

NAME: _____

DL4A: Health7

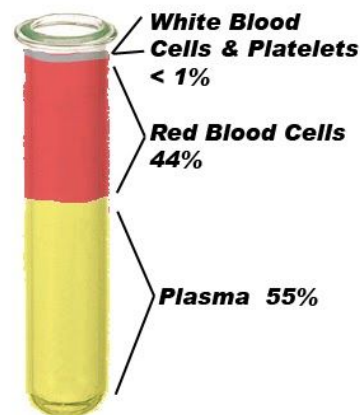
Circulatory System- Blood and Heart

THE BLOOD

Blood is a liquid that carries nutrients and wastes throughout your body through tiny blood vessels. Many components of your blood allow you to survive. Blood's major role in your body is to 'transport' substances, as well as protecting your body from harm. Blood is made in your bone marrow. Bone marrow is the spongy bone in the center of many bone endings.

The four components of blood are Plasma, Platelets, Red Blood Cells, and White Blood Cells. Plasma helps carry nutrients and wastes, makes up the majority of the fluid in blood, and helps the other blood cells travel through the blood vessels. Platelets are long thin fibers that will collect at the site of injury or wound and create a clot. Red Blood Cells are also called erythrocytes. These donut or disc shaped cells carry oxygen in the blood. White blood cells protect your body from invaders like bacteria, viruses, and foreign substances. They have a memory system that helps your body fight the same infections more efficiently.

Blood types are inherited from your parents. There are 4 different blood types: A, B, AB, and O. The type of red blood cells that your body contains determines your blood type. A blood clot will occur if a person is given the wrong blood type. This clot will prevent blood from traveling through the vessels and could cause death. The following are the compatible types of blood:



TYPE	Can Receive	Can Donate To
A	O, A	A, AB
B	O, B	B, AB
AB	All	AB
O	O	All

(If you would like a challenging punnett square worksheet on blood type inheritance, please email Mrs. King megank@bkafghnks.k12.or.us)

THE HEART

The heart is a muscular pump, which circulates blood throughout the body. The heart is about the size of a fist and is divided into four chambers, two above and two below. The two upper and smaller chambers are called the atria or auricles. The two lower and larger chambers are called the ventricles.

The right side of the heart is separated from the left side of the heart by a muscular wall called the septum. Valves separate the right atrium from the right ventricle and the left atrium from the left

ventricle. Valves keep blood from moving in the wrong direction in the heart. Blood is allowed to pass through in only one direction. If these valves do not function properly it is called a heart murmur.

Oxygen-poor (blue) blood, which comes back to the heart from the body cells, collects in the right atrium. By contraction of the right atrium, the blood is forced through a valve into the right ventricle. As the heavy muscular right ventricle contracts, it forces the blood out of the heart through another valve on its way to the lungs. In the lungs, carbon dioxide is exchanged for oxygen.

Oxygen-rich (red) blood returns to the heart from the lungs and collects in the left atrium. By contraction of the left atrium, the blood is forced through a valve into the left ventricle. From here, the left ventricle pumps it through another valve to the main arteries of the body. The largest artery in the body is called the aorta. The arteries distribute the blood to capillaries, which convey it directly to the body cells in need of oxygen. The cells use the oxygen for internal respiration. Internal respiration includes those chemical processes by which oxygen is used to burn or oxidize food, thereby producing energy.

The left ventricle is the largest and most muscular chamber of the heart. Its role is to pump blood to all vessels of the body except those to and from the lungs. The heart is tilted slightly to the left because of this large muscle. This explains why the heart beat seems to be to the left of the center midline. The number of heartbeats per minute is controlled by the nervous system, which sends a message to the right atrium when it is time to beat.

The process of pumping blood from the heart to the body cells and back again is called systemic circulation. The process of pumping blood from the heart to the lungs and back again is called pulmonary circulation.

Questions:

1. An upper heart chamber is called an atrium or an _____?
2. Each side of the heart is separated from the other side by a wall called the _____?
3. The pulmonary circulation is the route from the heart to the _____ and back again.
4. What word best describes the function of the heart? _____
5. What keeps blood from flowing in the wrong direction? _____

-->Print heart

-->Using the colors RED for oxygen rich blood and BLUE for oxygen poor blood, color the parts of the heart according to the path the blood takes through pulmonary circulation

