Excretory System
Excretion

- **Excretion** – is the process by which wastes and excess substances are removed from an organism.

- Organs of excretion are:
  - Lungs
  - Kidneys
  - Liver
  - Skin
Liver

- **Liver** – removes harmful substances from the blood such as bacteria, certain drugs, and hormones.
- The liver breaks down excess amino acids to form **urea**.
- Too much alcohol can lead to **cirrhosis of the liver**.
- **Bile** is considered an excretory product of the liver.
A healthy liver and the liver of a person with cirrhosis.
Urinary System

- **Kidneys** – filter urea from the blood to make urine
- **Ureter** – tube through which urine passes from each kidney to the urinary bladder
- **Urinary Bladder** – where urine is stored
- **Urethra** – the tube that carries urine from the bladder to the outside of the body
The Urinary System

- Kidneys
- Ureters
- Bladder
- Urethra
Lungs

- **Lungs** – rid the body of carbon dioxide and water (water vapor)
Skin

- **Skin** - major role in excretion is removal of excess heat
  - When the body becomes too warm, extra heat is lost
  - Evaporation of sweat removes heat and cools the body
• The skin is the largest organ in the body

• It contains sweat glands through which sweat is released

• Sweat is made up of:
  – 98% water
  – 2% salt
  – Small amounts of urea
Excretory Disorders

- **Kidney stones** - result when urine becomes too concentrated and substances in the urine crystallize to form stones

- **Renal Failure** – results when the kidneys fail to function correctly which leads to abnormal levels of fluids in the body
Examples of kidney stones