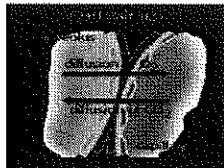


Respiratory System

9th grade Biology

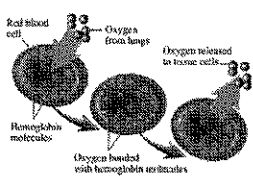
Respiratory Systems

- Goal = Gas exchange via diffusion
 - carbon dioxide leaves the cell as a waste
 - oxygen is picked up by blood at the lungs and brought to the cells (necessary for cellular respiration & ATP generation)

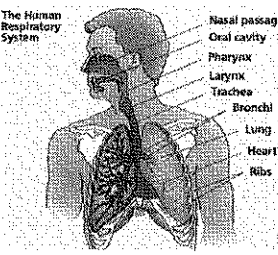


Pathway of gases

- O₂ comes into contact with blood vessels
- O₂ diffuses into blood
- Blood transports O₂ to tissues and cells of body
- O₂ diffuses from blood into cells
- CO₂ follows a reverse pathway



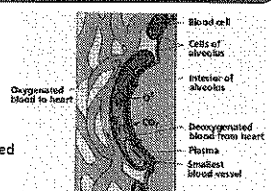
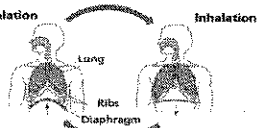
Organs in the Human Respiratory System



- Nose & Pharynx:
 - air (& oxygen) is warmed
- Larynx:
 - contains vocal cords that produce sound
- Trachea:
 - tube that connects larynx to two bronchi

Other Organs in the Human Respiratory System

- Lungs:
 - ingrowths of the body wall
- Alveoli:
 - tiny, air-filled sacs surrounded by capillaries
- Diaphragm:
 - contracts & oxygen is pulled into lungs; relaxes & carbon dioxide is pumped out of lungs

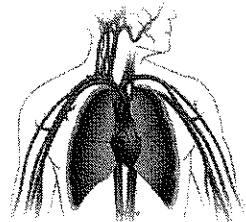



Circulatory System

9th grade Biology

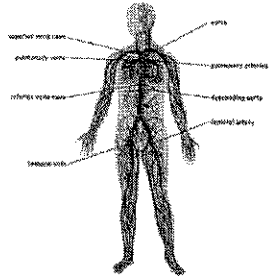
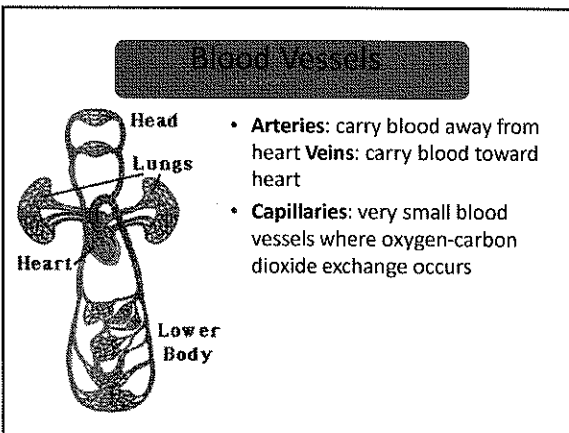
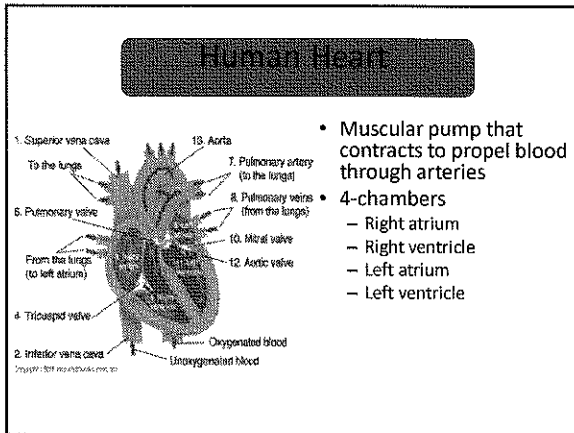
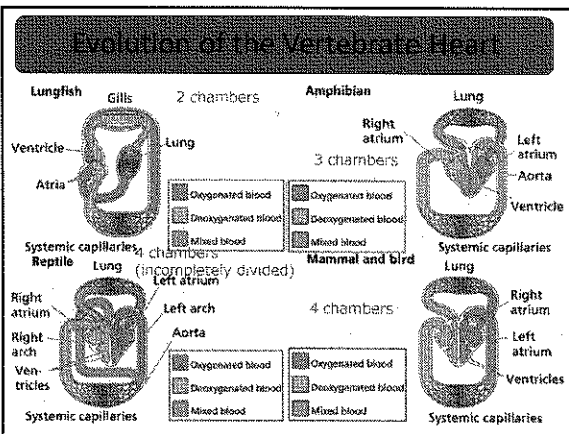
Comparing Circulatory Systems

Goal: Transportation of nutrients, gases, & wastes to and from cells



Closed Circulatory System

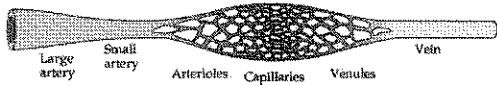
- Blood is always enclosed within vessels of different size & wall thickness
- Blood is pumped by a heart through the vessels
- More efficient blood flow than open system

Why is blood red?



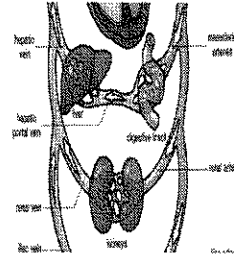
- Hemoglobin is the red pigment, or color of blood, and contains iron, combined with protein
 - Molecules within blood that transport oxygen
- Arteries carry *oxygenated* blood away from heart (red) [exception: pulmonary artery to lungs]
- Veins carry *deoxygenated* blood toward heart (blue) [exception: pulmonary vein from lungs]
- Remember: What are our blood types? (p998)



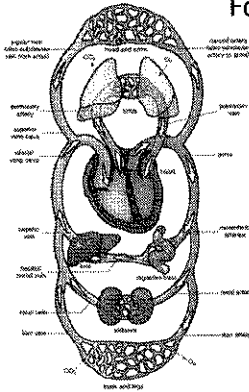
Human Circulatory System

- Blood passes through two important organs...

- Kidneys
 - Remove nitrogenous wastes
- Liver
 - Remove toxic compounds



Follow a Red Blood Cell!



- RBC leaves aorta
- RBC goes to capillaries – loses oxygen
- Deoxygenated RBC enters vena cava
- RBC gets pumped through right atrium & right ventricle
- Right ventricle contracts, sending RBC toward lungs through pulmonary arteries
- RBC goes to lung capillaries – picks up oxygen
- Oxygenated RBC returns to heart via pulmonary vein
- RBC pumped through left atrium & left ventricle
- Left ventricle contracts, sending RBC toward body through aorta