

Blood

Worksheet 1 - teacher's notes

1. Look at the idioms with the word blood. Can you guess their meaning? Use the dictionary to help you.

Idiom	Meaning	Sentence
be after one's blood	want revenge	Students' own answers
be in one's blood	be born with a natural particular aptitude, talent, inherit it by nature	
blood is thicker than water	family ties are stronger than friendship	
to do sth in cold blood	in calculated, deliberate way	
like getting blood out of a stone	express that something is impossible	
new blood	someone new to an organization, work etc	
it makes one's blood boil	one becomes very angry	

2. Let's have a closer look at blood.

What is blood ?	Blood is the red fluid that circulates in our blood vessels, i.e.veins and arteries.
What are the functions of blood?	<ul style="list-style-type: none"> • It supplies oxygen to cells and tissues. • It supplies essential nutrients to cells, such as amino acids, fatty acids, and glucose. • It removes carbon dioxide, urea and lactic acid (waste products) • Its white blood cells have antibodies which defend us from infection and foreign bodies. • It has specialized cells, such as platelets, which help the blood to clot (coagulate) when we are bleeding. • It transports hormones - chemicals released by a cell in one part of the body that sends out messages that affect cells elsewhere in the body. • It regulates our acidity (pH) levels. • It regulates our body temperature. When the weather is very warm or during strenuous exercise there will be increased blood flow to the surface, resulting in warmer skin and faster heat loss. When environmental temperatures drop, blood flow focuses more on the important organs deep inside the body.

Blood

What are the components of blood?	<p>Blood is a combination of plasma (watery liquid) and cells that float in it. Blood also contains clotting agents.</p> <p>Plasma constitutes 55% of blood fluid in humans and other vertebrates (animals with a backbone, spinal column).</p> <p>Apart from water, plasma also contains:</p> <ul style="list-style-type: none"> • Blood cells • Carbon dioxide • Glucose (sugar) • Hormones • Proteins
Where is blood produced?	White cells, red cells and platelets are made in the bone marrow - a jellylike substance that fills the cavities of bones. Bone marrow consists of fat, blood, and special cells (stem cells) that turn into the various kinds of blood cells. The main areas of bone marrow involved in the formation of blood cells are in the vertebrae, ribs, sternum, skull and hips.
What is blood group?	Red blood cells have certain proteins on their surface, called antigens. Also, your plasma contains antibodies which will attack certain antigens if they are present. There are various types of red blood cell antigens - the ABO and rhesus types are the most important.
What is Rh blood antigen ?	Most people are rhesus positive, as they have rhesus antigens on their red blood cells. But, about 3 in 20 people do not have rhesus antibodies and are said to be rhesus negative.
What are erythrocytes?	<p>Red blood cells - also known as RBCs or erythrocytes. They are shaped like slightly indented, flattened disks. These are the most abundant cells, and contain hemoglobin (Hb or Hgb).</p> <p>Hemoglobin is a protein which contains iron; it transports oxygen from the lungs to body tissues and cells. 97% of a human's red blood cells dry content is protein.</p> <p>Each RBC has a life span of about 4 months; at the end of their lives they are degraded by the spleen and the Kupffer cells in the liver. The body continuously replaces the ones that die.</p>
What are leukocytes?	<p>White blood cells (leukocytes) - these are the cells of our immune system; they defend the body against infections and foreign materials. Lymphocytes and granulocytes (types of white blood cells) can move in and out of the bloodstream to reach affected areas of tissue.</p> <p>White blood cells will also fight abnormal cells, such as cancer cells.</p> <p>There are normally between 4×10^{10} white blood cells in one liter of blood (making up about 1% of total blood) in a healthy individual.</p>

Blood

What are thrombocytes ?	<p>Platelets (thrombocytes) - are involved in the clotting (coagulation) of blood. When we bleed the platelets clump together to help form a clot.</p> <p>If exposed to air the platelets break down and release fibrinogen into the bloodstream, this sets off a series of reactions which results in the clotting of blood in, for example on a skin wound. A scab is formed.</p>
What are some of the blood disorders?	<ul style="list-style-type: none"> • Anaemia (various types). • Leukaemia. • haemophilia • Sickle Cell Disease and Sickle Cell Anaemia.
What is blood transfusion?	A blood transfusion is a way of giving one person's blood to someone else who needs it. When you need blood, you really need it because your body won't work right without enough healthy blood. Your heart pumps blood through blood vessels that reach every organ and tissue in the body. One of the blood's most important jobs is to deliver oxygen to each cell in the body. And without oxygen, the body can't stay alive.

3. Blood cannot be artificially made, that is why being a blood donor is very important and helpful. But not all blood groups can be given to all people. look at the information about blood groups and complete the blood compatibility chart.

Humans can have one of four main blood groups, either RhD positive or negative:

- Group A - Rh negative or positive
A antigens are found on the surface of blood cells. Anti-B antibodies are found in the plasma.
- Group B - Rh negative or positive
B antigens are found on the surface of blood cells. Anti-A antibodies are found in the plasma.
- Group AB - Rh negative or positive
A and B antigens are found on the surface of blood cells. There are no antibodies are found in the plasma.
- Group O - Rh negative or positive
There are no antigens are found on the surface of blood cells. Both Anti-B and Anti-A antibodies are found in the plasma.

You can receive . . .

	O ⁻	O ⁺	B ⁻	B ⁺	A ⁻	A ⁺	AB ⁻	AB ⁺
AB ⁺	●	●	●	●	●	●	●	●
AB ⁻	●		●		●		●	
A ⁺	●	●			●	●		
A ⁻	●				●			
B ⁺	●	●	●	●				
B ⁻	●		●					
O ⁺	●	●						
O ⁻	●							

If your blood type is . . .

<http://www.americasblood.org/about-blood/what-is-blood.aspx>

<http://www.medicalnewstoday.com/articles/196001.php>

http://kidshealth.org/kid/feel_better/things/transfusions.html?tracking=K_RelatedArticle