UNIT 8 - BLOOD / LYMPHATIC / CARDIOVASCULAR SYSTEMS

WORKSHEET - The Blood

Name _____ Period _____

1. List and describe the four components of blood.
   a.
   b.
   c.
   d.

2. In an adult, where are blood cells made? _____

3. Describe the appearance of a mature erythrocyte and why this occurs.
_____
_____
_____

4. What two parts make up a hemoglobin molecule?
   a.
   b.

5. How are leukocytes classified?
_____

6. Plasma or Serum. Which one is whole blood minus cells and the clotting elements such as fibrinogen? _____

7. What term refers to the stoppage of bleeding?
_____

8. List and describe the three steps associated with blood clotting.
   1._____
   _____

   b. _____
   _____

   c. _____
   _____

9. What is the basic event in the creation of a blood clot?
_____

10. A _____ is a stationary blood clot while a _____ is a traveling clot.

11. The four blood types in humans are determined by the presence or absence of _____ on the surface of the erythrocytes. _____ is another term for antigens and _____ is another term for antibodies.

12. Complete the following chart on blood types.

Blood Type	Antigen	Antibody
Type A		
Type B		
Type AB		
Type O		

13. What might be indicated by an excess of white blood cells in the blood?

_____

14. What problems might you have if you had no platelets in your blood?

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5. As you increase altitude, there is less oxygen in the air. How might this affect your blood?

_____

_____

16. How can blood clotting be bad for you?

_____

17. What does Rh positive mean?

_____

18. Type AB blood has often been called the universal recipient meaning a person with this blood type could receive a transfusion of any other blood type. Explain why this phrase is misleading.

_____

_____

_____

WORKSHEET - The Blood: KEY

1. List and describe the four components of blood.
   a. *Plasma - the fluid portion of blood*
   b. *Erythrocytes - the red blood cells used to carry oxygen and carbon dioxide*
   c. *Leukocytes - the white blood cells used to fight infection*
   d. *Thrombocytes - the platelets used to clot blood*

2. In an adult, where are blood cells made? *The bone marrow*

3. Describe the appearance of a mature erythrocyte and why this occurs.
A mature red blood cell looks like a biconcave disk. This is because it no longer has many of the normal cellular organelles such as a nucleus is order to make room for the hemoglobin molecule which is vital in transporting oxygen (and a little carbon dioxide).

4. What two parts make up a hemoglobin molecule?
   a. *Heme*
   b. *Globin*

5. How are leukocytes classified?
As granulocytes or as agranulocytes, depending on whether or not there are granules in the cytoplasm.

6. Plasma or Serum. Which one is whole blood minus cells and the clotting elements such as fibrinogen? *Serum*

7. What term refers to the stoppage of bleeding? *Hemostasis*

8. List and describe the three steps associated with blood clotting.
   a.The Vascular Spasm
This phase occurs when the arteriole or venule has been cut or broken and the smooth muscles contract in order to slow down or stop the flow of blood.

   1.Platelet Plug Formation
   This phase occurs when platelets stick to the exposed ends of the injured blood vessels

c. *Coagulation*
   This is when the blood clot is actually formed. Due to the presence of calcium, blood clotting factors, and enzymes, a plasma protein, fibrinogen, is changed to fibrin. Fibrin forms actual fibers which hold the ends of the damaged blood vessels together forming a mass known as a clot.

9. What is the basic event in the creation of a blood clot?
The conversion of the plasma protein fibrinogen to fibrin.

10. A *thrombus* is a stationary blood clot while an *embolus* is a traveling clot.

11. The four blood types in humans are determined by the presence or absence of *antigens* on the surface of the erythrocytes.
Agglutinogens is another term for antigens and *agglutinins* is another term for antibodies.

12. Complete the following chart on blood types.

Blood Type	Antigen	Antibody
Type A	*A*	*Antibody anti-B*
Type B	*B*	*Antibody anti-A*
Type AB	*A and B*	*Neither Antibody anti-A or Antibody anti-B*
Type O	*None*	*Both Antibody anti-A or Antibody anti-B*

13. What might be indicated by an excess of white blood cells in the blood?
Infection or cancer of the blood (leukemia)

14. What problems might you have if you had no platelets in your blood?
Your blood would not be able to clot.

15. As you increase altitude, there is less oxygen in the air. How might this affect your blood?
Your body would produce more red blood cells to be able to carry enough oxygen for your body's needs.

16. How can blood clotting be bad for you?
When it occurs abnormally is blood vessels creating a thrombus which could obstruct the flow of blood to tissues and organs distal to is.

17. What does Rh positive mean?
The person's red blood cells have an additional antigen (protein D).

18. Type AB blood has often been called the universal recipient meaning a person with this blood type could receive a transfusion of any other blood type. Explain why this phrase is misleading. *Giving the person Type A, Type B, or Type O blood would introduce antibodies into this person's blood and a blood reaction could occur.*