Introduction
In order for the human body to survive, thrive, and reproduce, the internal environment must remain relatively constant. In other words, temperature, blood pressure, and related systems must be relatively stable. This is known as homeostasis.

The Circulatory System
This system consists of arteries, veins, capillaries, the heart and the lymph system. The circulatory system keeps liquids in the form of plasma and chemicals flowing through the body. Red blood cells transport oxygen while white blood cells attack bacterial invaders. Platelets and related chemicals assist in preventing blood loss through cuts and injuries. The lymph system helps in removing waste from the body’s cells. Clotting is a complex series of events involving platelets and certain chemical combinations in the human blood system. Lymph vessels help move dissolved nutrients, white blood cells, and other fluids back into the circulatory system. They come together at lymph nodes.

The Immune System
This system protects the human body from foreign invaders and pathogens. Nonspecific protection is a general type of defense in which this system protects the body with such structures and systems as the skin, mucous membrane, and inflammatory response. Specific protection includes the production of antibodies. Antigens are substances the body recognizes as foreign and the body’s immune response is a complex series of chemical and physical reactions to counteract the threats. White blood cells or lymphocytes engulf and break down pathogens. Other chemical reactions serve to neutralize these threats to the body. Autoimmune diseases cause the body’s defenses to attack the body systems.

The Respiratory System
Breathing is the process of taking air into and out of the body through a series of tubes. Respiration is the exchange of oxygen and carbon dioxide from the air we breathe. Dissolved gases are distributed throughout the body in the bloodstream. Cellular respiration, which takes in the individual living cells, is the process of taking in and converting food molecules into energy. Smoking and air pollution can reduce the surface area of the lungs and produce such conditions as emphysema which causes shortness of breath and other respiratory ailments.

Excretion
The kidneys serve as the body’s primary organs for excreting liquid waste. These wastes are produced by the metabolism of cells, enter the bloodstream, and are processed through the kidneys. Liquid urine leaves the kidneys through the ureters, is stored in the bladder, and eliminated.

Temperature Regulation
Metabolism is the total of all chemical reactions that take place in the body. Keeping a constant temperature is an important part of homeostasis. Shivering is one way in which the body can warm itself. Heat is a product of cellular respiration and the body must cool itself through processes such as sweating. The brain through the activity of the hypothalamus controls these internal regulatory functions.