

Chapter 10 Lesson 1

Heart and Lungs

Welcome To 7th grade Life Science!

Mrs. Winters

Materials Needed

Today

Please take these materials out of your backpack.

- Pencil
- Age of the Earth Research Assignment

Hot Sync

Tuesday 3/4/14

Answer the following questions in complete sentences on a BLANK sheet of paper. Show all work!!

Calculate the Mechanical Advantage(MA) of the lever if $d_{A(\text{effort})} = 1.5\text{m}$ and $d_{B(\text{resistance})} = 0.5\text{M}$
 $MA = D_{(\text{effort})} / D_{(\text{Resistance})}$



If Mrs. Winters could speak she would
say...

- Ok please silently go back to your seats and have out your notes labeled “Levers” you will take three main points from each others’ presentations 😊
- On your notes, title each section with the title of the group’s (who are presenting) poster. Then write the main idea in your own words.

Welcome To 7th grade Life Science!

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Materials Needed

Today

Please take these materials out of your backpack.

- Pencil
- * Blank sheet of paper to use as a coversheet on Quiz...and to use for later.

Hot Sync

Wednesday 3/5/14

Answer the following questions in complete sentences on a BLANK sheet of paper. Show all work!!

Take this 5 minutes to study your bones!!!

Welcome To 7th grade Life Science!

Mrs. Winters

Materials Needed

Today

Please take these materials out of your backpack.

- Pencil
- Chapter 9 Test Titled and has a heading

Hot Sync

Thursday 3/6/14

Answer the following questions in complete sentences on a BLANK sheet of paper. Show all work!!

How is it possible to breath? (2 sentences)

Why do we need to breath?(1 sentence)

What organ is responsible for breathing? (1 Senetence)

www.online-stopwatch.com

00:00:00

Clear
















Back

2min then SLANT!



10.1 The Pulmonary-Circulatory System

LESSON Vocabulary

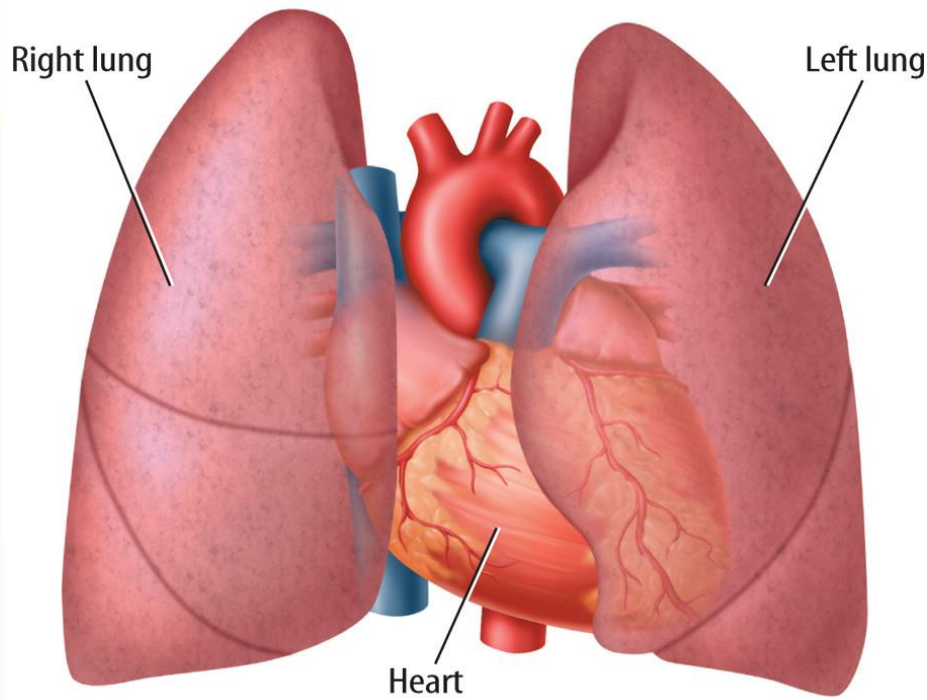
- | | |
|--|---|
|  pulmonary system |  ventricle |
|  breathing |  artery |
|  lungs |  capillary |
|  pneumonia |  vein |
|  suffocation |  heart attack |
|  asthma |  stroke |
|  circulatory system |  heart |
|  atrium | |



The Pulmonary System



- Our **pulmonary system** contains tissues and organs specialized for:

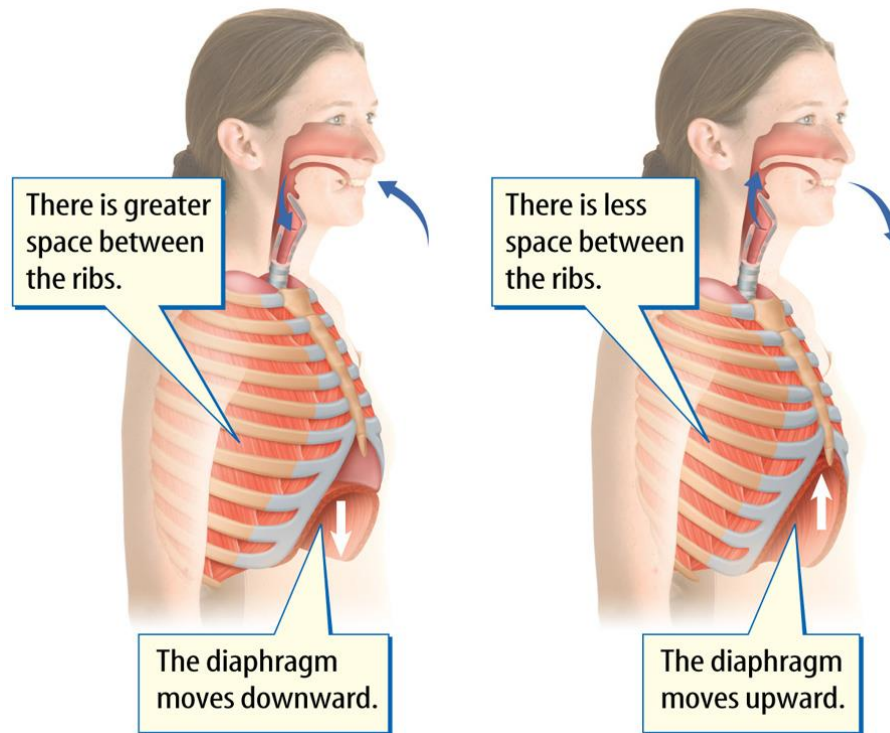


- Taking in oxygen and removing carbon dioxide from our bodies
- Exchanging oxygen and carbon dioxide



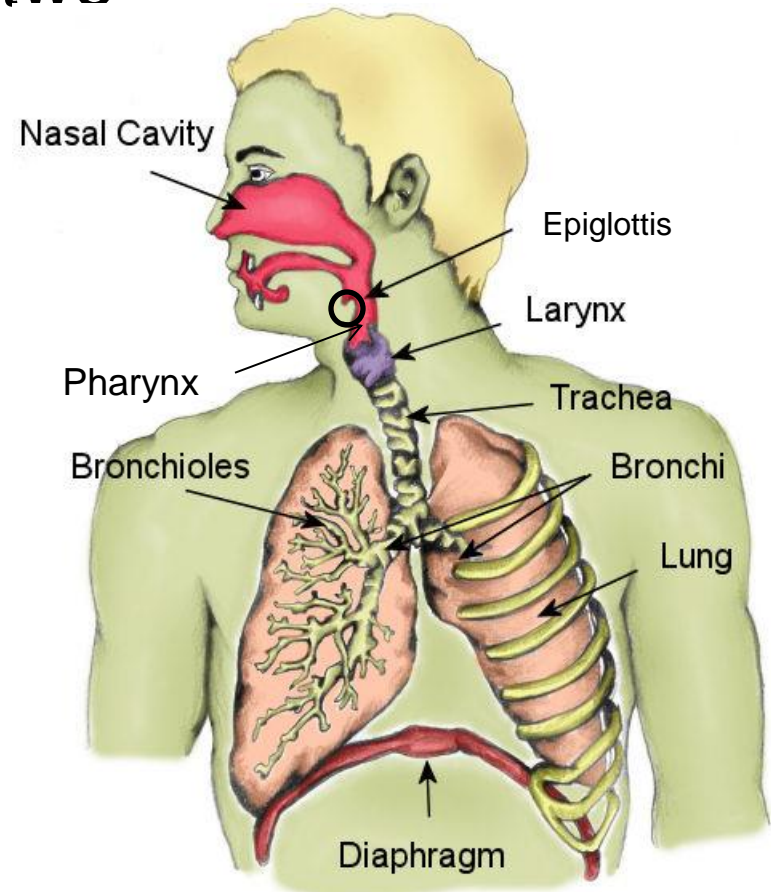
Breathing

- **Breathing** is the process of air entering and exiting our lungs.



Breathing (cont.)

- The trachea forks into two branches called bronchi.
- The bronchi are connected to the **lungs**—the organs of the pulmonary system.



Breathing (cont.)

- The bronchi divide into bronchioles, which are further divided many times into alveoli.
- Oxygen and carbon dioxide are exchanged in the alveoli.
- The air that now is high in carbon dioxide is exhaled and flows out in the reverse path.



Problems in the Pulmonary System

- We cannot live without air.
- Cells combine food and oxygen to produce energy.
- Problems in the pulmonary system prevent oxygen from reaching the lungs.




Pneumonia

- Caused by contact with mucus from an infected person or the introduction of bacteria or viruses from the mouth and throat into the lungs
- One of the leading causes of death in the U.S.



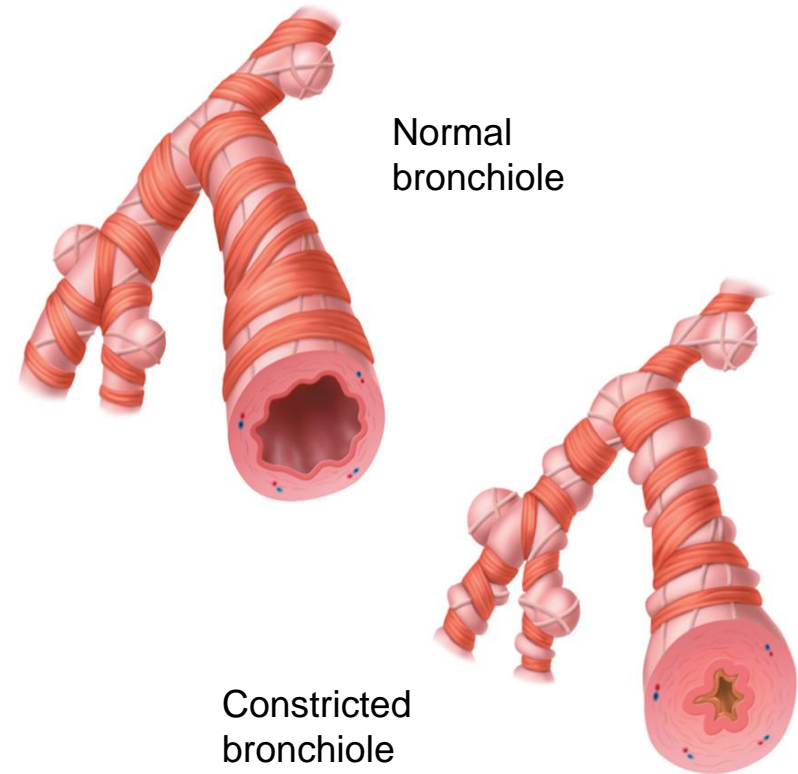
Suffocation

-  **Suffocation** occurs when the lungs and body do not receive enough oxygen.
- Causes of:
 - Choking
 - Children with blankets or plastic bags covering their faces
 - Gases such as carbon monoxide



Asthma

- A disease of the airways to the lungs
- Most common long-term disease in children
- Triggers include air pollution, smog, and ozone



The Circulatory System

- Oxygen, food, other nutrients, and waste products are transported to and from cells by blood.
- ◀ • The **circulatory system** contains the heart and blood vessels, and transports blood throughout the body.

Brain
POP™

Circulatory
System

Click here to learn more!



Resources



Blood

- Blood is a tissue that contains many different substances, including cells.
- Blood is 55% plasma.
 - Plasma is 90% water.
 - The remaining 10% is ions, proteins, and other substances.

Interactive Table [Components in Whole Blood](#)



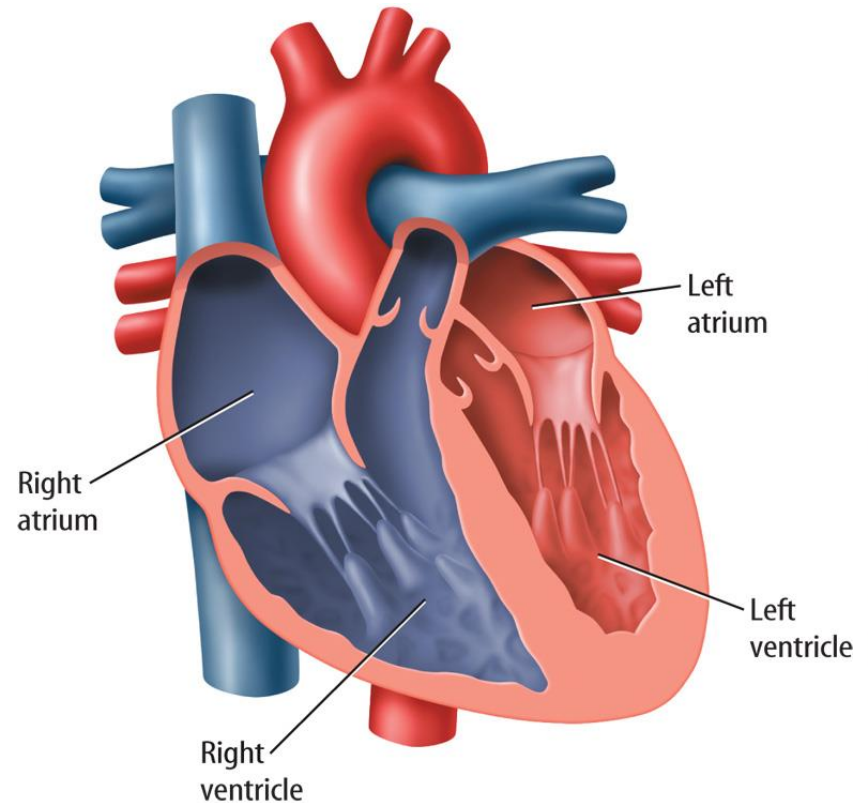
Heart

- The **heart** is the organ of the circulatory system that pumps blood.
- The atria (singular, **atrium**) are the two upper chambers of the heart that receive blood.
- The **ventricles** are the two lower chambers that pump blood out of the heart.



Heart (cont.)

- Deoxygenated blood travels from the right atrium to the right ventricle, the lungs, the left atrium, the left ventricle, and to the body.



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Hot Sync

Friday 3/7/14

Answer the following questions in complete sentences on a **BLANK sheet of paper. Show all work!!**

Materials Needed Today

Please take these materials out of your backpack.

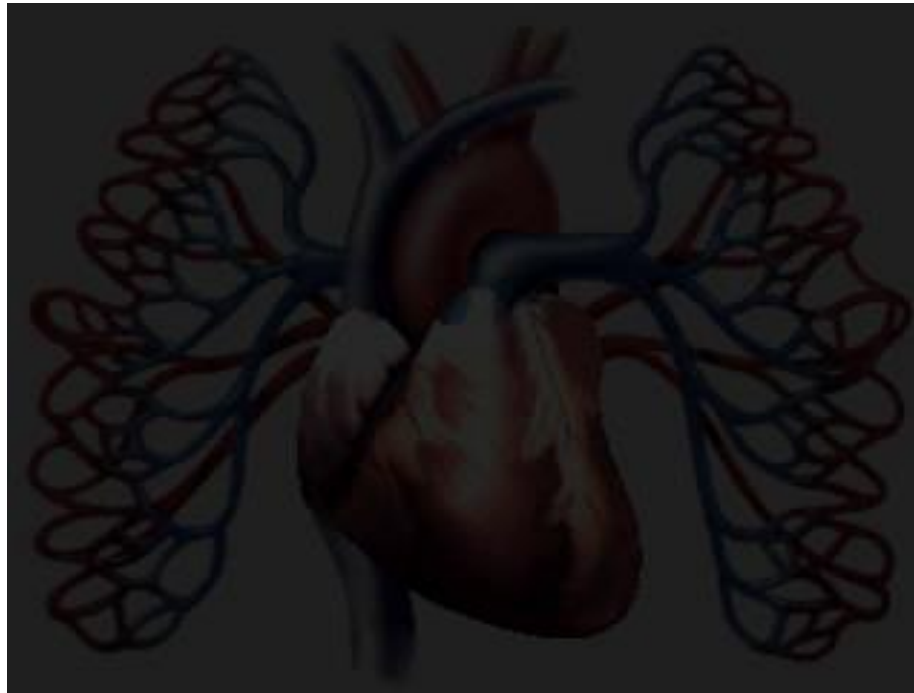
- Pencil

Why is your heart necessary? (2 sentences)

Name one things that gets your heart rate up and explain why. (2 sentences)

Heart (cont.)

Concepts In Motion



Resources



Blood Vessels

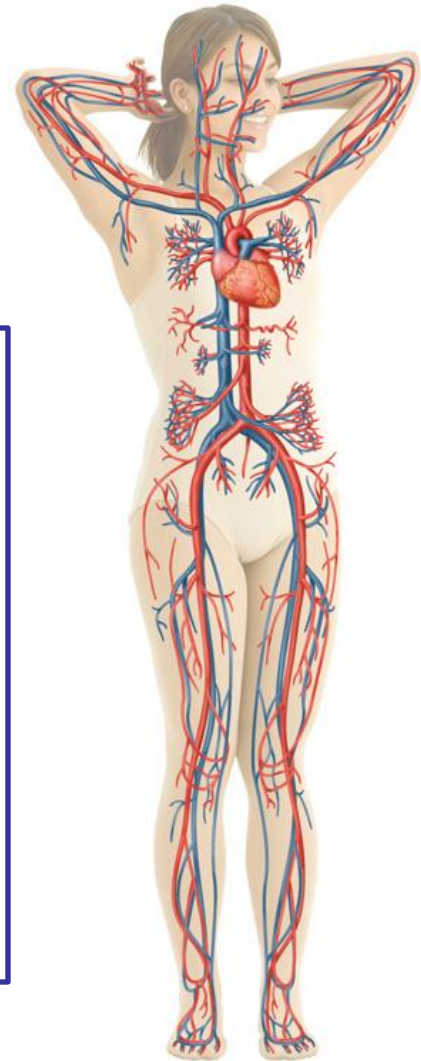
- Blood travels to and from the heart in vessels.



- **Arteries** are vessels that carry blood away from the heart to organs of the body.



- Arteries branch into smaller vessels called **capillaries**, which deliver oxygen and nutrients to the organs.

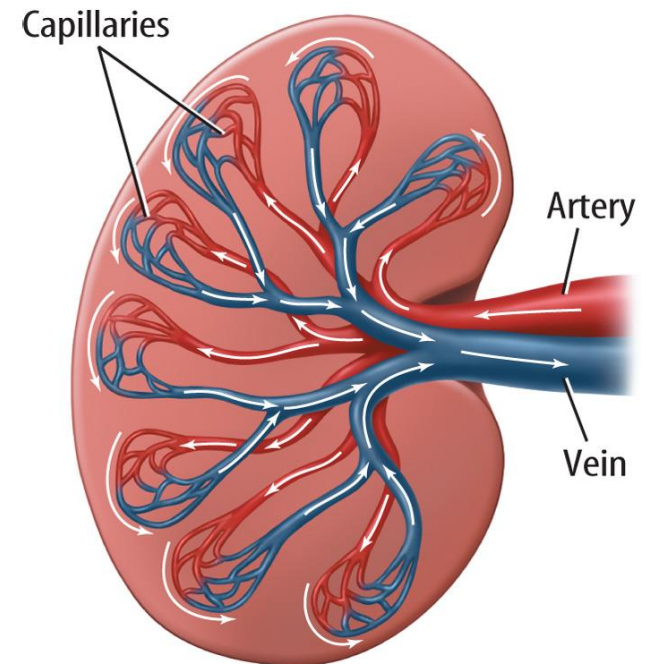


Blood Vessels (cont.)

- The capillaries transport carbon dioxide and wastes, then join with larger vessels that carry the blood on its return path.



- These vessels connect to larger vessels called **veins** that carry blood to the heart.



Blood Vessels (cont.)

- All blood vessels have the same structure.
 - Inner lining: thin, flat layer of cells where the blood and the vessel wall meet
 - Next layer: connective tissue followed by a layer of smooth muscle
 - Final layer: connective tissue that contains nerves and supplies the larger vessels with nutrients



Problems in Circulatory System

- Circulatory system problems prevent oxygen from reaching cells and can lead to health problems and death.
- Cardiovascular disease are the diseases of the heart and blood vessels.
- Cardiovascular disease causes more than half the deaths in the U.S.



Problems in Circulatory System (cont.)

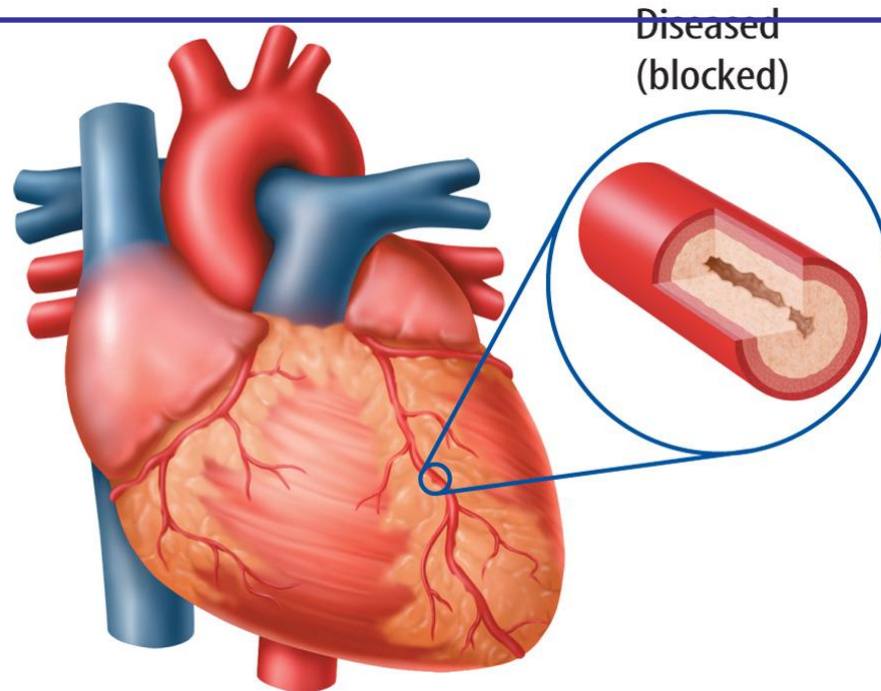
- Risk factors include:
 - being overweight
 - a diet high in saturated fat and cholesterol
 - smoking
 - high blood sugar
 - physical inactivity
 - consuming too much alcohol



Heart Attack



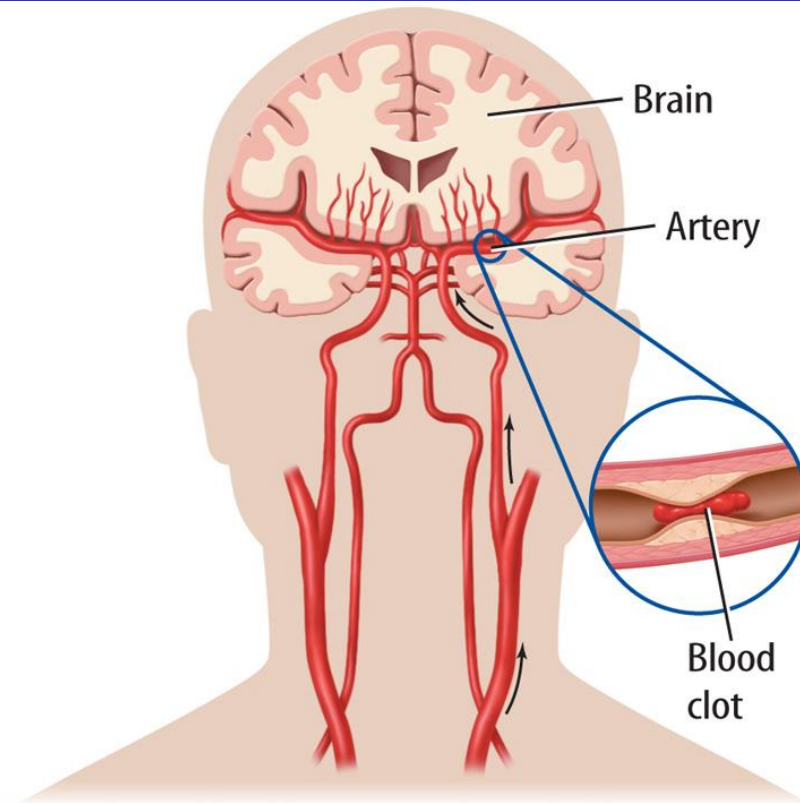
- A **heart attack** occurs if the coronary arteries cannot supply enough blood to the heart.



Stroke

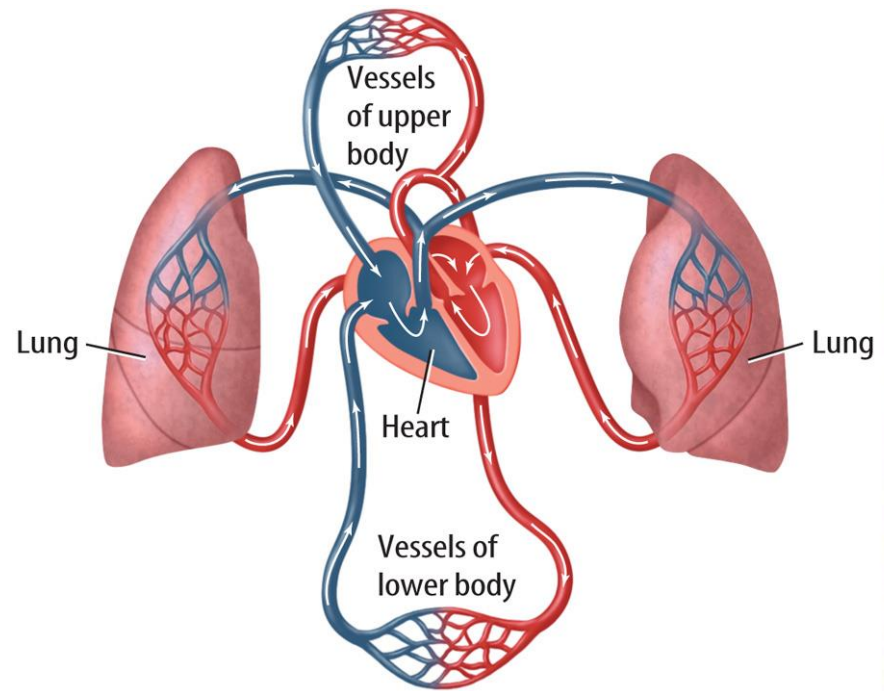


- A **stroke** is the death of brain tissue.



Exchanges Between the Pulmonary and Circulatory Systems

- The air in the alveoli and blood in the capillaries must be able to exchange oxygen and carbon dioxide freely.



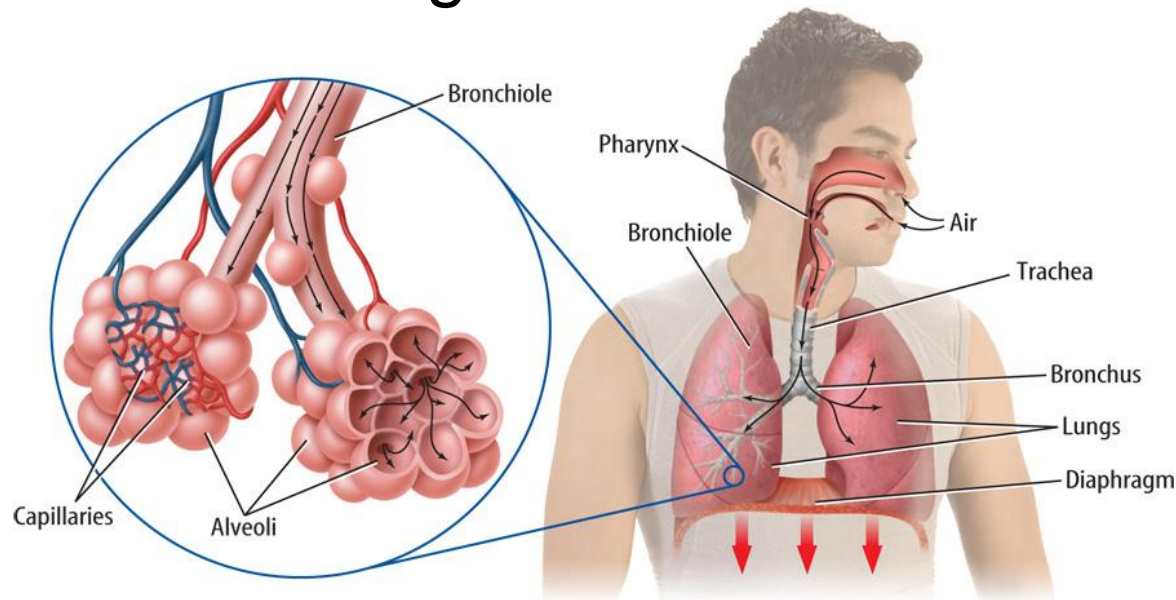
Gas Exchange

- Perhaps the most important exchange between the pulmonary and circulatory systems is gas exchange in the lungs.
- No energy is required—the gases move from regions of higher concentration to regions of lower concentration.



Exchange in the Lungs

- Alveoli are surrounded by capillaries.
- When the level of carbon dioxide in your lungs becomes great enough, you exhale without thinking.



Exchange in the Lungs (cont.)

- Respiration and breathing are not the same.
- Respiration uses oxygen and food to produce energy.
- Breathing is the physical process of inhalation and exhalation.



Preventing Problems in the Pulmonary and Circulatory Systems

- Family history, or genetics, partially determines your risk.
- However, a healthy lifestyle is the best way to prevent cardiopulmonary problems.

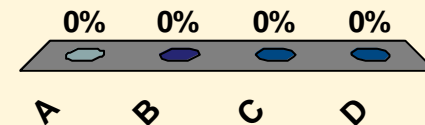


LESSON 1 Review



What two branches does the trachea fork into?

- A lungs
- B brachia
- C bronchi**
- D bronchioles



Resources

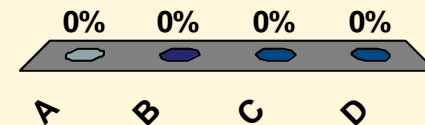


LESSON 1 Review



What is the term for the iron-containing proteins in red blood cells?

- A platelets
- B plasma
- C** hemoglobin
- D ions

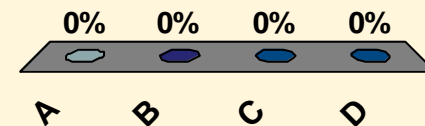


LESSON 1 Review



What type of blood vessels carry blood away from the heart to organs of the body?

- A** arteries
- B** capillaries
- C** veins
- D** ventricles



Resources



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Hot Sync

Monday 3/10/14

Answer the following questions in complete sentences on a **BLANK sheet of paper. Show all work!!**

Materials Needed Today

Please take these materials out of your backpack.

- Pencil

What one thing relaxes you the most and why? (2 sentences)