

Key

Homework: 37-1+ 37-2

Name:
Date:
Period:

READ Chapter 37 and answer the following questions.

1. What are the 3 parts of the circulatory system? Heart, Vessels, Blood
2. The heart pumps about 72 times per minute.
3. The heart effectively functions as 2 pumps.
4. The wall that divides the left and right sides of the heart is called the: Septum
5. Complete the following table:

Name of Circulatory Pathway	Side of Heart Involved	Route Blood Follows
Pulmonary Circulation	<u>Right</u>	From heart to lungs
<u>Systemic</u>	Left side	<u>From Heart to Body</u>

6. The blood from the heart gets pumped to 2 places: Lungs and Body
7. What 2 things happen to the blood when it reaches the lungs:
CO₂ leaves
O₂ enters
8. Why is the blood that enters the heart from the systemic circulation oxygen-poor?
It has travelled through the body + delivered all oxygen
9. Flaps of connective tissue called Valves prevent blood from flowing backwards in the heart.
10. What are the 3 types of blood vessels? veins, arteries + Capillaries
11. What is the smallest type of blood vessel? Capillary
12. Which type of vessel USUALLY carries oxygen-poor blood? Veins
13. What happens in the capillaries?
O₂ diffuses out to body, CO₂ diffuses IN from body (+ blood will go to veins, then heart - then lungs)
14. What keeps blood flowing toward the heart in the largest veins? One-way valves
15. What is the force of blood on the walls of the arteries called? Blood pressure
16. A condition in which fatty deposits build up on the walls of arteries is called: Atherosclerosis
(plaque build up)

17. High blood pressure is also called: Hypertension

18. What are some possible negative consequences of high blood pressure?

Heart Attack, Stroke

19. What is a heart attack? _____

Part of muscle in heart dies b/c of lack of oxygen

20. What is a stroke? _____

Blood clot gets stuck in blood vessel leading to brain,

21. How are heart attacks and strokes different? Part of brain deprived of oxygen can kill part of brain

heart ↓ brain The location of lack of oxygen is different.

22. What are 4 ways to avoid cardiovascular disorders? _____

- 1) Exercise
- 2) Weight control
- 3) Healthy diet
- 4) NOT SMOKING!

Homework: 37-2

23. What is plasma? Part of Blood "straw-colored" fluid - made of cells, proteins, enzymes, etc.

24. What are the 3 types of blood cells? White, Red, Platelets

25. What is the job of red blood cells? Carry oxygen

26. How many nuclei does a red blood cell have? 0

27. Where are all blood cells made? Bone Marrow

28. Compare the "lifespan" of white and red blood cells.
Red ~120 days White Can last

29. Why is it important for white blood cells to live a long time?
To "remember" viruses - easier to fight off after 2nd exposure

30. What is the job of white blood cells? Fight infections in Body

31. White blood cells that engulf and digest foreign cells are called: Phagocytes

32. What does a sudden increase in WBC tell a physician? Body fighting infection

33. What is the lymphatic system? Network of blood vessels that collects fluid lost by the blood + returns it to the circ. system

34. The fluid lost by blood is called LYMPH

35. What do lymph nodes do and where are they located?
Produce lymphocytes, armpits, neck, groin

31. White blood cells that engulf and digest foreign cells are called: _____

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33. What is the lymphatic system?

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36. What is the overall purpose of the circulatory system?

- Deliver O₂ + nutrients TO cells
- Take away waste (ex. CO₂ + nitrogenous) FROM cells

37. Which vessels carry blood away from the heart? ART to the heart? Veins

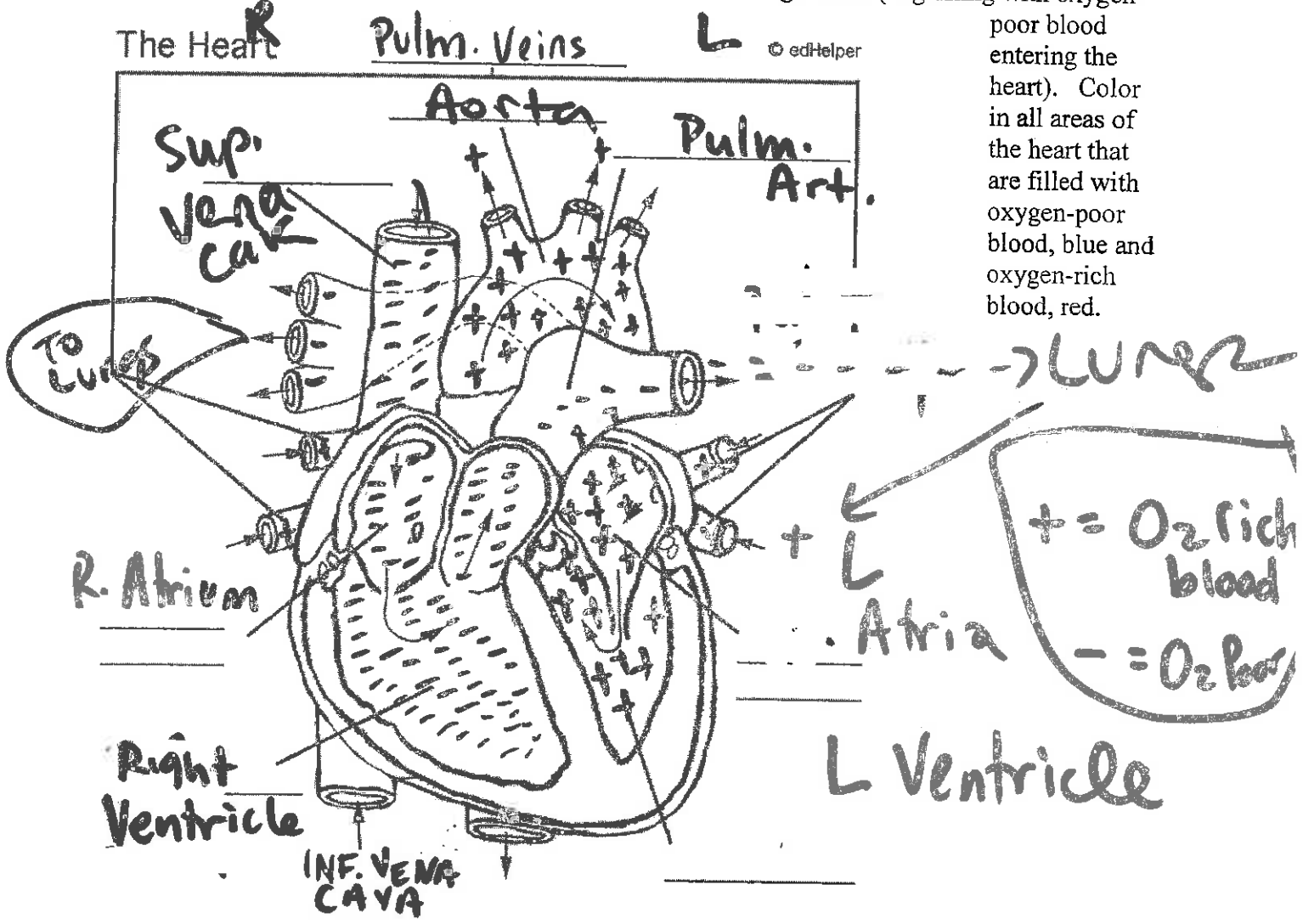
38. What is the name of the type of circulation that brings blood from the heart to the lungs?

39. PULM Which side of the heart is involved? L

40. What is the name of the circulation that brings blood from the body to the heart?

41. Systemic Which side of the heart is involved? R

42. Number the structures in the order that blood flows through them (beginning with oxygen-poor blood entering the heart). Color in all areas of the heart that are filled with oxygen-poor blood, blue and oxygen-rich blood, red.



43. What is a sphygmomanometer? Instrument used to measure blood pressure

44. SYSTOLIC pressure is the force felt in the arteries when the ventricles contract. ~~The~~ Diastolic pressure is the force of the blood in the arteries when the ventricles relax.

45. A "normal" blood pressure in an adult is: 120/80.

46. How does the body bring down the bp when it is too high?

Sensory neurons ~~also~~ send msgs to the medulla oblongata, send msgs to relax smooth muscle, lowering bp. Also, msgs

47. How do kidneys help regulate blood pressure?

More H₂O in blood = →

Kidneys can raise BP by keeping more H₂O in blood

Sent to kidneys to remove water from blood, decreasing ^{more} overall blood volume + BP

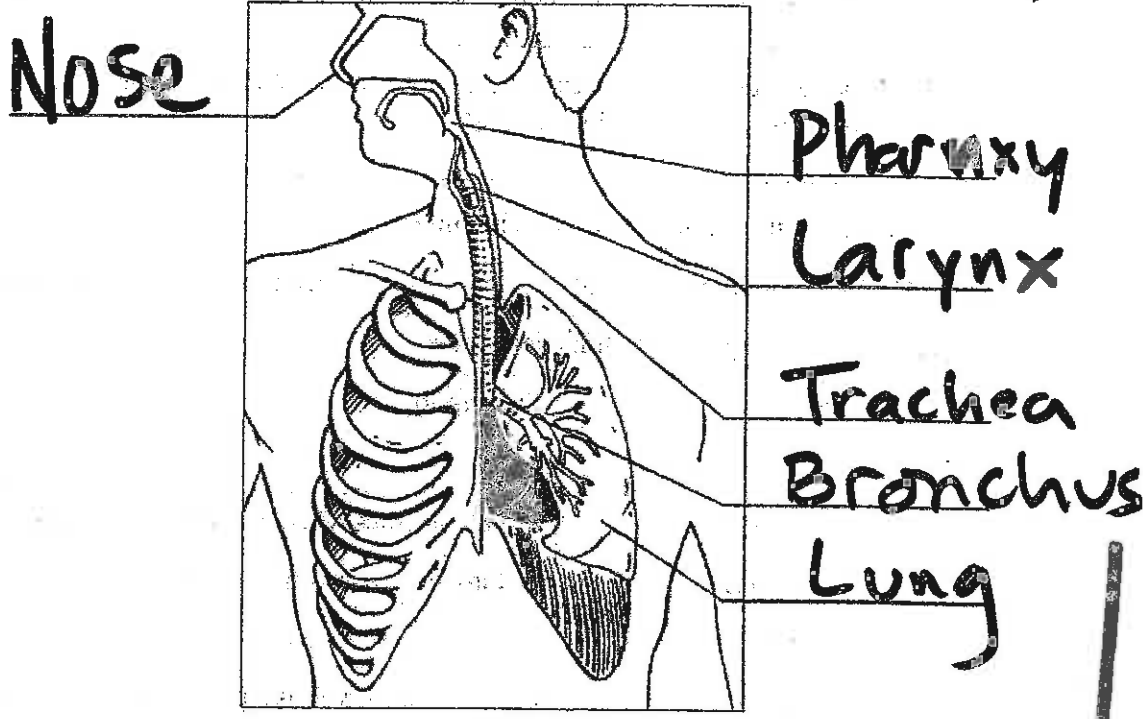
48. Describe the path of blood through the heart and lungs. Start with oxygen poor blood going

- Atria = Blood arrives
1. Oxygen poor blood arrives from the body through the Superior + Inferior vena cava.
- Ventricle = Blood leaves
2. The oxygen-poor blood goes into the Right Atrium first.
3. It is then pumped into the R. Ventricle. The Tricuspid valve prevents it from going back into the R. Atria
4. The blood is then pumped out of the heart to the lungs through the pulmonary artery to get rid of CO₂ + pick up O₂
5. Blood returns to heart through the pulmonary vein and goes to the left atria
6. It travels to the left ventricle and does not go back to the left atria b/c of the mitral valve.
7. The heart then pumps blood out of the body via the aorta

Key

Ch. 37-3 Structures of the Respiratory System

1. Label each of the structures indicated in this drawing of the human respiratory system :
nose, pharynx, larynx, trachea, bronchus, and lung.



Gas Exchange and Transport

For Questions 2-7, complete each statement by writing the correct word or words.

2. The surface area for gas exchange in the lungs is provided by the alveoli
3. The gases exchanged in the lungs are carbon dioxide and oxygen
4. The process that exchanges gases across the walls of capillaries is diffusion
5. Oxygen diffuses from an area of Higher concentration to an area of lesser concentration
6. Hemoglobin binds with oxygen and increases the blood's oxygen-carrying capacity.
7. Most carbon dioxide combines with water in the blood, forming carbonic acid.
8. What is gas exchange?

Oxygen travels into cells, CO₂ out of cells

Smoking and the Respiratory System

9. Complete the table to describe the health effects of three substances in tobacco smoke.

Substance	Effect
Nicotine	Nicotine is addictive, Increases heart rate + blood pressure
Carbon monoxide	-Poisonous gas- blocks hemoglobin from binding to oxygen, which interferes w/ oxygen transport
Tar	Contains 60+ compounds known to cause cancer

10. What causes smoker's cough?

Tobacco smoke Paralyzes cilia in trachea, so inhaled particles stick to resp. tract or ENTER lungs. Smoke-filled mucus getting coughed up - caused by irritant

11. Smoking even a few cigarettes on a regular basis can lead to chronic bronchitis. What happens to people with this disease?

-Harder time getting enough O₂ + find simple physical activities difficult

12. The part of the brain that controls breathing is the Brainstem

13. The brain monitors levels of CO₂ to determine how fast to breathe.

Match the following term with its definition

Structure	Description
14. C pharynx	a. Tiny air sacs where gas exchange occurs
15. F trachea	b. Tiny projections that sweep trapped particles and mucus away from the lungs
16. B cilia	c. Tube that serves as a passageway for both air and food
17. E larynx	d. Large passageways in the chest that lead to the lungs
18. D bronchi	e. Structure at the top of the trachea that contains the vocal cords
19. A alveoli	f. Passageway between the pharynx and bronchi

20. What is the difference between respiration and cellular respiration?

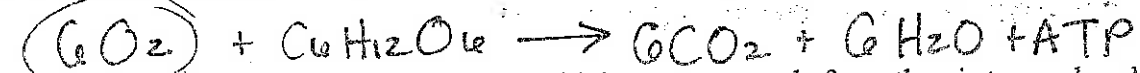
→ Lungs exchange CO₂/O₂

IN CELLS - mitochondria use

O₂ + sugar to make ATP, CO₂ + H₂O

21. How does cellular respiration depend on respiration? (HINT: It would be very helpful to provide the equation for cellular respiration in your answer).

Without Oxygen from the gas exchange in lungs, cells cannot perform C.R. O₂ is REACTANT.



22. List the structures in order through which oxygen travels from the air to reach red blood cells.

1) Nose/mouth → 2) Pharynx → 3) (Larynx) → Trachea
4) Bronchi → 5) Bronchiole → 6) alveoli → 7) Capillary → 8) RBC

23. What happens to the oxygen when it reaches the red blood cells?

It attaches to the RBC and is carried to all cells in the body

24. In which blood vessel does gas exchange occur?

capillary