Chapter

Circulatory System

Assignment 1

A. Cross (X) the correct answer.

1. Choose the correct statement about blood.
   a. More than half of our blood consists of blood cells.
   b. The main function of blood is to carry oxygen.
   c. The whole blood is formed by liquid.
   d. Blood is not important for the body.

2. Human blood can be dark red or bright red.
   It depends on the _____ levels.
   a. oxygen
   b. hormone
   c. vitamin
   d. enzim

3. Being an immune system from harmful invaders such as viruses and bacteria is the main function of _____.
   a. red blood cells
   b. white blood cells
   c. blood platelets
   d. blood plasma

4. The pale yellow liquid part of blood is called _____.
   a. blood plasma
   b. blood cells
   c. hormones
   d. enzymes

5. Blood cells that are shaped like discs and are slightly curved inward in the middle like a bowl are _____.

   a. the red blood cells
   b. the white blood cells
   c. the blood platelets
   d. the thrombocytes

6. Choose the correct statement about white blood cells.

   a. Their size is smaller than the red blood cells.
   b. Their shape is always changing.
   c. They contain oxygen.
   d. They consist of water.

7. Blood cells that only last for a few hours because it is easily broken if they get touched by a harsh surface are _____.

   a. the blood plasma
   b. the red blood cells
   c. the white blood cells
   d. the blood platelets

8. There are many substances within the blood plasma. The following substance that does not exist in the blood plasma is _____.

   a. carbon dioxide
   b. oxygen
   c. minerals
   d. nutrients

9. Red blood cells dominate the blood composition in number compared to other blood cells. The red blood cells have red colour because they contain _____.

   a. albumin
   b. haemoglobin
   c. globulin
   d. fibrinogen

10. Blood pressure in someone's life may vary naturally. The blood pressure can be measured using a tool called a sphygmomanometer, that also known as _____.

   a. blood pressure monitor
   b. oximeter
   c. thermometer
   d. hydrometer

B. Fill in the blanks with the correct words from the help box below.

haemoglobin | fibrinogen | bright | thrombocytes | leukocytes | liver | dark | water | universal donor | bone marrow | infections

1. Red blood cells are shaped like discs and slightly curved inward in the middle. The part of red blood cells that functions to carry oxygen throughout the body is _____.
2. Blood platelets do not have colour, a core, and their shape is irregular. The blood platelets are formed in the _____.
3. White blood cells function as an immune system to protect the body from harmful invaders. The white blood cells are also known as _____.
4. The red blood cells are formed in the bone marrow. The organ that functions to break down the old or dead red blood cells is _____.
5. White blood cells make up less than 1% of the blood. Although their number is the least, white blood cells have an important role in fighting diseases and _____.
6. Blood cells are produced by the bone marrow continuously to replace dead blood cells. The blood cells that have the smallest size are _____.
7. If your skin is wounded, the blood platelets will release a protein to make blood clotting faster. The other name of the protein is _____.

8. People with blood type O can donate their blood to every blood type. For that reason, blood type O is called _____.

9. Blood that contains a lot of oxygen is _____ red, while blood that contains a lot of carbon dioxide is _____ red.

10. Blood plasma makes up the majority of blood. The main component of the blood plasma is _____.

C. Follow the instructions.

1. Complete the following table.

	Blood Components	Function
a.	Red blood cells	
b.	White blood cells	
c.	Blood platelets	
d.	Blood plasma	

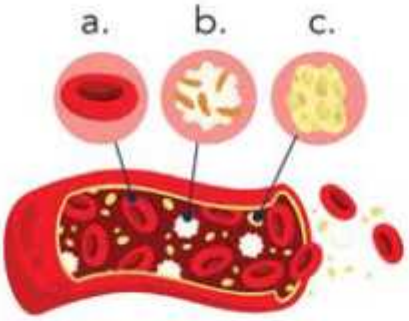
2. Tick (✓) the correct statements.

a. Blood consists of the liquid part called blood plasma and the solid parts called blood cells. ☐

b. Blood plasma is the pale yellow liquid in the blood. Approximately, there is 90% of blood plasma in the entire blood volume. ☐

c. Red blood cells are red because they contain haemoglobin. Haemoglobin levels in the blood depend on gender and age. ☐

3. Observe the following picture. Then write the correct name of each blood component.



a. _____

b. _____

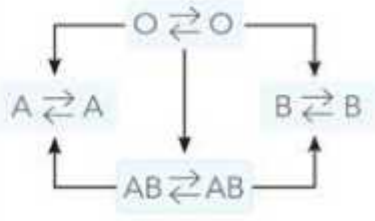
c. _____

4. Write the characteristics of the following blood components.

	Blood Components	Characteristics
a.	Red blood cells	
b.	White blood cells	
c.	Blood platelets	
d.	Blood plasma	

5. Complete the following table based on the blood transfusion scheme below.

	Donor Blood Type	Recipient Blood Type
a.	O	
b.	A	
c.	B	
d.	AB	

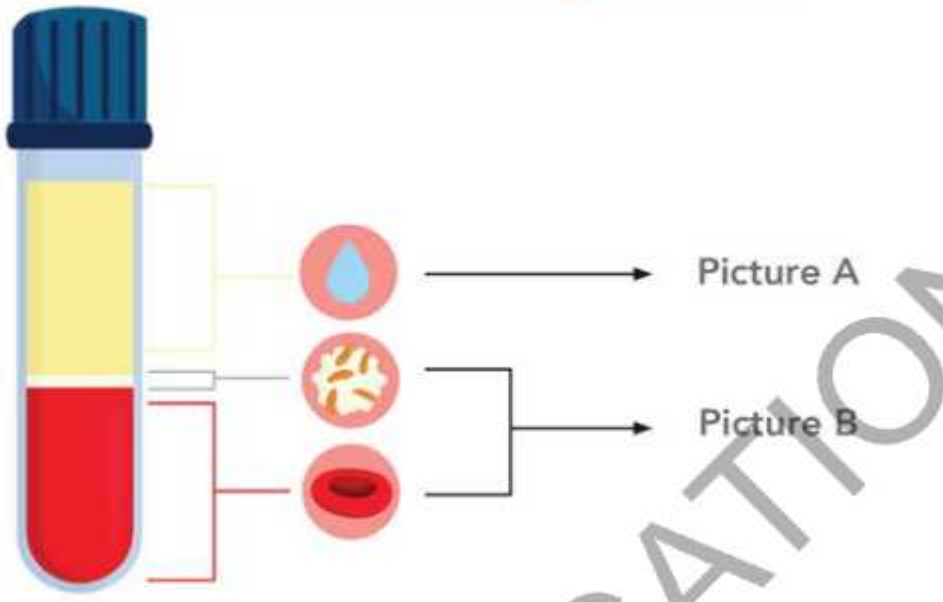


D. Colour 10 hidden words within the box. Those words are related to blood and can be arranged horizontally or vertically. Then, describe the words you have found.

E	R	Y	T	H	R	O	C	Y	T	E	S	O	L	E
N	T	G	B	V	W	H	H	L	P	L	A	S	M	A
P	N	L	O	P	O	W	K	G	J	G	R	V	Q	G
U	L	E	N	S	U	G	K	E	W	Z	Q	S	T	D
O	M	U	E	E	K	Y	F	F	X	J	S	H	H	E
K	M	K	M	O	S	U	M	V	J	O	J	G	R	O
U	C	O	A	G	U	L	A	T	I	O	N	L	O	X
R	Z	C	R	K	Y	D	Y	L	A	P	Y	X	M	Y
D	Q	Y	R	P	O	T	U	E	V	R	T	P	B	G
U	N	T	O	D	Q	Y	U	J	Y	A	R	X	O	E
K	K	E	W	K	N	S	G	H	E	A	R	T	C	N
Y	M	S	E	P	L	B	F	E	M	V	V	F	Y	A
O	X	Y	G	E	N	A	T	E	D	B	Q	J	T	T
L	I	U	T	B	R	A	E	U	J	Q	D	R	E	E
E	H	A	E	M	O	G	L	O	B	I	N	Y	S	D

	Words Found	Description
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

E. Observe the picture to answer the following questions.



1. Blood is the main transportation system within the human body. Explain the blood components that are shown in the picture.

   A: _____

   B: _____

2. What is contained in the component of the blood shown in picture A?

   _____

   _____

3. What blood components are shown in picture B?

   _____

   _____

4. Among the blood components shown in picture B, which component keeps its shape and which component changes its shape?

   _____

   _____

5. Why is blood red?

F. Answer the following critical thinking questions.

1. If red blood cells are like the big lorries carrying important goods (oxygen), what do you think would happen to the traffic (your body) if there were not enough red blood cells, or if they were broken and could not carry much oxygen? What problems might that cause, and why?

2. When your skin is wounded, which parts of your blood do you think work together to stop the bleeding and form the scab? Why are those specific parts so important for this job, and what would happen if your blood did not have enough of them?

3. Sometimes, people get very sick with infections, like a bad cold or the flu. How does your blood help to fight off these invaders and make you feel better? If your blood was not able to do this job properly, what might happen to your body when it comes into contact with germs?

Assignment 2

A. Cross (X) the correct answer.

1. Choose the correct statement about human blood circulation.
   a. Blood is not circulated through blood vessels.
   b. Blood is pumped by the heart.
   c. Deoxygenated blood is circulated throughout the body.
   d. Oxygenated blood is carried to the lungs to be exhaled.

2. The heart is located in _____.
   a. the chest cavity, above the diaphragm
   b. the chest cavity, under the diaphragm
   c. the abdominal cavity, on the right side
   d. the abdominal cavity, on the left side

3. The human heart has four chambers. The chamber that functions to pump blood from the heart to the body is _____.
   a. the left ventricle
   b. the left atrium
   c. the right ventricle
   d. the right atrium

4. Read the following statements.
   I. The heart pumps blood in the body.
   II. An atrium and a ventricle are separated by a valve.
   III. The atria have thicker muscles than the ventricles.
   IV. When a human sleeps, the heart takes a break.

   The correct statements are _____.
   a. I and II
   b. I and III
   c. II and III
   d. II and IV

5. The left ventricle functions to pump oxygenated blood. Oxygenated blood is blood that contains a lot of _____.

   a. oxygen
   b. carbon dioxide
   c. nutrients
   d. enzymes

6. After blood is pumped out, the muscles in the ventricles will relax, and the pressure within the heart chambers at that moment is the lowest. This phenomenon is called _____.

   a. diastole
   b. systole
   c. blood transfusion
   d. low blood pressure

7. The heart has protective layers.

   Choose the statement that does not show the function of the heart's protective layers.

   a. To keep the heart so it will not change position.
   b. To protect the heart from friction.
   c. To protect the heart from the infections of other tissues.
   d. To adjust its tempo when beating.

8. Blood vessels are a part of the transportation system that functions to carry blood. The blood vessels that leave the heart are called _____.

   a. returning blood vessels
   b. capillaries
   c. arteries
   d. veins

9. Blood pressure is the force of blood pushing against the walls of your blood vessels. The following option that does not affect the blood pressure is _____.

   a. age
   b. gender
   c. food
   d. the total amount of blood that enters the heart

10. Blood vessels are a component of the blood circulation system that carry blood throughout the body. The human body part that does not have blood vessels is _____.

a. the bones
b. the stomach
c. the fingernails
d. the brain

B. Fill in the blanks with the correct words from the help box below.

pericardium | pulmonary | arteries | blood vessels | systole | veins | stress | ventricles | hypotension | systemic | atrium

1. The blood vessels that carry blood back to the heart are called _____.
2. The chambers that pump blood from the body back into the heart are called _____.
3. The walls of the human heart have protective layers. The membrane layers covering the heart are called _____.
4. The human blood circulation is a closed blood circulation system. This is because blood is circulating inside the _____.
5. The human blood circulation system can be called the double blood circulation system. Double blood circulation consists of _____ circulation and _____ circulation.
6. _____ pressure is the pressure in the arteries when the left ventricle of the heart contracts. At that moment, blood leaves the heart to circulate throughout the body.

7. Blood pressure can be affected by several factors. One of the important factors is to manage _____.

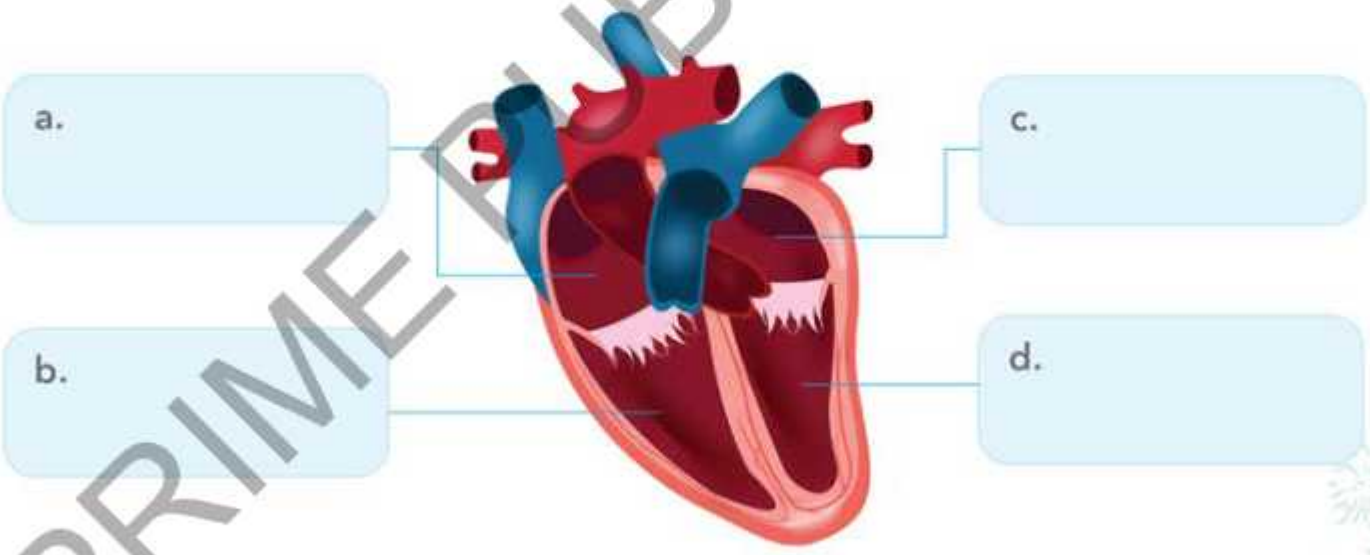
8. The blood vessels that carry blood from the heart throughout the body are _____.

9. Abnormal blood pressure can be classified into low blood pressure and high blood pressure. Another name for the low blood pressure is _____.

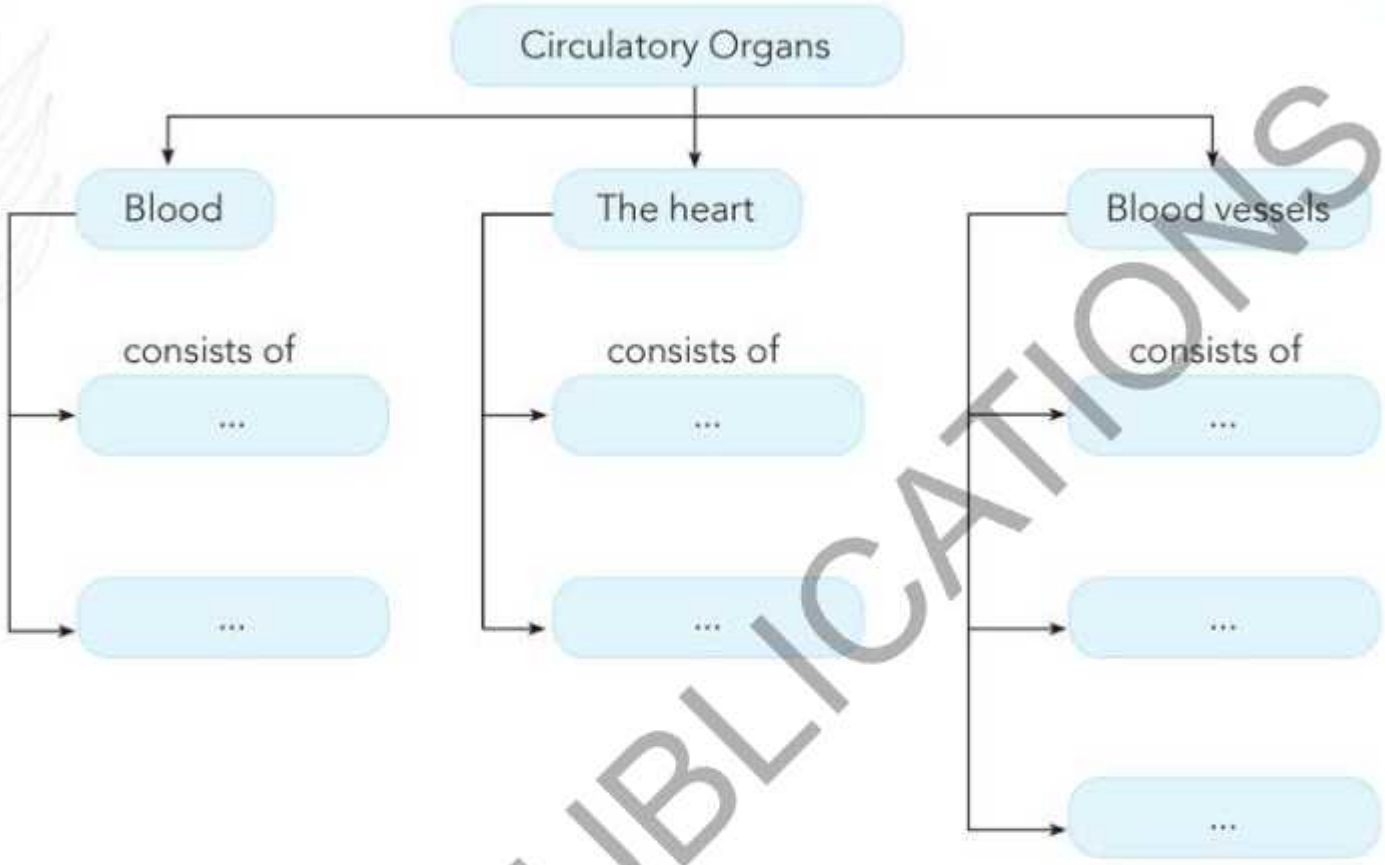
10. The chambers that pump the blood out of the heart are called _____.

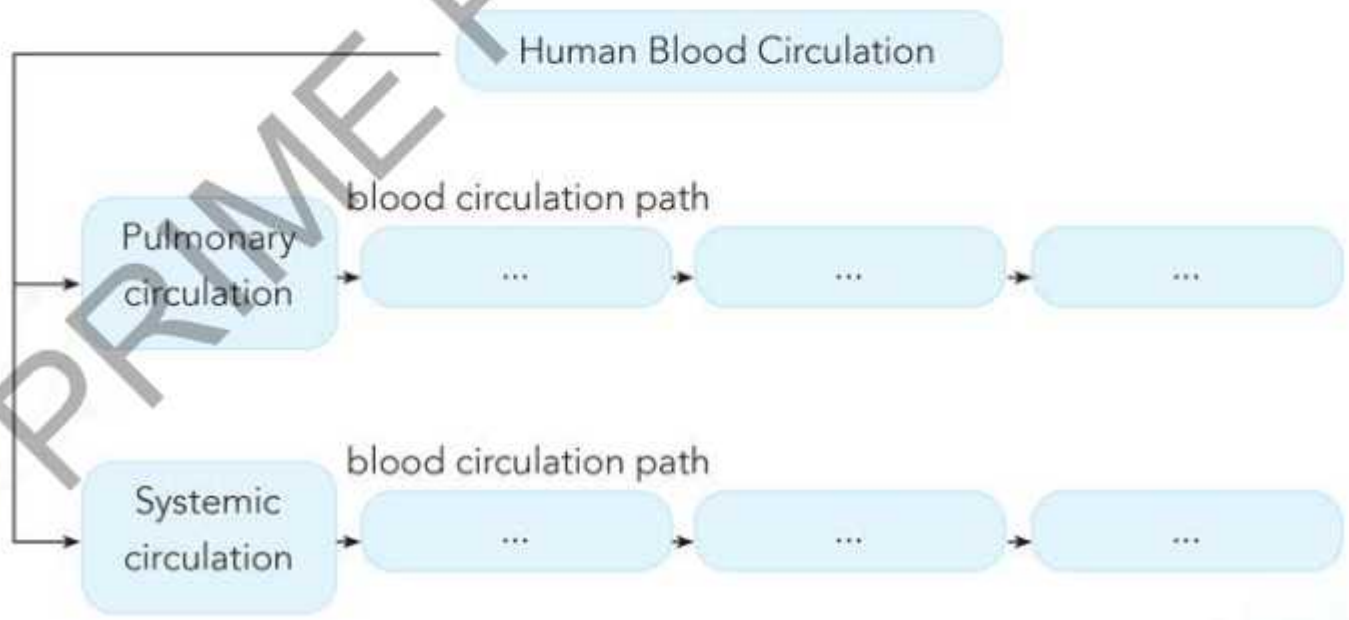
C. Follow the instructions.

1. Write the names and functions of the pointed chambers within the heart in the given space below.



2. Complete the following charts.





3. Tick (✓) the correct statements and cross (✗) the wrong ones.

a. The heart is a blood-pumping organ that is located in the chest cavity, above the diaphragm. The heart's size is about the size of a fist for each person. ☐

b. Veins are the blood vessels that leave the heart, while arteries are the blood vessels that carry the blood back into the heart. ☐

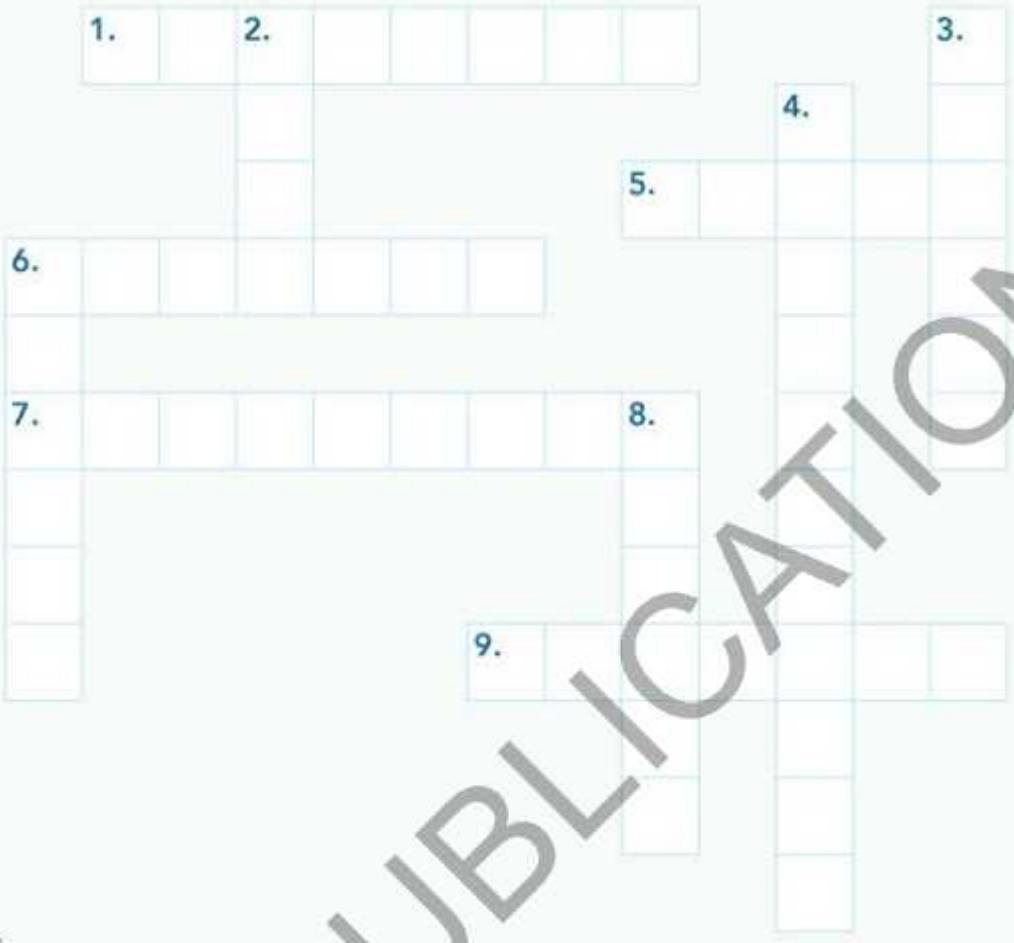
c. Capillaries are the small branches of arteries and veins. ☐

d. The right atrium and the right ventricle contain oxygenated blood. ☐

4. Complete the following table.

	The Differences	Arteries	Veins
a.	Blood conditions		
b.	Blood flows		
c.	Locations		
d.	If wounded		
e.	Pulses		
f.	Walls		

D. Solve the following crosswords.



Across

1. A water sport that is good for the circulatory organs
5. The organ where clogged blood vessels occur in stroke sufferers
6. A green vegetable that helps blood circulation run smoothly
7. Blood cancer that happens because of an excessive production of white blood cells
9. A thing to avoid in order to keep a healthy body

Down

2. A substance that anaemia sufferers need
3. People who give their blood during a transfusion
4. A genetic disorder that causes difficulty in stopping bleeding
6. A kind of fish that contains a lot of omega-3
8. A kind of nut that helps blood circulation run smoothly

E. Observe the picture to answer.

A

B

1. What will happen to the boy in picture (A) if he keeps eating too much continuously?

2. What are the effects of what the boy in picture (A) did for the circulatory organs?

3. Maintaining a healthy blood circulation can be done by doing an activity shown in picture (B). Why does doing the activity regularly help to maintain a healthy circulatory organs?

4. Besides doing the activity shown in picture (B), what other activities can be done to maintain a healthy blood circulation?

F. Observe the picture and answer the following critical thinking questions.

1. What is the shape of red blood cells in sickle cell anaemia sufferers? What is the normal shape of red blood cells?

2. What are the effects of having red blood cells shaped like that?

3. What caused the sickle cell anaemia?

4. What is the difference between regular anaemia and sickle cell anaemia?

5. What should we do to treat anaemia?