. This blood circulation keeps organs, muscles and tissues healthy and working to keep you alive.

**INSTRUCTION**

I. Fill in the blank: Answer these following questions by filling the option as your best answer!



Erythrocytes

Neutrophils

eosinophils

Lymphocytes

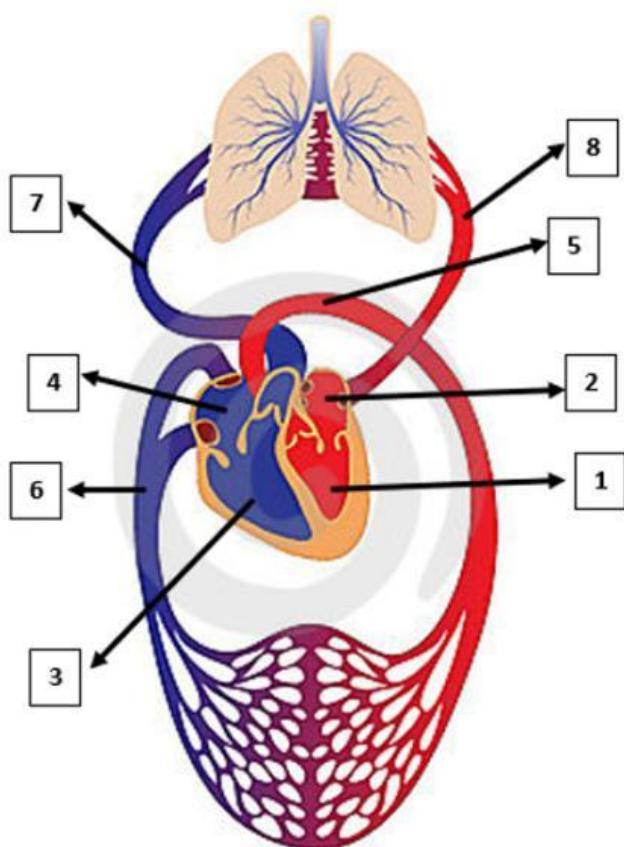
Monocytes

Blood plasma

Basophils

Thrombocytes

2. Please complete the Blood Circulation section below, then write down the flow of Systemic circulation & pulmonary circulation!



Write down the names of the parts of blood circulation and their functions!

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

Write down the blood flow of systemic blood circulation and pulmonary blood circulation along with the numbers according to the picture above!

1. Systemic circulation
2. Pulmonary circulation

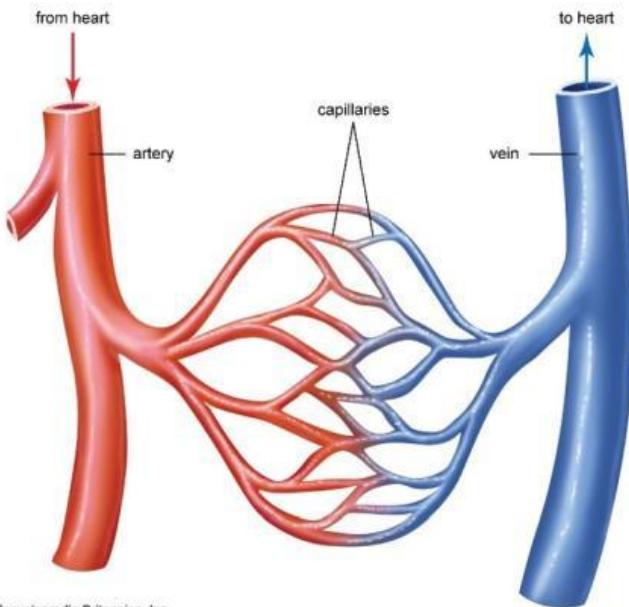
### 3. Pairing: Match blood components with their characteristics and functions by drawing lines

Erythrocytes	<input type="radio"/>
Leukocytes	<input type="radio"/>
Thrombocyte	<input type="radio"/>
Blood plasma	<input type="radio"/>

Contains a nucleus and organelles, various subtypes (granulocytes and agranulocytes) with distinct nucleus	<input type="radio"/>
Small, disc-shaped, no nucleus, contains granules with clotting factors, helps in blood clot formation, lifespan of 7–10 days in the bloodstream.	<input type="radio"/>
liquid component of blood, making up about 55% of the total blood volume.	<input type="radio"/>
Biconcave, no nucleus, filled with hemoglobin, flexible membrane, no organelles, lifespan of 120 days.	<input type="radio"/>

transporting nutrients, gases, waste, and immune cells throughout the body, making it a vital component of blood.	<input type="radio"/>
Transport oxygen and carbon dioxide, help maintain blood pH balance through bicarbonate interactions.	<input type="radio"/>
provide immune defense against infections and foreign substances, participate in inflammatory responses and allergic reactions.	<input type="radio"/>
Initiate blood clotting by aggregating at injury sites to form a temporary plug.	<input type="radio"/>

#### 4. True or False



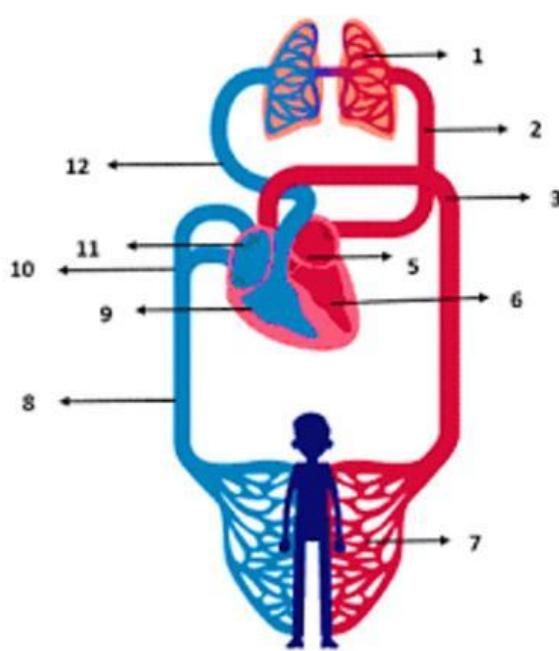
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1. There are 3 kinds of blood vessel: arteries, vein and capillaries
2. Pulmonary arteries carry the blood to the body, where it receives oxygen.
3. tiny blood vessels have thin walls called capillaries
4. capillaries connect arteries and veins
5. the main vein in our body is vein pulmonary
6. venules receive blood containing oxygen from capillaries
7. arteries are muscular blood vessels carry oxygen-rich blood from heart to body
8. Most veins have valves that open and close
9. Veins have strong, thick and elastic walls
10. The superior vena cava carries blood from head, neck arms and chest

True	False

LIVE WORKSHEETS

5. Complex multiple choice: Answer these following questions (answer more than 1) by circling the option as your best answer



Look at the following image!

If there is a problem in part number 3, then the possibility that will occur is.... (select 3 possible answer)

- Oxygen can't distribute to our body
- There is distraction of transport carbondioxyde to the lungs
- Lack of oxygen in all of organs
- The gasses can't switch in the lungs
- It received oxygen from lungs