

CHAPTER 17

The Respiratory System

What do you already know about the Respiratory System?

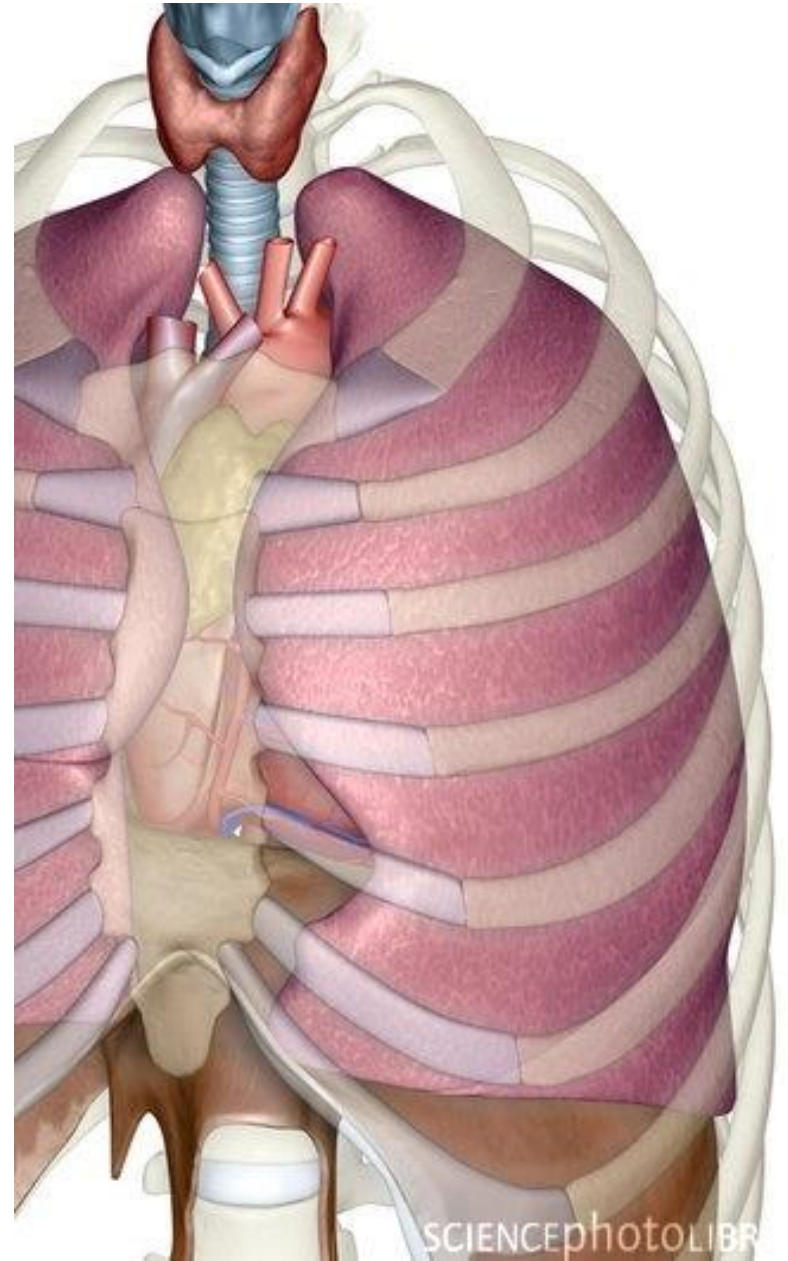
- What's the pathway of air into our lungs?
- How is oxygen and carbon dioxide exchanged?
- Why do we need oxygen?
- What diseases or environmental factors affect breathing and who is at risk?

Respiratory System Functions

- Taking in Oxygen

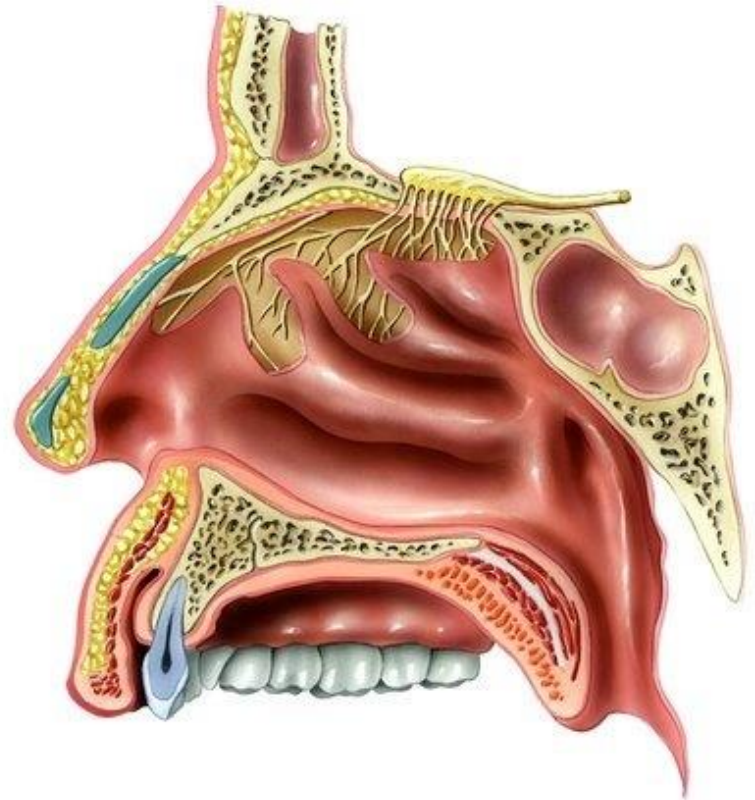
- Breathing = _____
- Respiration= exchange of O_2 and CO_2
- Cellular Respiration =

- Removing CO_2 + Water produced by cells



Organs of Respiration

- Nose
 - nostrils = openings
 - coarse hairs trap dirt
- Nasal Passages
 - capillaries – _____
 - mucus - _____
 - cilia (_____) - move mucus to back of throat for swallowing (germs killed by stomach acid)



Profile internal view of nasal cavity

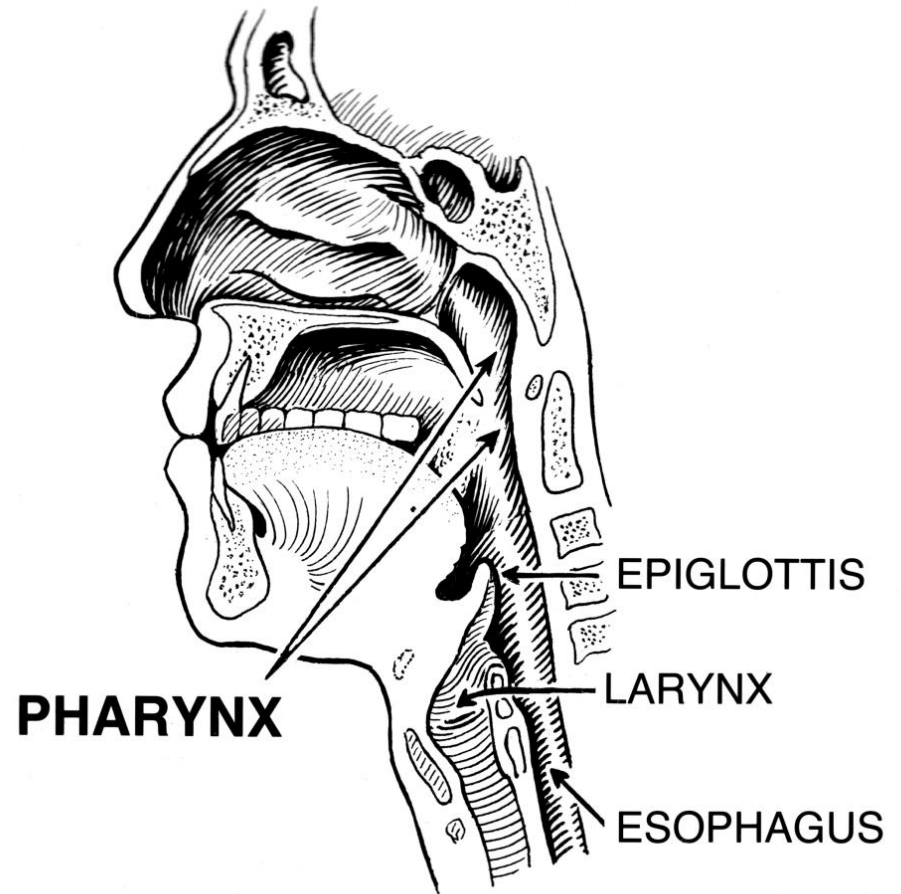
Organs of Respiration (cont.)

- Pharynx

- _____
- _____ area

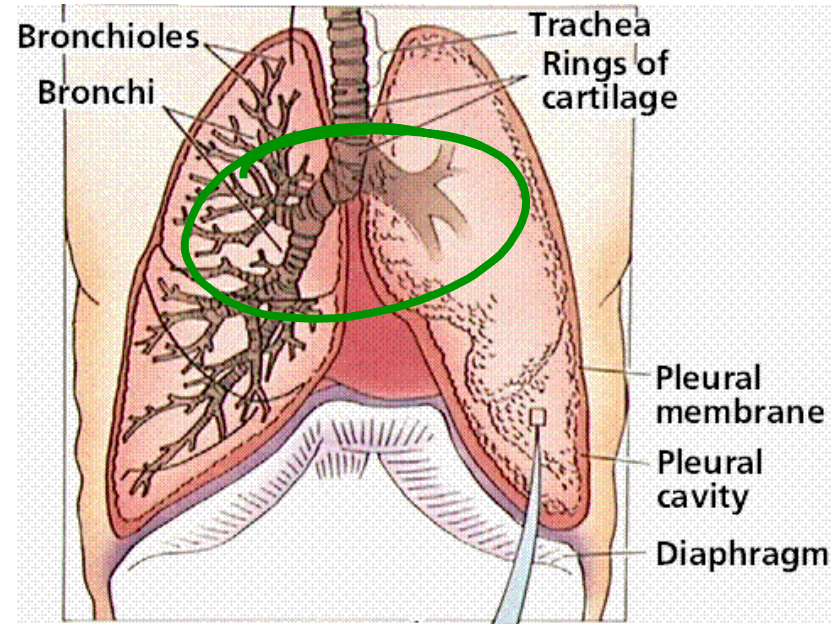
- Larynx

- _____
 - air vibrates
 - _____
- to make sounds



Organs of Respiration (cont.)

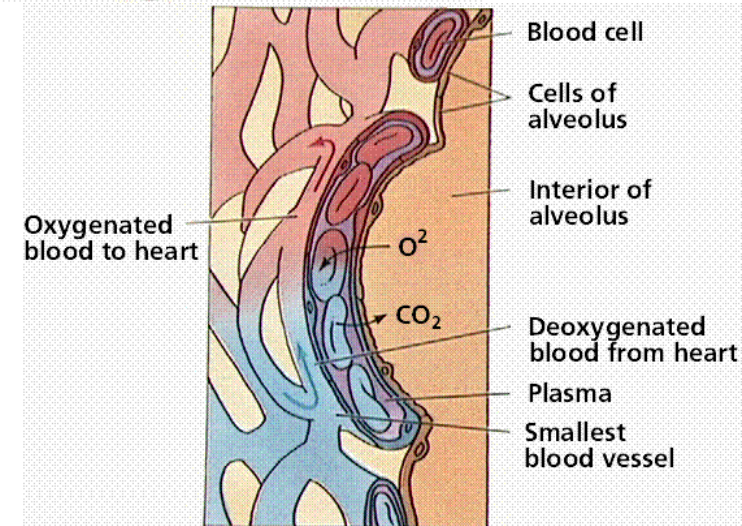
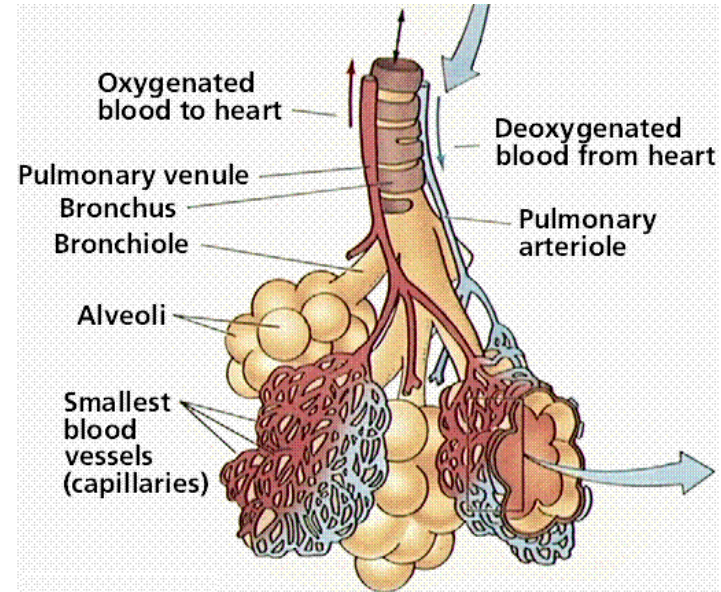
- Trachea
 - tube to lungs
 - rings of _____ - protect; keep open
 - lined with mucus membranes
 - cilia move junk up to throat
- Bronchi
 - _____ into lungs
- Bronchioles
 - repeating branches inside lungs



Organs of Respiration (cont.)

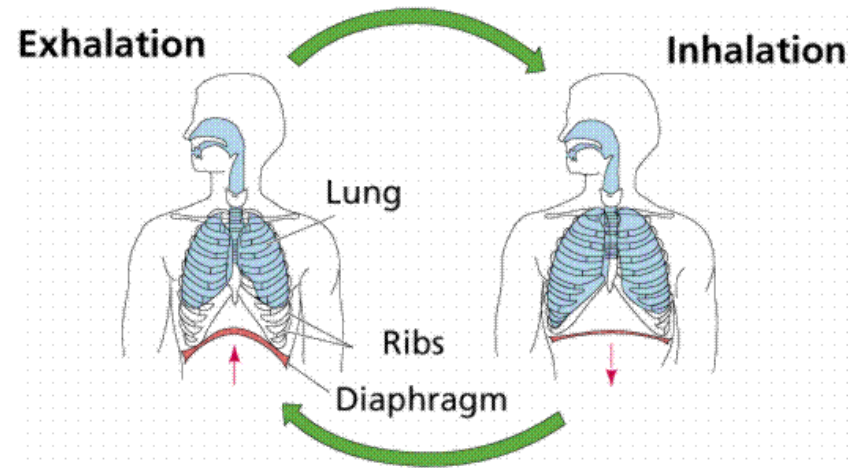
- Alveoli

- _____
_____S
urrounded by capillaries
- Provide surface area for exchange O_2 and CO_2



Mechanics of Breathing

diaphragm pulls down; rib muscles pull up & out
chest expands; internal pressure decreases
air moves into lungs



-
- diaphragm & rib muscles relax
 - chest cavity contracts so pressure increases
 - air forced out of lungs

SECTION 2

Smoking and Your Health



Chemicals in Tobacco Smoke

- _____
 - Sticky substance that causes cilia to clump
- _____
 - Colorless, odorless gas
 - Binds to hemoglobin instead of needed oxygen
 - Results in increased breathing and faster heartbeat

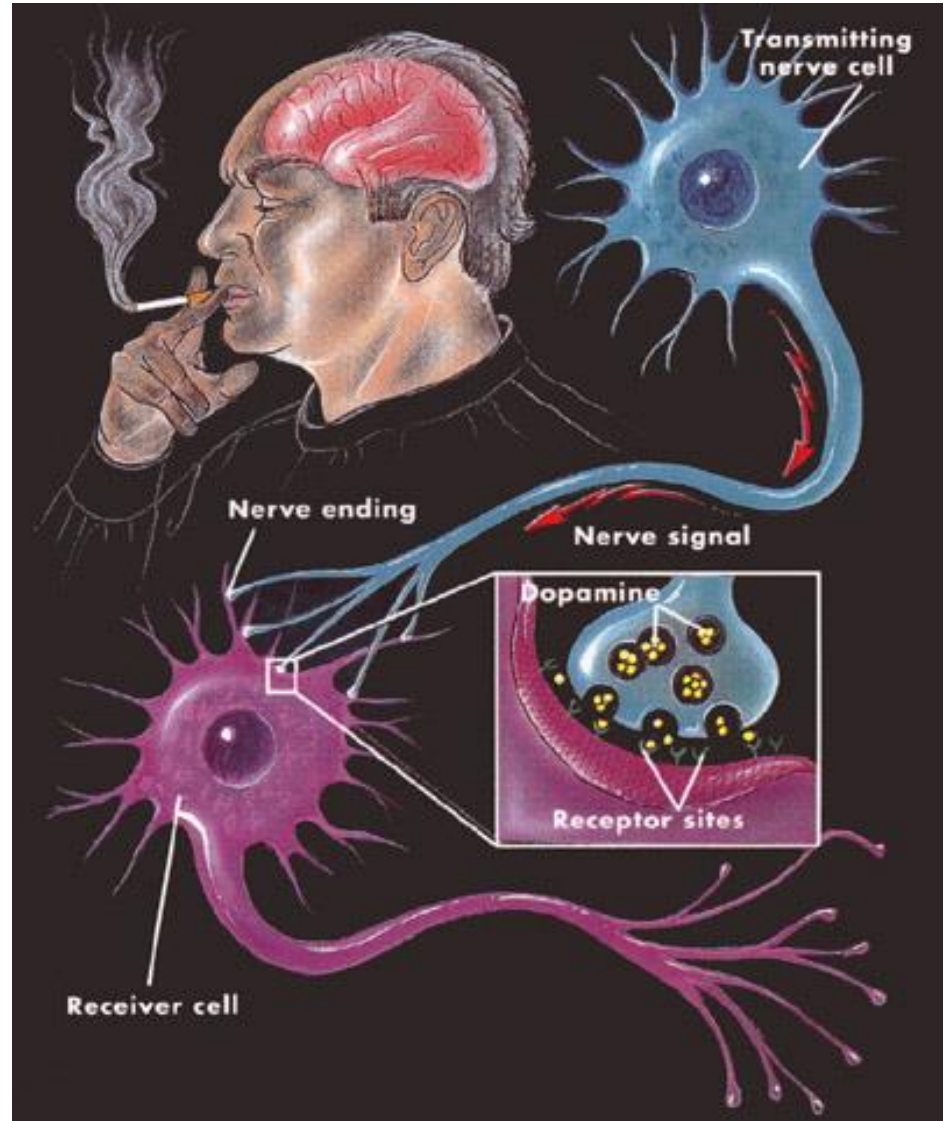


Example	Common Use
Carbon Monoxide	Gas in car exhausts
Copper	Electric wiring
Tar	Road surfaces
Nicotine	Pesticide
Acetone	Paint stripper
Ammonia	Cleaning agent
Arsenic	Rat poison
Benzene	Petrol fumes
Butane	Lighter fuel
Formaldehyde	Embalming fluid
Hydrogen cyanide	Poison in gas chamber
Methanol	Rocket fuel
Methane	Swamp gas
Toluene	Industrial solvent
DDT	Banned insecticide
Radon	Radioactive gas
Polonium	Radioactive fallout

Chemicals (cont.)

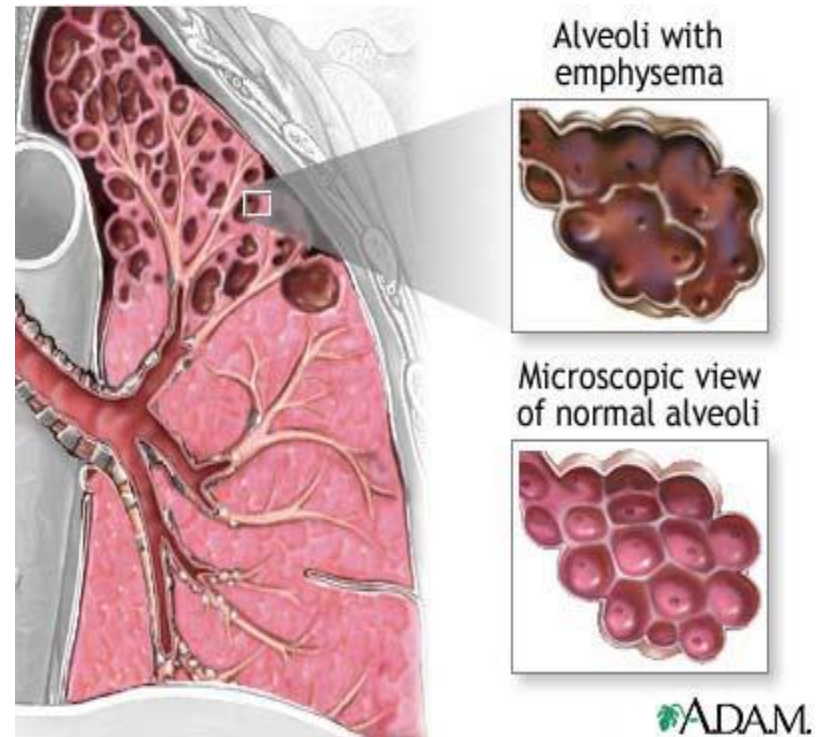
- Nicotine

- _____ drug
 - _____ and blood pressure
- Causes _____
 - Physical dependence- craving



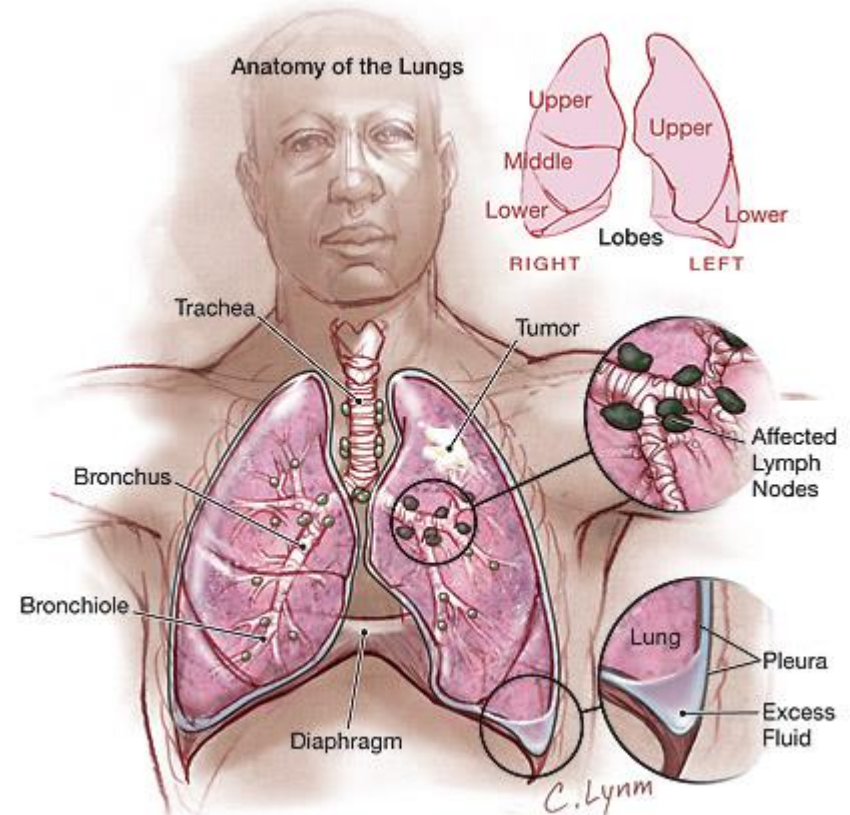
HEALTH PROBLEMS

- Chronic Bronchitis
 - Long term disease (_____)
 - infection of bronchi &/or bronchioles
- _____
 - alveoli lose ability to expand and contract
 - caused by tar in cigarettes



Health Problems (cont.)

- Lung cancer
 - Causes growths and _____ in lungs
- _____
 - bronchial tubes contract and block air flow
- _____
 - Build up on artery walls



Section 3

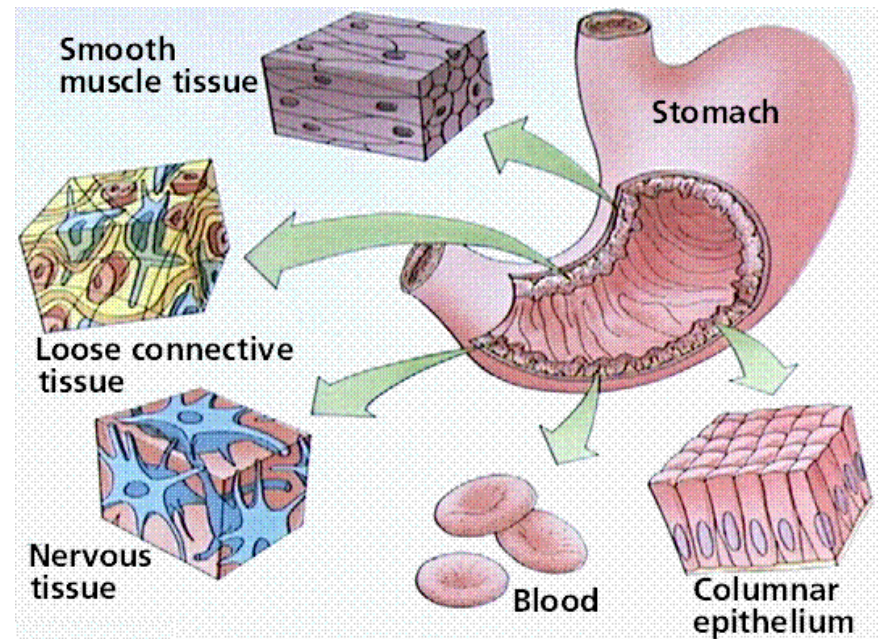
- **The Excretory System**

What do you know about the excretory system (urinary system)?

- What is the main function of the excretory system?
- Which body systems rid the body of waste?
- Can you describe the process or pathway to rid waste via the urinary system?
- Who is susceptible to infection or illness?
- What's the difference between the ureters and the urethra?

Excretion

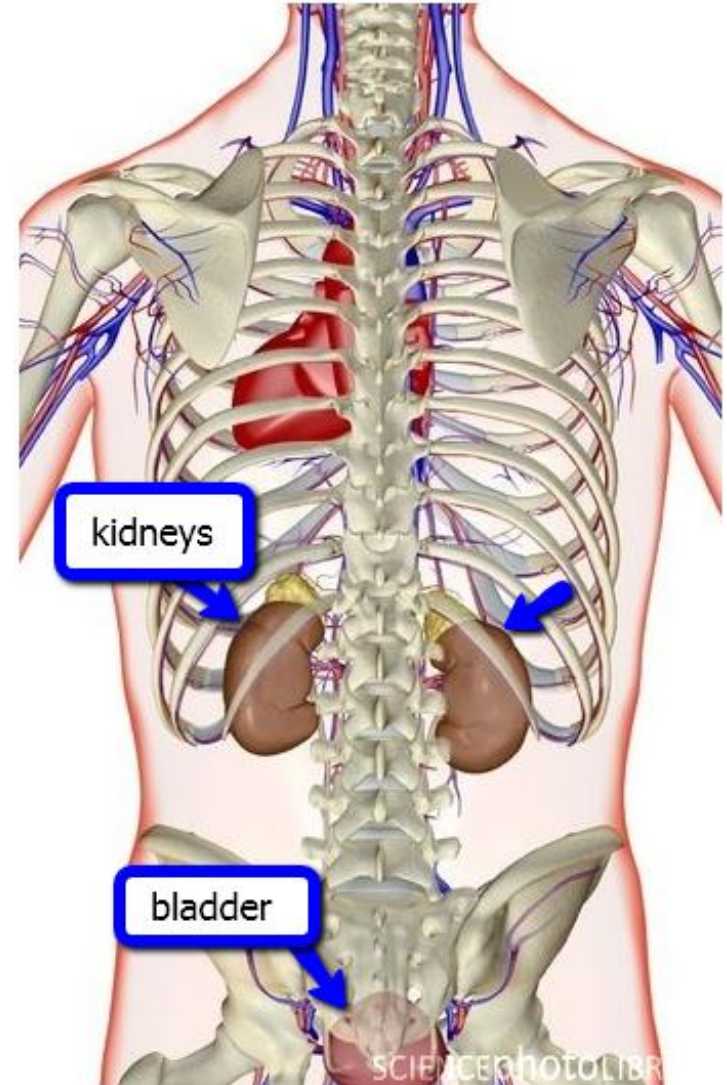
- Collecting wastes produced by _____ and removing them from the body
- Wastes:
 - Urea – _____
 - Water
 - Heat
 - Salt



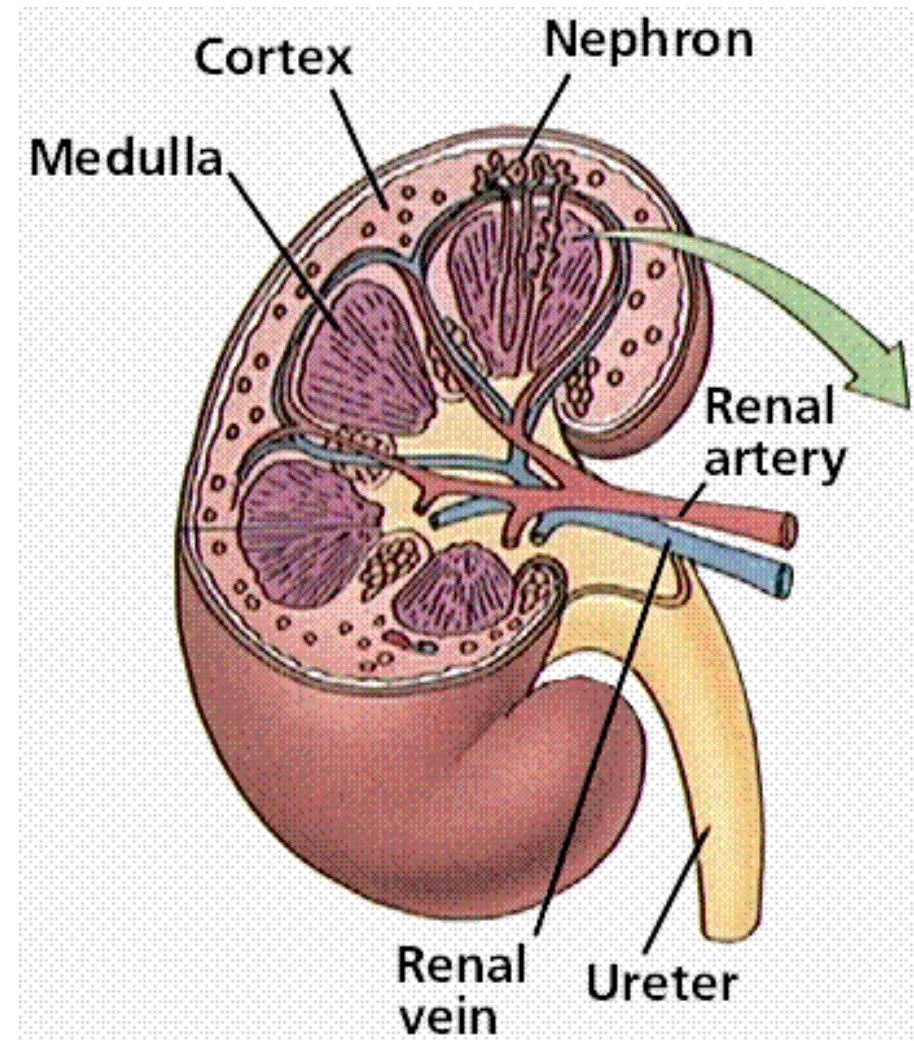
Excretory System Organs

- Kidneys

- _____
- _____

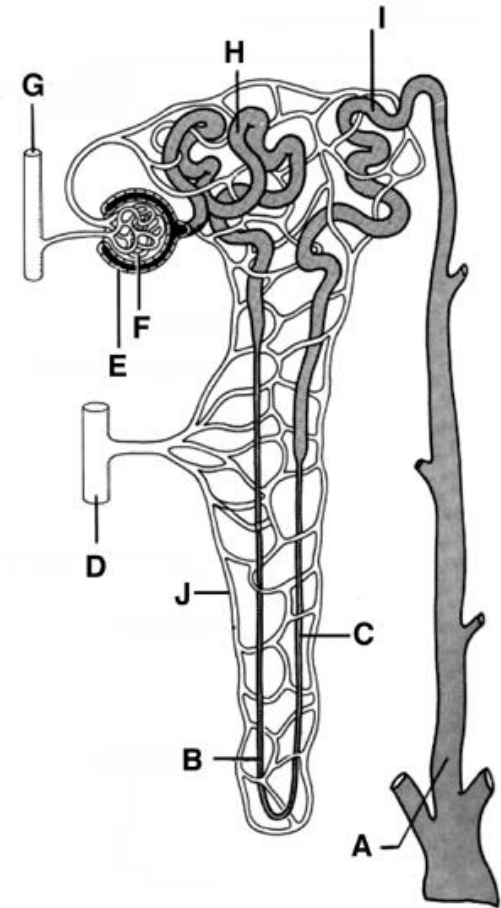


- Kidneys
- Cortex- outer region
 - Protected by Renal Capsule
 - Location of _____
- Medulla- inner region
 - Controls salt and water levels in urine
- Pelvis- base of kidney
 - Location for _____
 - Kidney stone formation



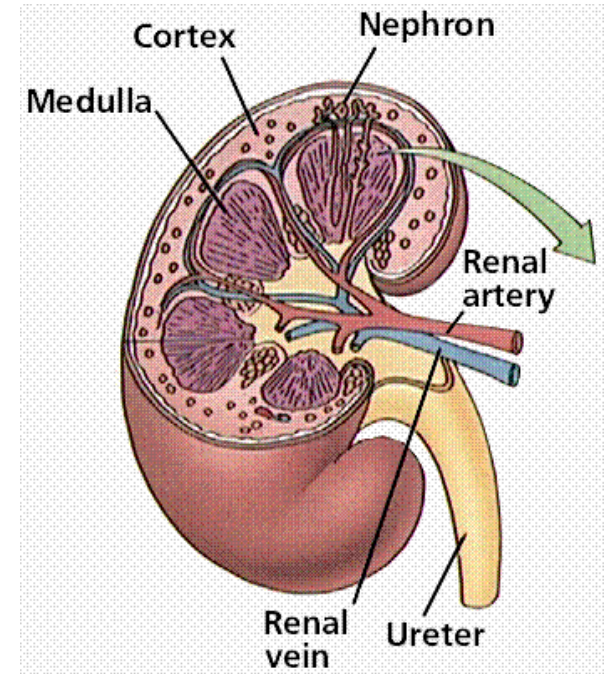
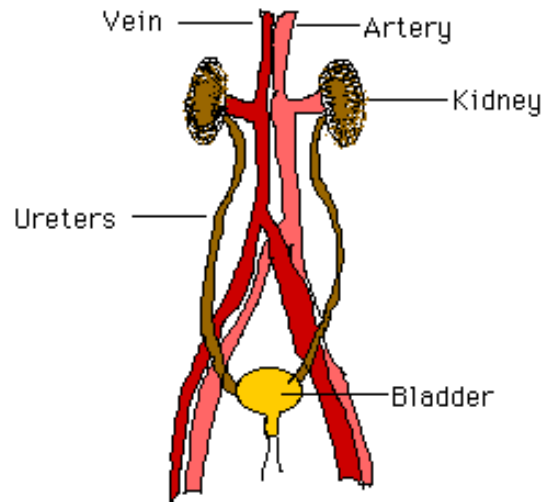
Nephrons

- _____ in each kidney
- Steps for urine formation:
 - Blood from arteries to nephrons
 - Good material is filtered into capsule
 - Water and glucose is reabsorbed into blood
 - Waste (urine) remains in tubule



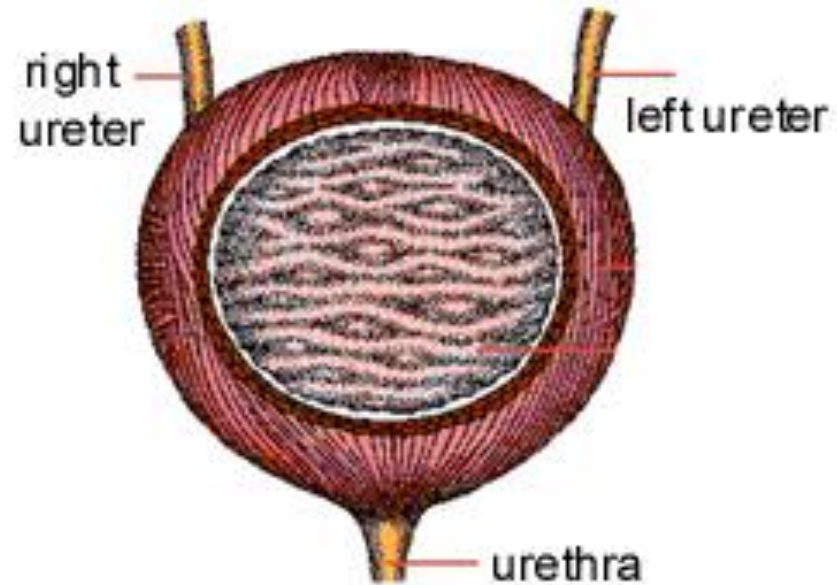
Ureters

- _____
- Through 2 narrow tubes to the bladder



Urine Removal (cont.)

- Urinary Bladder
 - Storage area
 - Sac-like and muscular
- Urethra
 - Small tube beneath bladder
 - _____



Accessory Organs of Excretion

- **LIVER**

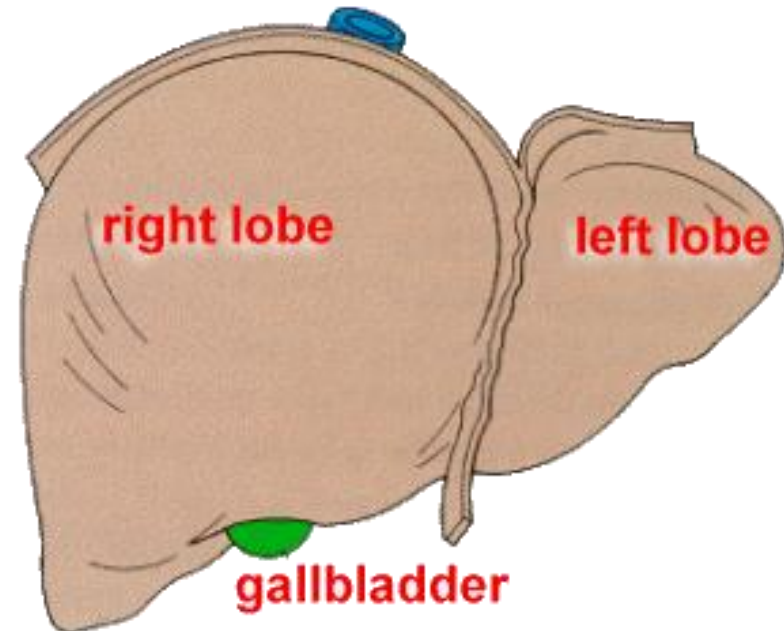
- _____ poisonous substances
- Breaks down RBC

- **LUNGS**

- water, CO₂, heat

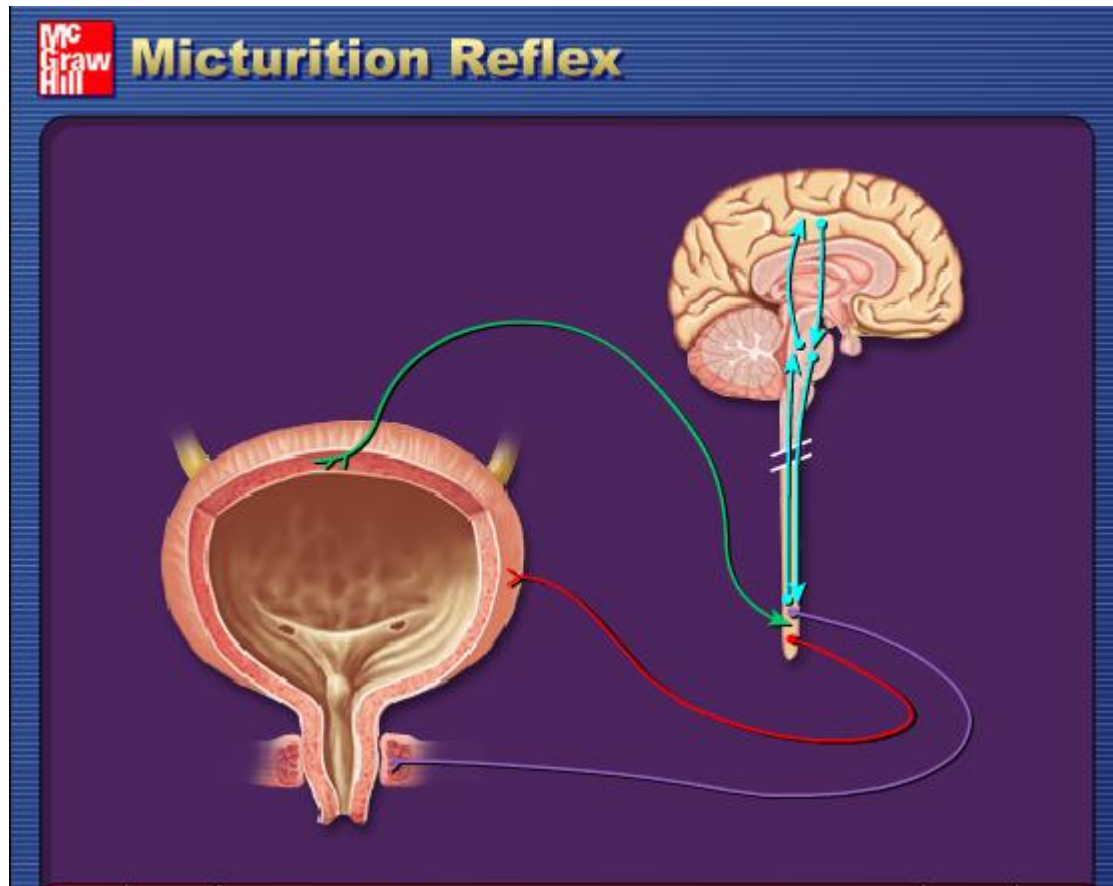
- **SKIN**

- water, salt, urea, heat



Micturition Reflex

- To pee or not to pee? That is the question!



Urinary Problems

- Kidney failure
 - transplant or dialysis
- Kidney stones
 - clog up tubules
 - Laser treatment to break stones
- Urinary tract infections (_____)
 - common, can be caused by e. coli
- Urinalysis
 - Detects some medical problems
- _____
 - Glucose present in urine
- Kidney Failure
 - Protein present in urine

