Warm Up

You have 8 minutes too….

1. Go find your **human body poster**
2. Unroll your poster and **write your group names LARGE** enough for me to see it at the top
3. **Share** with the people around you & put any **finishing touches** on them because you are about to turn them in!

Agenda

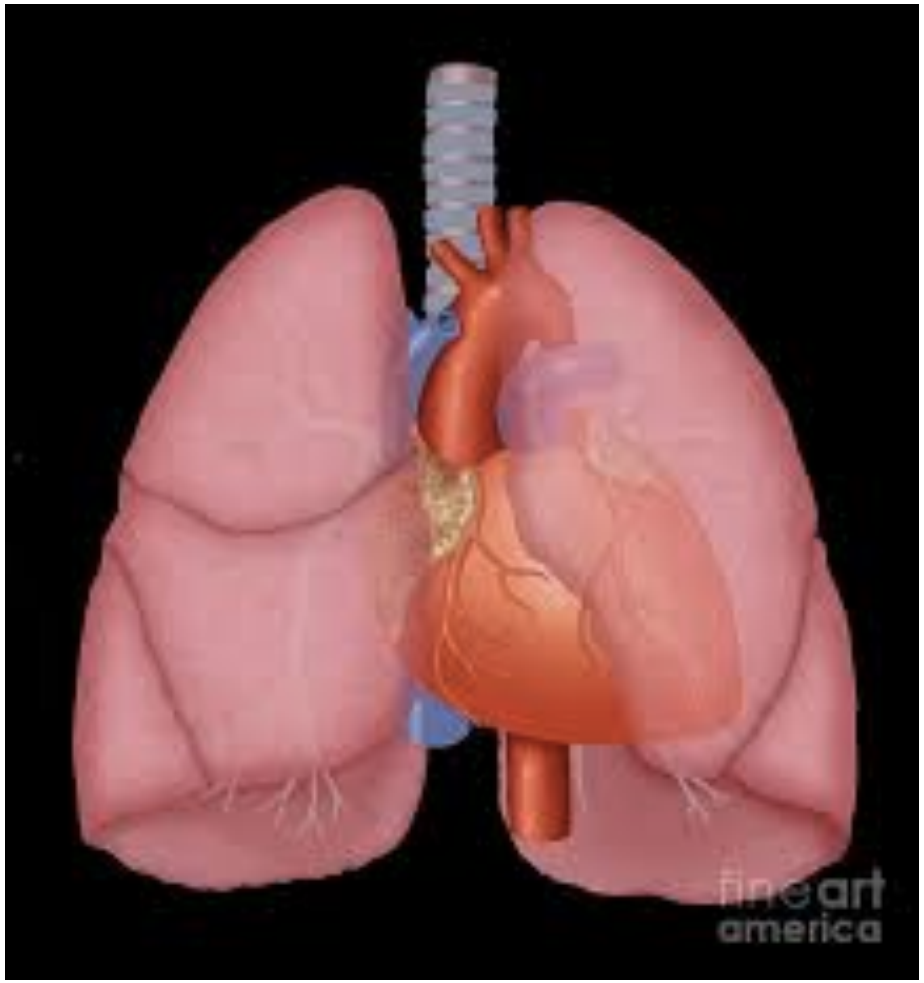
- Turn in posters
- 37.1 & 37.2 Notes: The Respiratory & Circulatory System
- Respiratory system & heart diagram coloring

Homework: 37.1 Section Assessment

AND 37.2 Section Assessment

Pg.974 & 984 (#1-#3 ONLY)

****Ch 36 & 37 Exam next MON/TUES****



37.1 & 37.2 Respiratory & Circulatory System

Respiratory System

- **Gas exchange** supplies oxygen for cellular respiration (make ATP) and disposes of carbon dioxide
  - movement of oxygen and CO_2 between the organism and the environment

Comparison of Gases in Inhaled and Exhaled Air		
Gas	**Inhaled Air**	**Exhaled Air**
Nitrogen	78.00%	78.00%
Oxygen	21.00%	16.54%
Carbon dioxide	0.03%	4.49%
Other gases	0.97%	0.97%

Mammalian Respiration Sequence

Nostrils

Pharynx

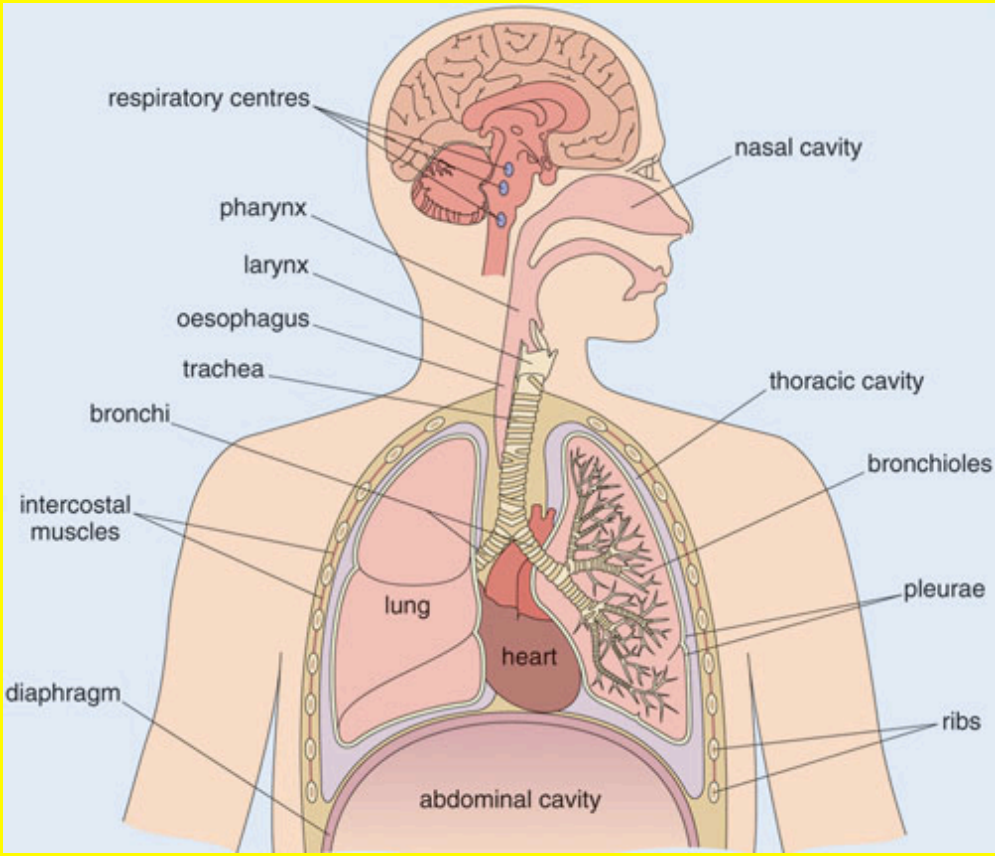
Larynx

Trachea

Bronchi

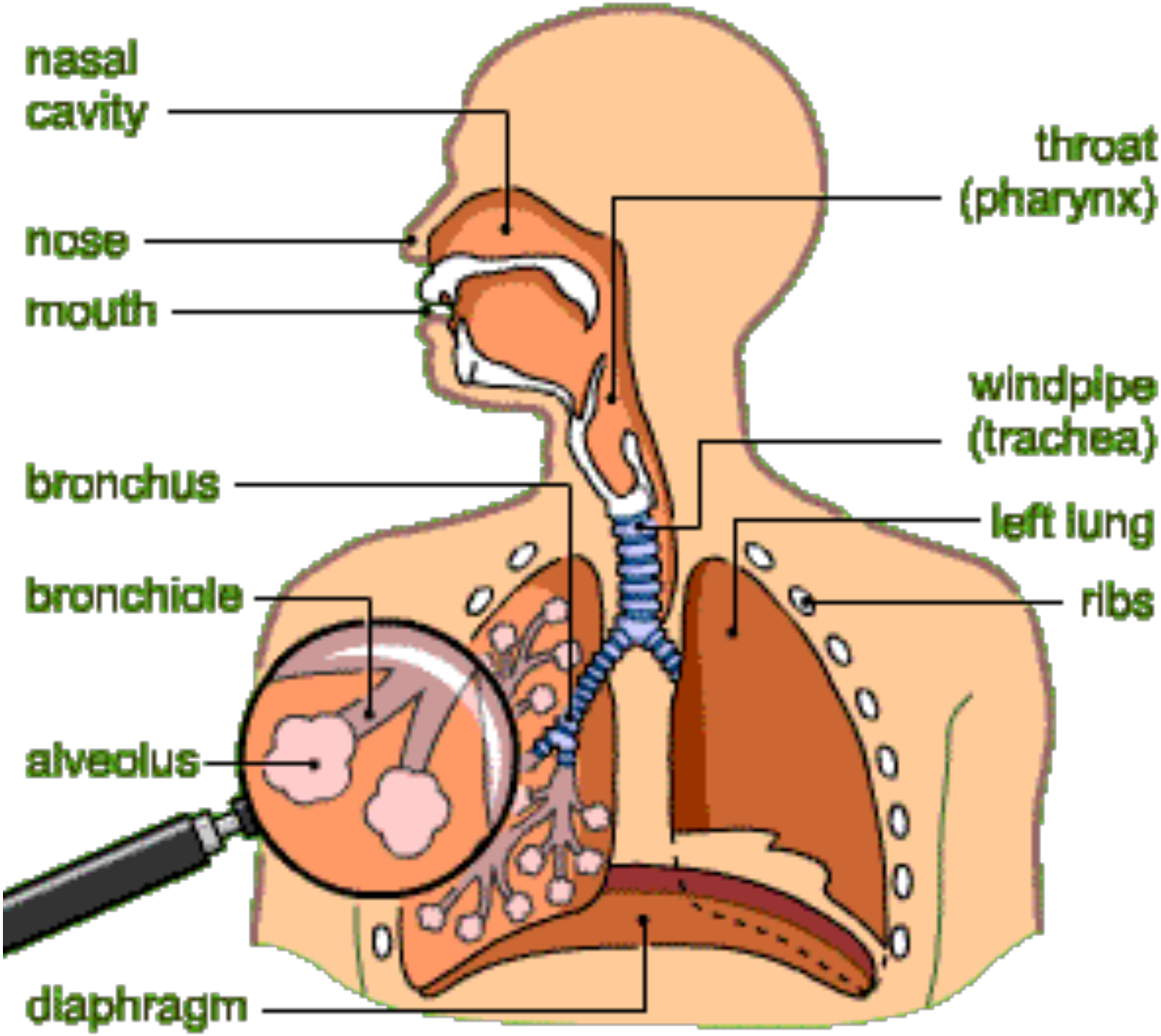
Bronchioles

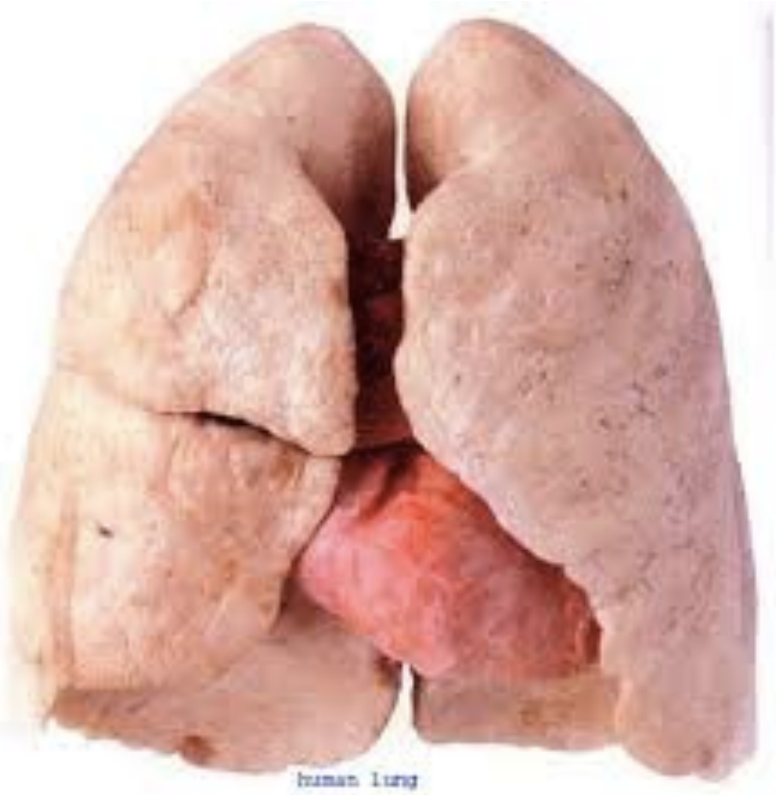
Alveoli



***nasal hair**: cleans and warms air

***cilia**: line the nasal cavity, trachea and bronchi

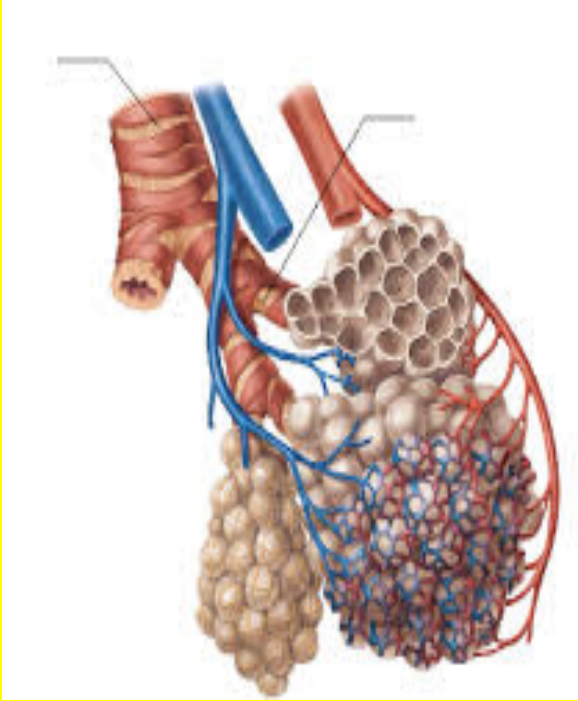

nasal cavity
nose
mouth
bronchus
bronchiole
alveolus
diaphragm
throat (pharynx)
windpipe (trachea)
left lung
ribs

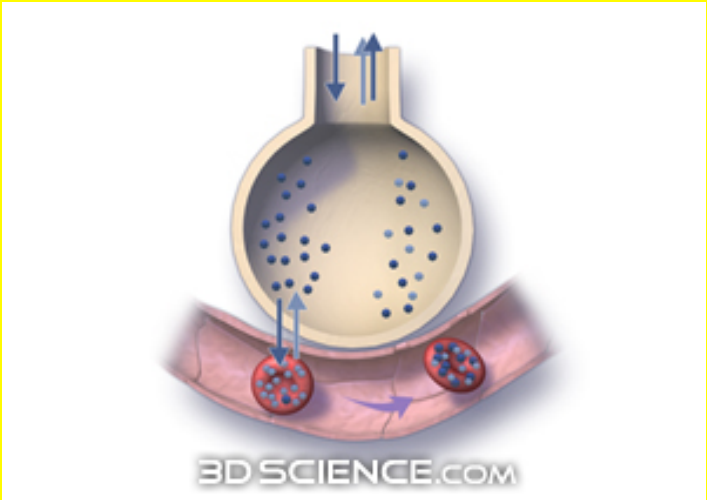


human lung

Alveoli

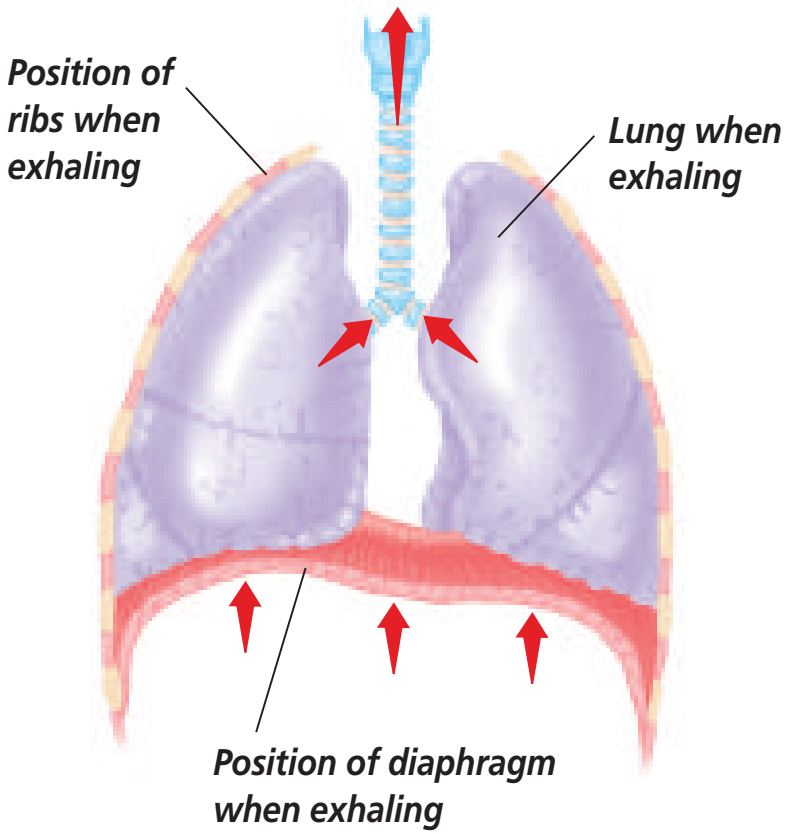
- Small chambers in lung that are sites of gas exchange
- Oxygen diffuses from alveoli into surrounding capillaries
- Carbon dioxide **diffuses** from the capillaries into the alveoli



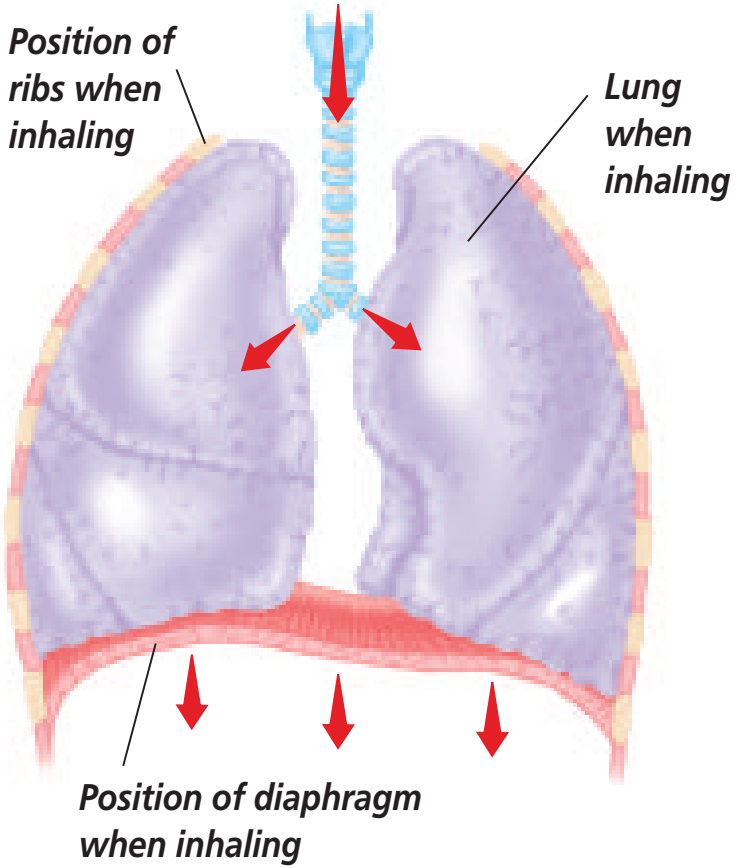


Inhalation and Exhalation

- Caused by pressure changes due to diaphragm contractions
  - medulla oblongata sends nerve signals to diaphragm when blood CO2 level rises
- During inhalation, air is pulled into the lungs by diaphragm contracting (volume of thoracic cavity is increased)
- During Exhalation, air is forced out of the lungs (volume of thoracic cavity is decreased)



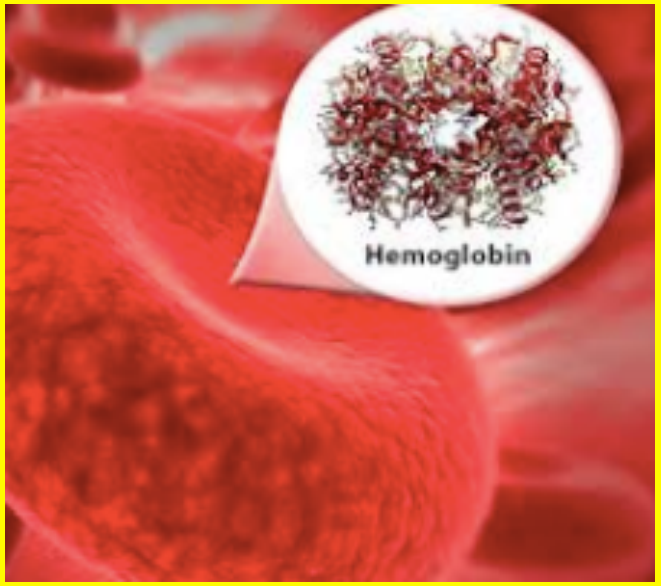
A When relaxed, your diaphragm is positioned in a dome shape beneath your lungs, decreasing the volume of the chest cavity and forcing air out of the lungs.



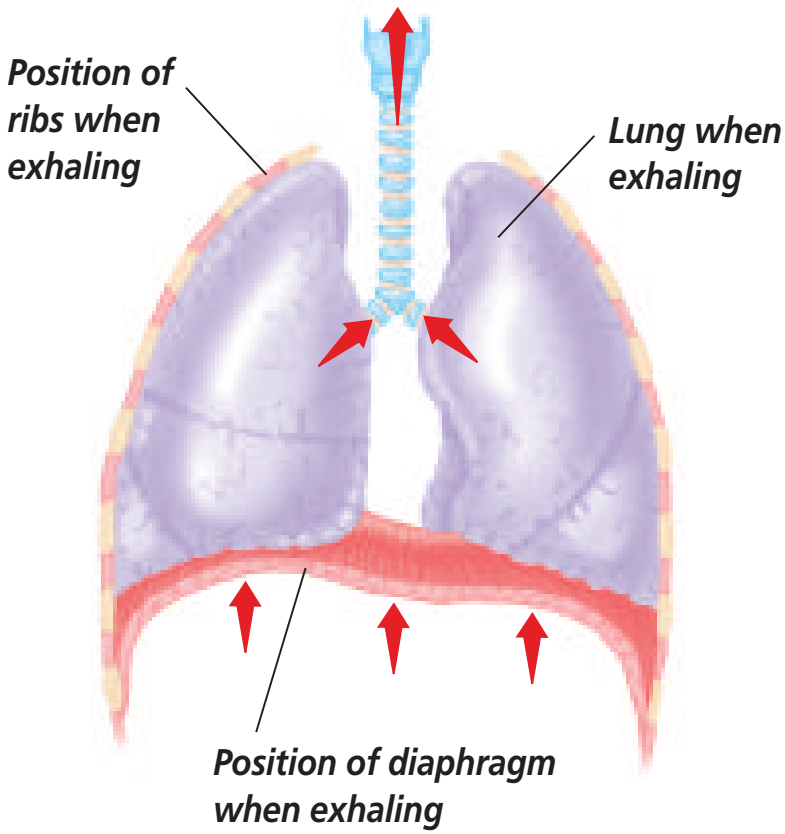
B When contracting, the diaphragm flattens, enlarging the chest cavity and drawing air into the lungs.

Oxygen Transport

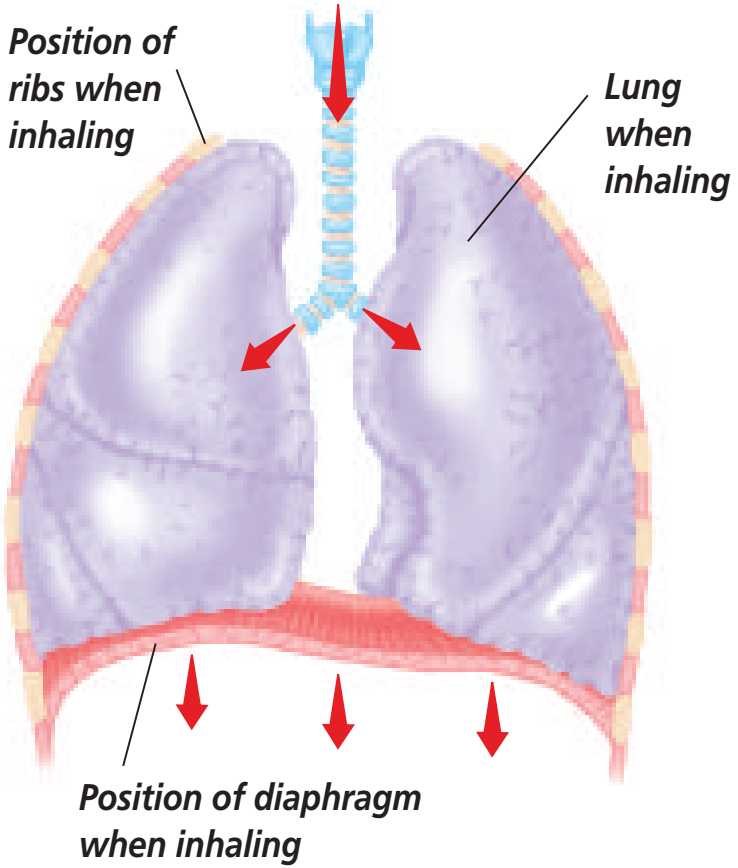
- Oxygen is carried by respiratory pigments in blood
- Hemoglobin is the oxygen carrying pigment in most vertebrates
- Hemoglobin consists of four subunits, each containing a heme group (iron) that binds oxygen
- Binding of oxygen to hemoglobin is reversible



https://youtu.be/8NUxvJS-_0k

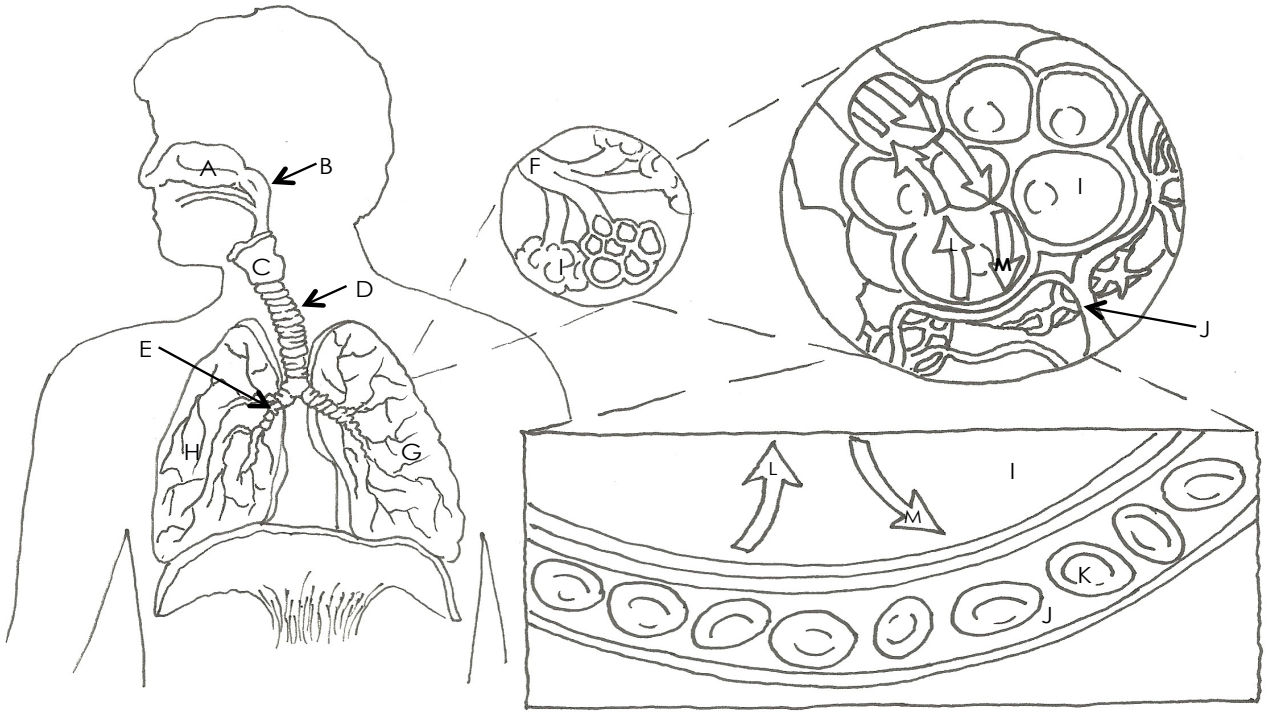


A When relaxed, your diaphragm is positioned in a dome shape beneath your lungs, decreasing the volume of the chest cavity and forcing air out of the lungs.



B When contracting, the diaphragm flattens, enlarging the chest cavity and drawing air into the lungs.

THE RESPIRATORY SYSTEM



Name: _____

Date: _____ Period: _____

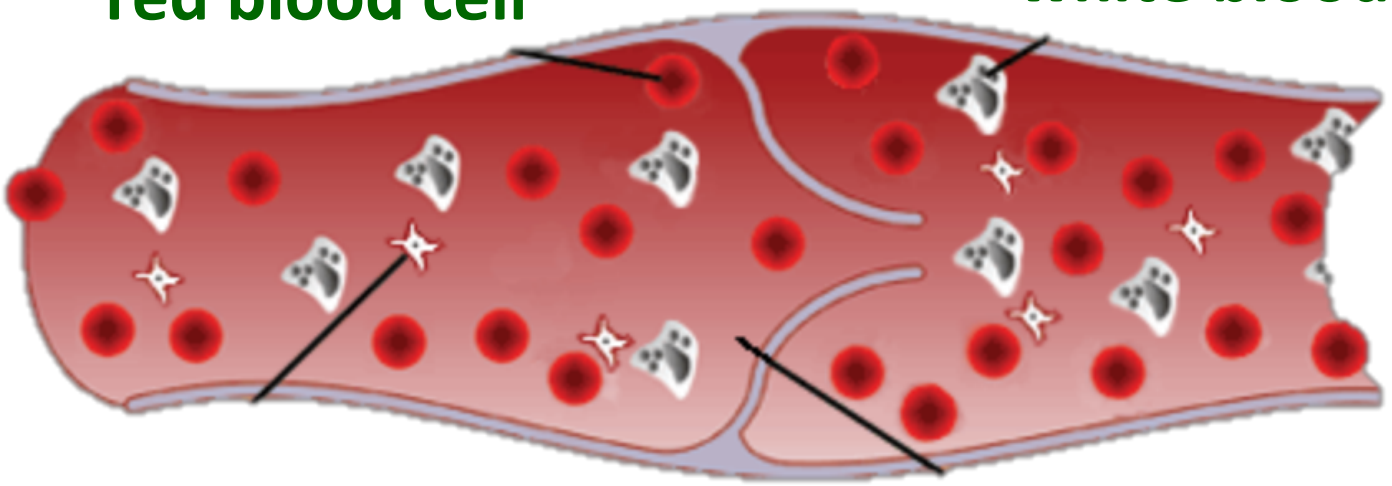
Answer Key

- ◯ A. Nasal cavity
- ◯ B. Pharynx
- ◯ C. Larynx
- ◯ D. Trachea
- ◯ E. Bronchi
- ◯ F. Bronchioles
- ◯ G. Left Lung
- ◯ H. Right Lung
- ◯ I. Alveoli
- ◯ J. Capillaries
- ◯ K. Red blood cells
- ◯ L. Carbon dioxide
- ◯ M. Oxygen

Circulatory System

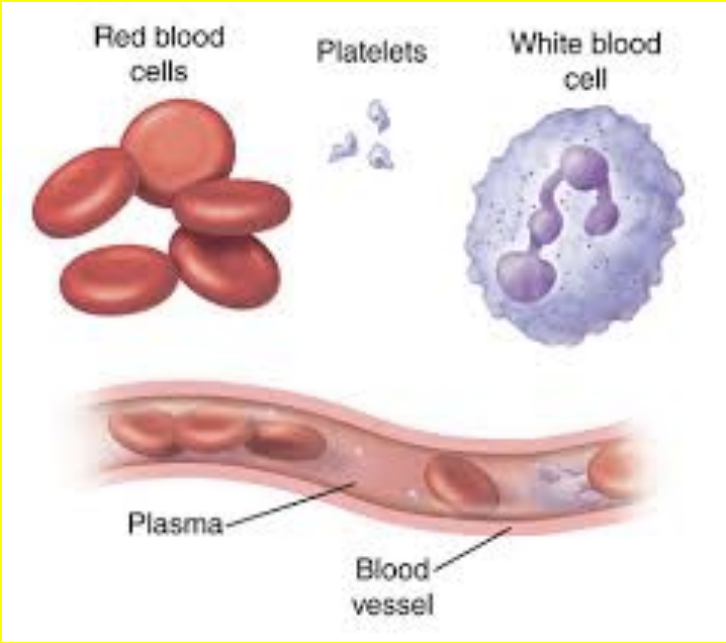
- Transport system; provide a connection for body cells and organs.
- Blood from the heart gets around the body through blood vessels
  - **Arteries**: Carry blood away from heart. Has thick muscular walls to push blood along.
  - **Veins**: Carry blood towards the heart. Have valves to prevent backflow of blood.
  - **Capillaries**: Link arteries with veins. Walls only 1 cell thick=can exchange materials between blood and other body cells

The Blood



What's in Blood?

- **Plasma**: fluid portion of the blood
- **Red blood cells**: disc shaped cell that contains hemoglobin (oxygen carrier)
- **White blood cells**: Protect the body from foreign substances
- **Platelets**: tiny cell fragments that help clot blood after injury



SUMMARY

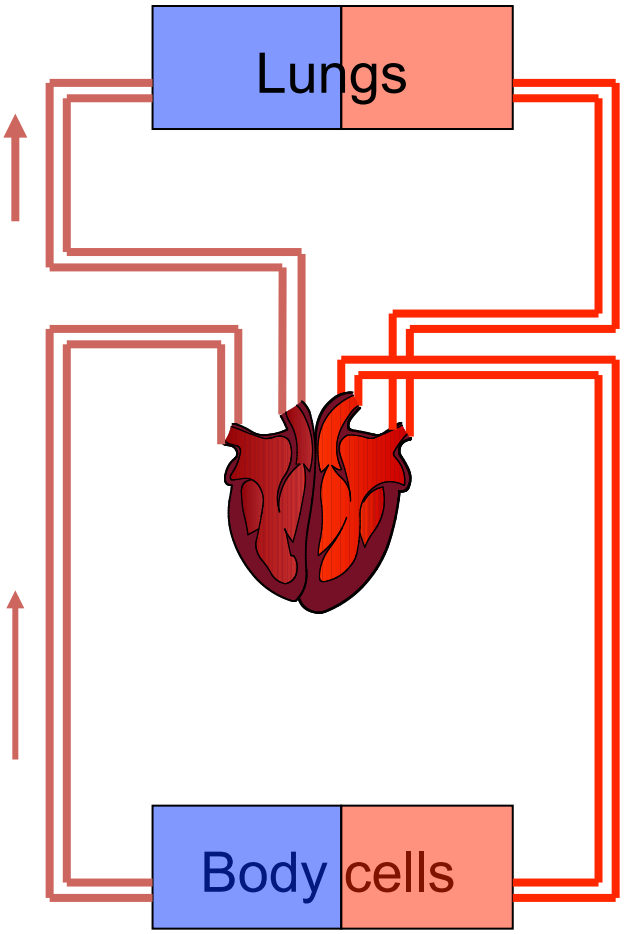
Arteries take blood _away_ from the heart. The walls of an artery are made up of thick _muscular_ walls and elastic fibres. Veins carry blood _toward_ the heart and also have valves. The _capillaries_ link arteries and veins, and have a one-cell thick wall.

SUMMARY

Blood is made up of four main things: plasma, the liquid part of the blood; Red Blood Cells to carry oxygen; White Blood cells to protect the body from disease and platelets to help blood clot.

Our circulatory system is a double circulatory system.

This means it has two parts.



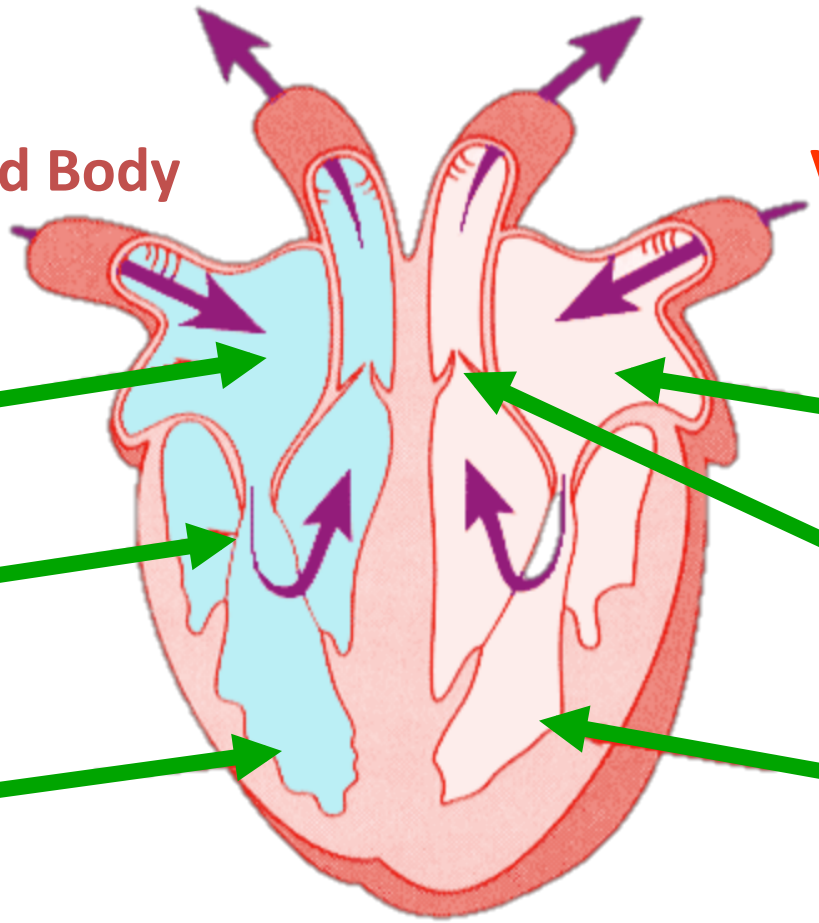
the **right** side of the system

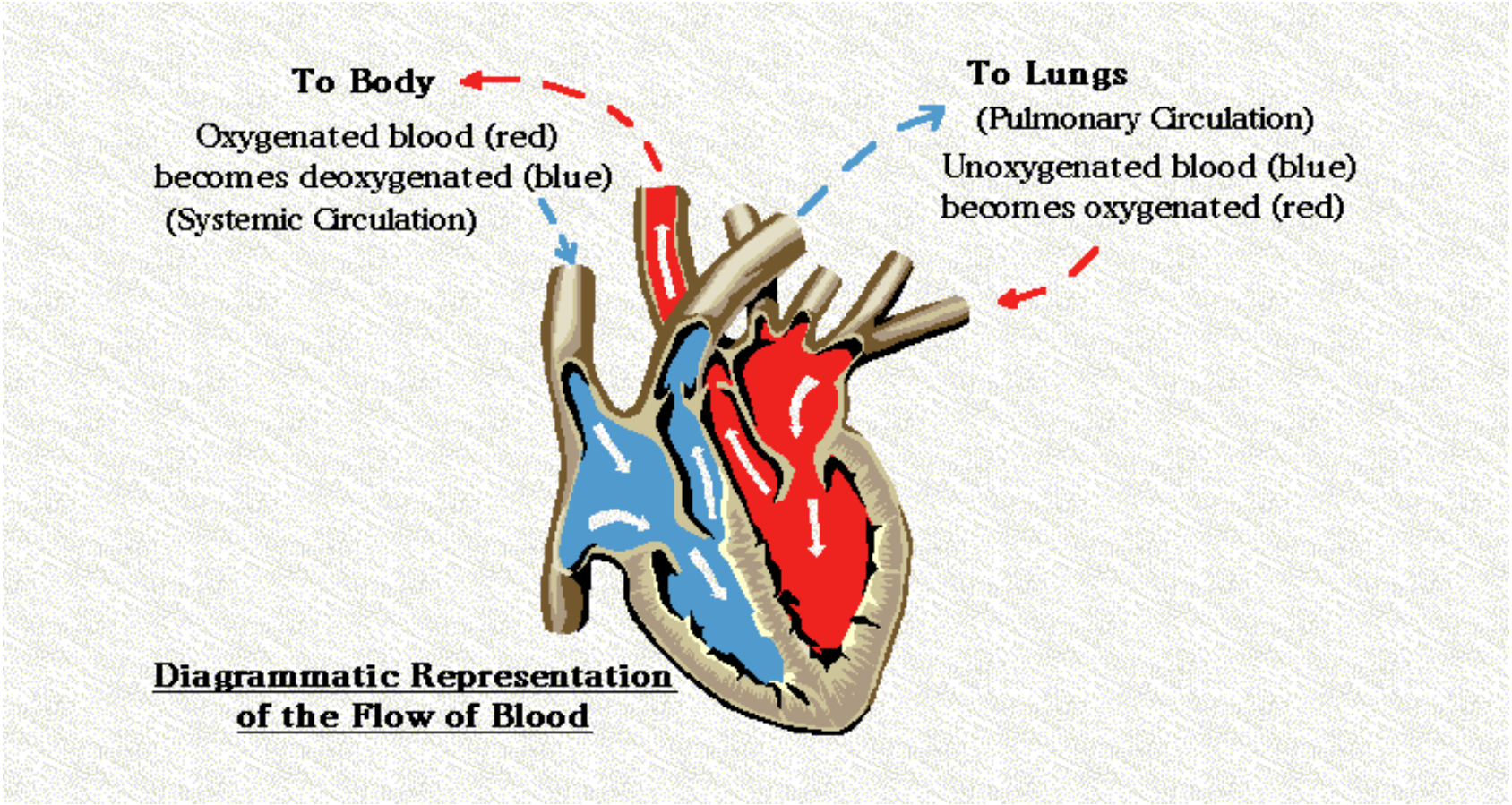
deals with **deoxygenated** blood.

the **left** side of the system

deals with **oxygenated** blood.

The Heart


Artery to Lungs
Artery to Head and Body
Vein from Head and Body
Vein from Lungs
Right Atrium
Left Atrium
valve
valve
Right Ventricle
Left Ventricle

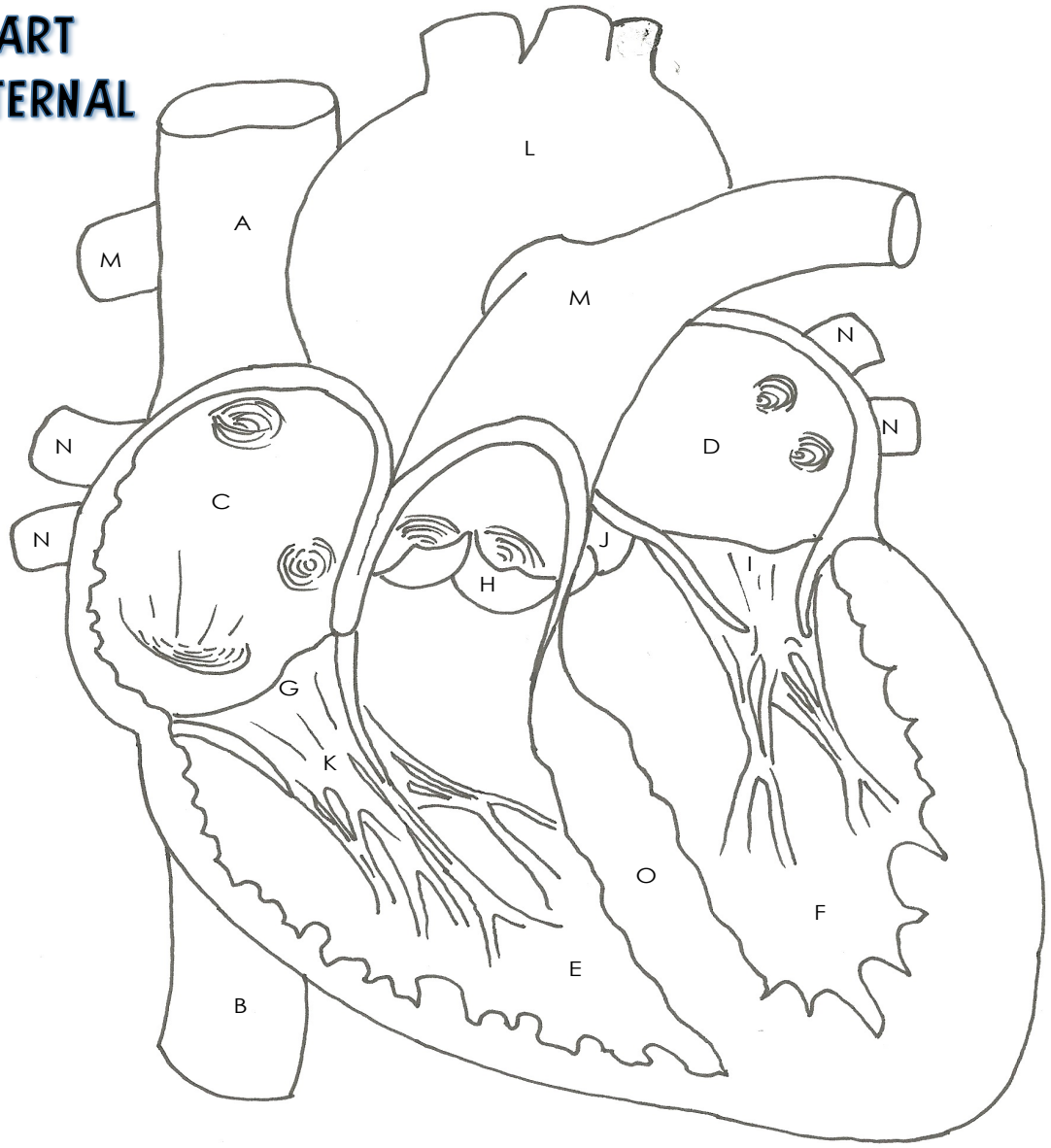

To Body
Oxygenated blood (red)
becomes deoxygenated (blue)
(Systemic Circulation)
To Lungs
(Pulmonary Circulation)
Unoxygenated blood (blue)
becomes oxygenated (red)
Diagrammatic Representation
of the Flow of Blood

4 Chambers of the Heart

- **Right Atrium** - receives blood from the systemic circuit (body excluding lungs)
- **Left Atrium** - receives blood from the pulmonary circuit (lungs)
- **Right Ventricle** - pumps blood to the pulmonary circuit (lungs)
- **Left Ventricle** - pumps blood to the systemic circuit (body, excluding lungs)

https://youtu.be/ruM4Xxhx32U

HEART INTERNAL



Name:_____

Date: _____ Period: _____

Answer Key

- ◯ A. Superior vena cava
- ◯ B. Inferior vena cava
- ◯ C. Right atrium
- ◯ D. Left atrium
- ◯ E. Right ventricle
- ◯ F. Left ventricle
- ◯ G. Tricuspid valve
- ◯ H. Pulmonary valve
- ◯ I. Mitral valve
- ◯ J. Aortic valve
- ◯ K. Chordae tendineae
- ◯ L. Aorta
- ◯ M. Pulmonary arteries
- ◯ N. Pulmonary veins
- ◯ O. Interventricular septum

You MUST add arrows!!