**Cells of the Body are Serviced by 2 Fluids**

* **Blood** composed of plasma and a variety of cells, transports nutrients and wastes
* **Interstitial fluid** (fluid between the cells) that bathes the cells of the body
* Nutrients and oxygen diffuse from the blood into the interstitial fluid & then into the cells
* Wastes move in the reverse direction

**Blood**

* Blood is a connective tissue.
* Blood is made of a liquid matrix called plasma and 3 types of formed elements (cells or cell fragments)
* There are no visible fibers in plasma, but there are proteins that can be converted to fibers under certain conditions (e.g. blood vessel damage).

**Functions of Blood**

* **Transportation**

The blood transports dissolved gases, nutrients, hormones, and metabolic wastes

* Blood picks up O2 from the lungs and drops off CO2.
* Blood picks up nutrients from the digestive tract.
* Blood picks up hormones from endocrine glands.
* Blood picks up wastes and carries it to the kidneys, lungs, and other organs of excretion
* **Protection**
  + - The blood restricts fluid losses through damaged vessels. Platelets in the blood and clotting proteins minimize blood loss when a blood vessel is damaged.
    - The blood also defends against pathogens and toxins. White blood cells (leukocytes) in the blood help defend against infection
* **Regulation**
  + - Blood regulates the pH and electrolyte composition of the interstitial fluids. Buffers in the blood stabilize the pH of the fluid surrounding cells (extracellular fluid).
    - The blood also regulates body temperature. Blood vessels in the skin are dilated (relaxed) or constricted so that heat from the body can be given off or conserved.