The Digestive System is responsible for digesting your food and getting nutrients from it. When you eat something saliva from salivary glands helps mush up the food in your mouth. At the same time your teeth break it down to smaller pieces. Now the food goes down your esophagus where it lands in the stomach. In the stomach, stomach acid breaks down your food even more, and it exits in to the small intestine. But to stop the stomach acid from eating up your small intestine, the pancreas creates enzymes which neutralize the stomach acid. The liver also creates a liquid called bile, which is stored in the gull bladder and helps break down your food even more. After that your food is squished through the small intestine, where tiny villa absorb the nutrients in your food, and put it in to the blood stream. Now the food goes through the large intestine, where all the water left is absorbed, and the final remains of the food goes in to the anus and out your body.

The respiratory system is responsible for putting oxygen in your blood. When you want to breath, your diaphragm lowers, and muscles between your ribs expand, and this action causes air to go down your trachea, and come in your lungs. Your lungs then split in to smaller and smaller branches, and this happens about 25 times, when finally, at the end of each of the millions of branches are the alveoli. In the alveoli oxygen is put in to the blood stream, and carbon dioxide is taken out. Now your diaphragm moves up, and the muscles between your ribs contract causing the air with carbon dioxide to go back up your trachea and out your mouth/nose.

The immune systems job is to protect you and stop you from dying. The first barrier of immune system is your skin, snot and similar things (like earwax), which stop invaders from entering your body. If your first line of defense is broken (maybe you have a cut in your skin), Macrophage cells and other types of white blood cells, come and start attacking the invaders. Macrophage cells and other white blood cells are like guards and if they cannot stop the invaders, they call for backup. They tell a B lymphocyte which is another type of white blood cell, to create antibodies. Antibodies are small proteins, and a B lymphocyte creates antibodies that are the same shape as the invaders antigen. All invaders have an attaching point called an antigen, and the antibodies go and connect to the antigen making it easier for the other cells to kill the invader. After the attack is over, the cells suicide to not waste any resources, but some stay behind. They are the memory T cells, which look for any invaders, and if they find that same invader again, they quickly create millions of antibodies.

The Nucleus is a control center. It directs all of the activity in a cell.

Chromosomes are inside the nucleus and store DNA. DNA is like a manual to how to build a cell.

The cell membrane is like a guard, and is what allows good stuff to enter the cell (like nutrients), and bad stuff to exit the cell (like waste).

The cytoplasm is a fluid, that fills the cell membrane, and many of the chemical reactions that happen in cell are in the cytoplasm.

The Flagellum is a tail which helps some cells move.

Cilia are tiny hairs which can help a cell move.

The Vacuole is a storage container which is filled with water and nutrients.

A Cell Wall protects a cell, and gives it structure. Materials can go through a cell wall through small holes in the wall.

Chloroplasts are factories that produce food for a cell. They have molecules of chlorophyll which allows them to make food using light, carbon dioxide and water.

The Mitochondria is a factory which creates ATP using a process called cellular respiration. Cellular respiration has 3 parts. Glycolysis, where glucose is taken in, and ADP, ATP, NADH, NAD and pyruvate is created. Next is the Kreb Cycle, where pyruvate is given and NADH, FADH and ATP is created. And finally, most of the ATP is made using the electron transport chain, where all of the NADH and FADH is passed in, and a lot of ATP is created (about 34).

Ribosomes use information from the nucleus, and nutrients from the cytoplasm to make proteins, proteins are used for everything and are a building block of life.

The Golgi Apparatus stores proteins and can also send them to the outside by putting them in to packages called vesicles. These vesicles could transmit messages to other cells, and also do many other things.

The Circulatory system gives nutrients to all of the different parts of the body. The main organ in the system is the heart. First veins carry deoxygenated blood to the right atrium, and the right atrium gives the blood the right ventricle. From there the right ventricle pumps the blood to arteries that go to the lung, where the blood gets oxygenated, then the vein carries the blood back to the left atrium, and the blood goes to the left ventricle where it is pumped to all of the body using the arteries.

The Excretory system removes waste from the body. The main organs of the excretory system are the kidneys. The kidney is made of thousands of nephrons, which create urine. They do so by having a filter called glomerulus, which keeps good proteins and cells in the bloodstream, but let’s waste and bad stuff pass. Then after a pass through a tubule (which takes back recyclable materials like sodium and potassium), the remains go to ureters, which gives the urine to the bladder, which lets the urine out of the body using the urethra.

<http://www.mcwdn.org/body/excretory.html>

<http://www.kidneyhealthcare.com/2010/12/nephron-structure-function-nephron.html>

Lysosomes are made by the Golgi apparatus, and their job is to clean the cytoplasm. They can break down large molecules in to smaller molecules, or destroy harmful molecules that enter the cytoplasm.

The Endoplasmic Reticulum can move around different materials. In the rough version, there are many ribosomes attached to it and they make proteins. In the smooth version fats are made and no ribosomes are attached.