Excretory System:

- Like a fire, your cells use fuel (nutrients) as a source of energy, chemical reaction in your cells leave waste products just like a fire leaves ashes
- Cells leave two major waste products:
  1. Carbon dioxide
  2. Urea – waste produced from the break down of protein which contains nitrogen.

- Excretion – the process by which the body collects and removes wastes produced by the cells.
  
  1. Kidneys (A)
  2. Ureters (B)
  3. Bladder (C)
  4. Urethra (D)

  5. Skin
  6. Lungs
  6. Liver

Kidneys:
- Waste products pass out of your body cells and into your bloodstream
- Kidneys are the organs that filter waste (urea) from the blood
- Size of your fist
- Your body has two kidneys located on either side of your spine at the level of your elbows
- Blood enters the kidneys through large blood vessels located inside the kidney.
- Inside the kidney the vessels branch into smaller vessels and then into capillaries. Each capillary eventually forms a tight coil called a nephron.
- Nephron – is a filtering unit of the kidney
  - Each kidney contains over a million nephrons
  - Every nephron is surrounded by a cup-like capsule
  - As blood flows through the nephron some of the liquid and waste materials (urea) move into the capsule while the cells stay in the capillaries
The watery solution also contains materials your body needs, as the solution flows from the capsule through a long, twisted tube the body reabsorbs the good materials, leaving the waste products (urea) in the tube.

- Urine – composed of water, urea and other substances a liquid that is left in the tube after the reabsorption process.
- After the urine leaves the kidneys it flows through a long tube called ureter to the bladder.
- Bladder – is a muscular sac that stores urine until it is released from the body.
- When the bladder is full the muscles squeeze the urine down the urethra
- Urethra – a tube through which urine leaves the body.

Other Excretory Organs:

- Your lungs, skin and liver also play an important role in removing waste products from your body.
- Your cells produce two waste products (urea and carbon dioxide). Remember your kidneys filter the urea from the blood but carbon dioxide is released through the lungs. Your lungs also filters some water through inhaling and exhaling air.
- Your skin produces perspiration (sweat), perspiration contains water and other dissolved waste materials.
- Your liver plays a complex role in excretion. Your liver filters wastes, impurities, poisons, alcohol and drugs. It changes these substances to less harmful substances. Then some of these substances are passed back into the blood stream to be filter again by the kidneys or they are passed into the intestine to be eliminated with the feces.

Disorders of the Excretory System:

Nephritis – inflammation, or swelling of the nephrons.
Kidney stones – pebble-like masses of salts in the kidneys of urinary tract.
- Very painful when they get stuck in the urinary tract
- Usually these stones are passed on their own
- But sometimes they need removed by medical procedures

Uremia – poisoning of the body caused by the failure of the kidneys to remove wastes from the bloodstream
- Usually treated by antibiotics
- If kidneys stop working completely this is called kidney failure.
- Kidney failure patients must undergo kidney dialysis – a process in which a machine is used to filter blood in the place of the kidneys.
- Usually kidney failure patients must go under a kidney transplant to get functioning kidneys again.

Keeping the Excretory System Healthy:

Drink six to eight glasses of water daily