Science 9-Biology

Worksheet 9-1—Blood and the Circulatory System

_____
10

Name _____

Due Date _____

Show Me ☐ Hand In ☐

Correct and Hand In Again By _____

Read pages 170-179 of SP to help you answer the following questions:

1. Your circulatory system carries _____ and nutrients (both necessary for _____respiration) to your cells and _____ away from your cells.

2. Blood is carried to within _____cm or each and every cell in the body.

3. What could happen to cells in a body part if the blood was cut off for a period of time?

   _____

4. The **liquid** portion of blood is called _____ it is about 92% _____ and 8% _____ dissolved in water.

5. Name five substances or types of substances that are dissolved in the liquid portion of our blood.

   _____ _____ _____

   _____ _____

6. People with **hemophilia** have blood that does not clot properly. Explain why this is so.

   _____

7. What is the function of **antibodies** that are carried in the blood? _____

   _____

8. Adrenalin is a type of blood protein called a _____. It is produced in the _____gland just above the kidney. However, it acts on different parts of the body like the respiratory system and the heart. How does it move in the body?

   _____

9. About _____% of your blood's volume is liquid (plasma) and about _____% is solids, which consist of blood _____ and _____ (see margin page 172)

10. Red blood cells contain the protein called _____ which grabs oxygen and carries it to the cells of the body where it is used.

11. Your red blood cells pick up oxygen in the _____ in the lungs and release it near the cells of the body.

12. The mineral _____ is needed by the body to make hemoglobin. Adults don't need as much iron as teenagers because some of the iron is _____ when the red blood cells die.

13. Your body contains approximately _____ red blood cells. The average lifetime of a red blood cells is about _____ days (_____ months).

14. Where are red blood cells manufactured? _____

15. Your body replaces red blood cells at a rate of about _____ per second.

16. An organ called the _____ breaks down dead red blood cells.

    Where does the hemoglobin go? _____

    Where does the iron go? _____

17. What is the main function of white blood cells? _____

    _____

18. Name three places in the body where white blood cells are produced? _____

    _____

19. What happens to a persons "white blood cell count" during a bacterial infection somewhere in the body? _____

    Why does the body do this? _____

    _____

20. A very high white blood cell count may also indicate a type of cancer called _____.

21. When there is damage to a blood vessel, _____ collect where the damage is. They release chemicals that cause _____

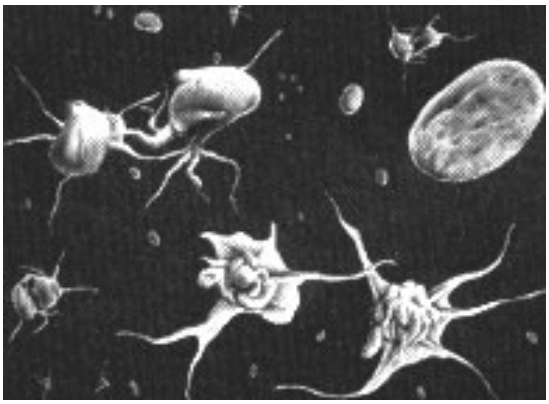
    _____

22. These are called _____

    They release _____

    _____

    They are (*larger/smaller*) _____ than other types of blood cells.



23. These are called _____

    _____

    They contain _____ which helps transport oxygen. These are the most numerous type of blood cell.

24. This is an example of a _____

_____

Their main function is to _____

and kill _____

25. Any blood vessels that carry blood **away from** your heart are called _____

26. Blood vessels which return blood **to** the heart are called _____

27. What are **capillaries**? _____

28. Which type of blood vessels have thick muscular walls? _____

Why do you think these vessels need thick walls? _____

What do the muscles in the walls of these vessels do? _____

29. Which type of blood vessels get closest to all of your cells? _____

30. Which type of blood vessels have the thinnest walls? _____

What passes through these walls? _____

_____

31. After your heart pumps blood into the arteries, why doesn't it go right back into the heart? _____

32. The rhythm of the pumping of your heart can be felt in the arteries which come close to the surface of your skin. This rhythm is called your _____

33. What is meant by heart rate? _____

34. What is your resting heart rate (measure it) _____

35. How can a doctor or first aid attendant tell when an artery has been severed? _____

_____

36. Do nutrients and oxygen pass through the walls or your arteries and into your cells?___

Explain why or why not. _____

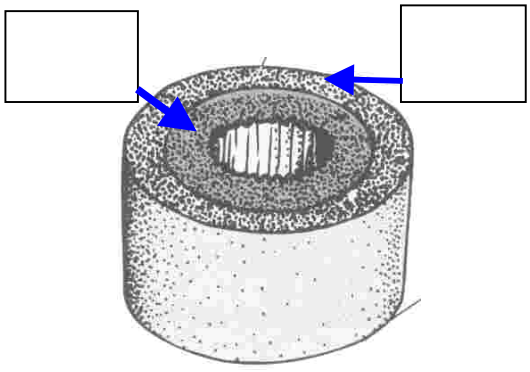
_____

37. What type of blood vessels do oxygen and CO_2 easily pass through? _____

38. The walls of your _____ are elastic. They stretch when they are full of blood.

39. The picture is a cross section of a blood vessel called _____.

Label the two layers in the diagram.



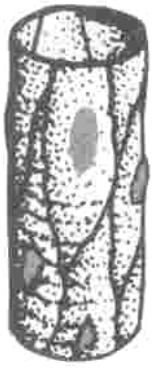
40. This type of blood vessel is called a _____

They have very _____

walls, which _____,

_____ & _____

can pass through.



41. A blood vein has _____layers.

One is very stretchy to allow for expansion.

In the space to the right, draw a diagram showing the cross section of a vein. Label the layers.

A vein

42. Do the walls of veins help push blood back to the heart? _____ Why or why not? _____

43. How do the muscles of the body help blood get back to the heart? _____

_____

44. What is the purpose of one-way valves in the veins? _____

_____

45. Draw a diagram showing a one way valve open and the same valve closed, showing the direction of blood flow in each case. See the pictures on the top of page 176 of SP.

One-way valve open

One-way valve closed

46. After blood comes from the lungs, it is rich in the gas _____ and is called _____ blood.

47. Coming from the lungs, blood comes into the (*left/right*) _____ side of the heart. From here it is pumped into the large _____ that go to all the other parts of the body.

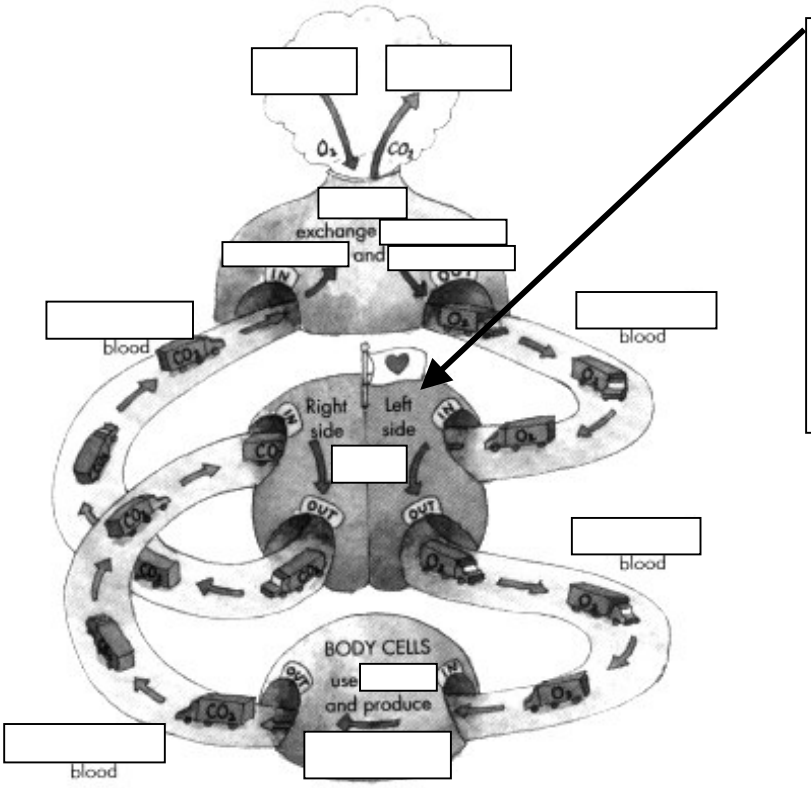
48. In the cells of your body, the blood loses _____ and becomes _____**ated** blood.

49. Deoxygenated blood from your body cells moves through vessels called _____ back to the (*left/right*) _____ side of the heart. From here, it is pumped to the _____, where it picks up oxygen, and again becomes **oxygenated** blood. Blood from the lungs goes back to the (*left/right*) _____ side of the heart, and the cycle starts over.

50. The right side of the heart pumps blood to the (*lungs/rest of the body*) _____ _____ The left side of the heart pumps blood to the (*lungs/rest of the body*)_____

51. Which do you think needs to have stronger muscles, the left side of the heart or the right side of the heart? _____ Explain your answer _____

52. Fill in the blanks in the following diagram of the circulatory system:



Explain why the "left side" is shown on the **right** side of the diagram!

_____

_____

_____

53. Your circulatory system transports _____ energy throughout your body.

54. Why does warming up your feet or hands seem to make your whole body feel warmer? _____

_____

55. The heat energy that gets into the bloodstream comes from the process of _____ _____ in your body cells.

56. When the capillaries in a certain area of the body receive a higher volume of blood, the area gets (*warmer/cooler*) _____

57. Your body gets rid of excess heat by warming the skin so that the heat can escape into the surroundings. What is another body process that helps get rid of excess heat? _____

58. When the body gets very cold, the capillaries near the outside of the body, especially in the fingers, toes etc. constrict (get smaller) while the blood flow to the inner organs remains at a high volume. Suggest a reason why the body would do this when it gets very cold. _____

_____

59. What happens when a person is suffering from **hypothermia**? _____

_____