

5

WHEN THE HEART BEATS...

'Blood donation is life donation'
'Donate blood:
Save precious life'

Have you ever seen slogans like these anywhere?
Why do we say 'Blood donation is life donation'.
What are the occasions blood needs to be donated?

Occasions where blood is donated

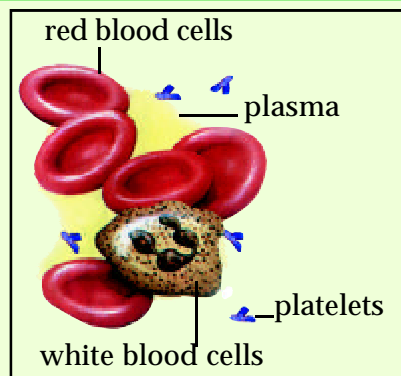
Blood Donation

A healthy man can donate blood once in six months. The donated blood is chilled and kept in the blood bank. Blood of a particular donor does not match with all kinds of blood. It is due to the differences in certain constituents of blood. Based on these constituents grouping of blood is done.

Do you know what your blood group is? Ask your friends about their blood group.

Blood

The major constituents of blood are its fluid part called plasma, Red Blood Cells (RBC), White Blood Cells (WBC) and platelets. Blood is essential for the sustenance of life. A healthy person has 5 to 6 litres of blood in the body. This may vary according to the height and weight of the person. Red colour of the blood is due to the presence of a protein called haemoglobin. Iron is the major constituent of haemoglobin. Blood carries nutrients and oxygen to the cells of the body.

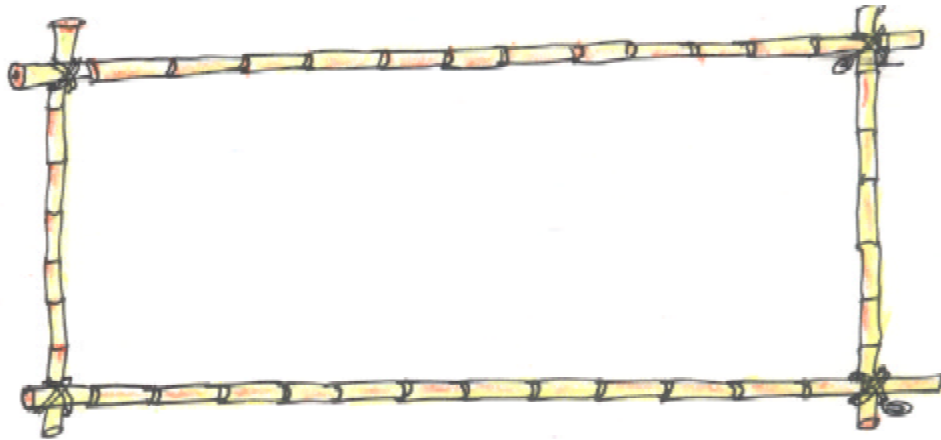
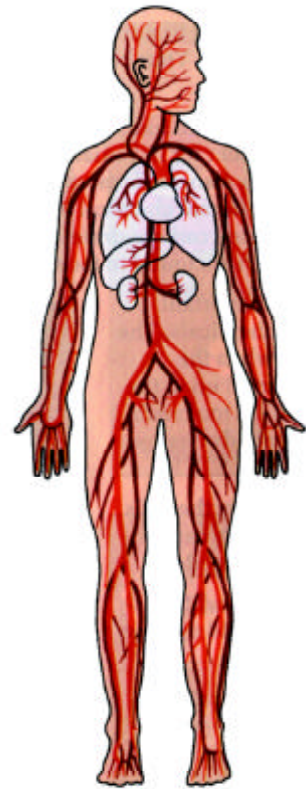


What are the different organs that help blood to reach all parts of the body?

Let's Observe the Blood Vessels

Hold your fist tight and look at the outer part. What do you see? Examine the inner side the lower eyelid of your friend. Do you see blood vessels there? Is there any difference in them from the blood vessels you have already observed. Look at the inner side of your lower lip using a mirror. Are the colour and size of the blood vessels you have observed alike?

Record the differences you have observed.



Blood vessels

The blood vessels that carry blood from the heart to different parts of the body are the arteries. Veins carry blood from different parts of the body to the heart. The minute blood vessels that connect arteries and veins are the capillaries. The organ system which consists of heart, blood vessels and blood together constitute the circulatory system.



Rhythm of the heart

Why do doctors examine the patients by feeling their wrist?

Hold your own hand or your friend's hand as shown in the picture.

What do you feel?

Where else on your body can you feel pulse?

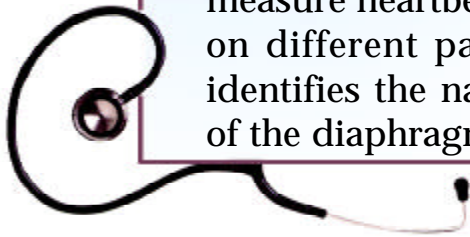
Examine the heartbeat of your friends using a stethoscope.

How many times does the heart beat in a minute?



Stethoscope

Heart pumps blood to different parts of the body. Contraction and relaxation of heart makes a heartbeat. Stethoscope is an instrument used to measure heartbeat. A doctor places the stethoscope on different parts of the body of a patient and identifies the nature of heartbeat by the vibration of the diaphragm of the stethoscope.



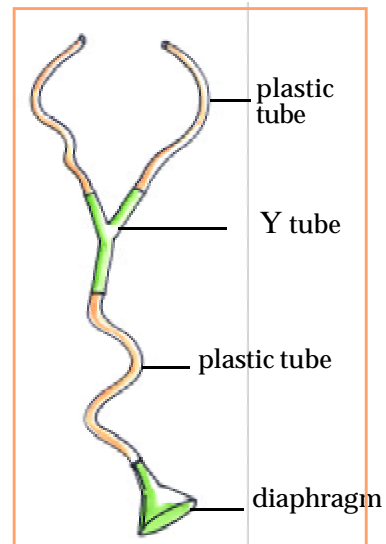
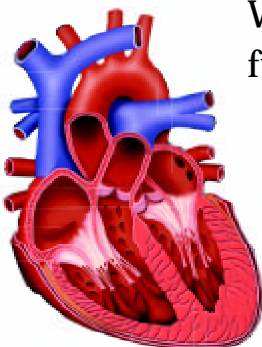
Can you make a stethoscope using plastic tubes, funnel, balloon and a 'Y' tube?

Examine the heartbeat of the members of your family using this stethoscope?

Heart

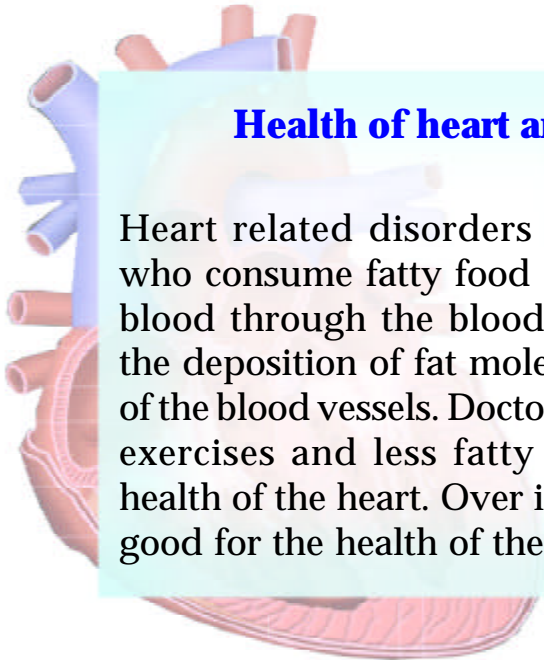
Heart is one of the vital organs of our body. What happens if the functioning of the heart stops?

What I have understood about the functioning of the heart.





Does the changing food habits harmfully affect the health of the heart?
Discuss and find out.



Health of heart and food habits

Heart related disorders are common in those who consume fatty food regularly. Free flow of blood through the blood vessels is blocked by the deposition of fat molecules at the inner wall of the blood vessels. Doctors often suggest regular exercises and less fatty food to maintain the health of the heart. Over intake of salt also is not good for the health of the heart.

While frying

Take a piece of banana chips and burn it in a candle flame.

What do you see?

Repeat the experiment using other fried food items.

What I want to say to the ones who eat fried food items excessively.

Wastes

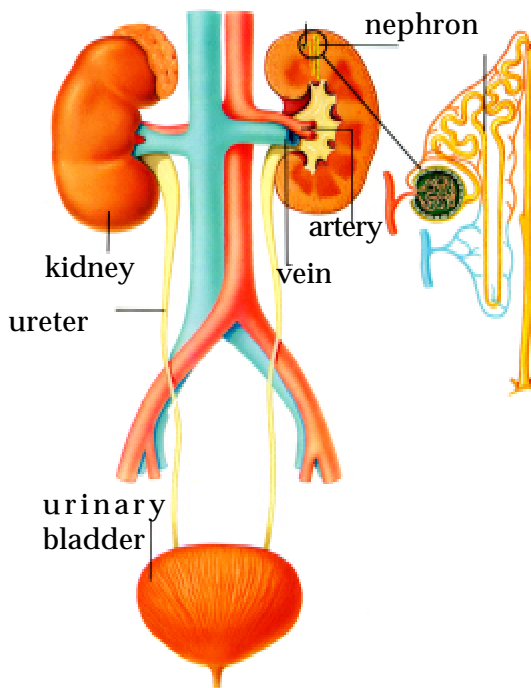
Blood plays a major role in transporting oxygen and nutrients to different parts of the body. As a result of various life activities certain unwanted substances are also formed in our body. These unwanted substances are also carried by the blood itself.



How are these wastes removed from the blood?

The Sieve in our Body

Kidneys are the bean shaped dark red organs seen in the abdominal cavity on either side of the vertebral column. Kidneys act as a sieve that filters waste from the blood. The minute sieves called nephrons seen in the kidneys help in this process. The materials thus filtered are excreted along with urine. Urea, salts and water are the major constituents of urine. An adult man excretes an average of 1.5 liters of urine a day. Many diseases can be detected by urine test.



What happens when both the kidneys fail to function?

It becomes impossible to eliminate wastes from the blood when both the kidneys fail to function properly. Then the blood is to be purified by using certain devices (artificial kidney). This process is called dialysis. The blood of a patient is allowed to pass through the dialyzer. After filtering out the wastes, pure blood is transferred back to the body of the patient.

Dialysis



Are there any other organs that help our body to expel wastes? Note down.



Sweat and skin

Won't you feel cold when wind blows over your sweat body? Body temperature is to be kept constant for the proper functioning of life activities. The body maintains a constant temperature through sweating and by the evaporation of sweat. Sweat is the mixture of water, urea, sodium chloride and other salts. Skin plays a major role in the excretion of these wastes from the body. Skin is the largest organ in our body.

Does sweating help us?

What I have understood about the functioning of certain organs in my body?

Organ	Function(s)
Heart	
Blood vessels	
Kidneys	
Skin	



Transplantation of body organs

The failure in the functioning of vital organs like heart, kidneys, liver etc. may be fatal. On such occasions organ transplantation is the only remedial measure to save a life. You may have come across news reports on transplantation of organs like heart, kidneys, liver etc. from those who are confirmed 'brain dead' to the patients who are in need of them. There are individuals who are willing to donate their organs after their death.

Can we make such great life saving endeavours a business? What is the difference between donation of organs and sale of organs? Collect articles, news and pictures related to organ transplantation and prepare an album on this.

What measures are to be taken into account for the proper functioning of the heart and kidneys?

For the health of kidneys	For the health of heart

