Parts of the Digestive System

The gastrointestinal tract or digestive tract, also referred to as the GI tract or the alimentary canal or the gut, is the system of organs within multicellular animals which takes in food, digests it to extract energy and nutrients, and expels the remaining waste.
The small intestine is about 17 feet (5–6 m) long.

The large intestine is about 5 feet (1.5 m) long.

The Alimentary Canal

In a normal human adult male, the GI tract is approximately 7 and a half metres long (25 feet) and consists of the following components:

Upper gastrointestinal tract: mouth (buccal cavity; includes salivary glands, mucosa, teeth and tongue) pharynx; esophagus (gullet) and stomach.

Lower gastrointestinal tract: bowel or small intestine; (which has three parts: duodenum, jejunum, ileum); large intestine, which has three parts: colon; rectum and the anus.
Mouth & Throat

The mouth, also known as the buccal cavity or the oral cavity, is the opening through which an animal takes in food and water. Read more about the mouth here.

Image credit:

Teeth (singular, tooth) are structures found in the jaws of many vertebrates. The primary function of teeth is to tear and chew food. More about teeth here.

Tongue
The tongue is the large bundle of skeletal muscles on the floor of the mouth that manipulates food for chewing and swallowing, (deglutition). It is one of the organs of taste. Much of the surface of the tongue is covered in taste buds. More on the tongue here.

Saliva
Saliva helps soften the food in the mouth so that it is easier to swallow. Saliva is also the first of several chemicals that start to break down foods into simpler forms. The salivary gland is located underneath the back of our tongue. It creates our saliva or spit.
The esophagus (also spelled oesophagus/œsophagus), or gullet is the muscular tube in vertebrates through which ingested food passes from the mouth area to the stomach.

The esophagus is simply a transportation tube from the mouth to the stomach. When we swallow, what we are really doing is closing a trap door in our throat called the epiglottis. This sends food down the esophagus and prevents food from going down the trachea (or windpipe) and into our lungs. Food is passed through the esophagus by using the process of peristalsis.
The esophagus is lined with mucous membrane, and is more deeply lined with muscle that acts with peristaltic action to move swallowed food down to the stomach.

---

**Stomach**
Stomach- The first stop after the esophagus is the stomach. Once the food gets to the stomach the stomach uses chemicals to try to make the food tinier. These
chemicals are called gastric juices and the include hydrochloric acid and enzymes (chemicals that break down food). The food is moved around in the stomach and mixed with the chemicals for about 3 or 4 hours. When it is done in the stomach, the food is now a cream-like liquid call chyme. The food is still not small enough the get into our blood stream and it has not provided the body with anything useful yet. Now a valve at the end of the stomach opens sending the food past the liver.
**FILLING AND EMPTYING**

An average meal takes about six hours to pass through the stomach on its way to the small intestine. Starchy, carbohydrate-rich foods are digested in two or three hours, high-protein foods take slightly longer, and fatty foods may still be trickling from the stomach seven or eight hours after you eat them.

A meal reaches your stomach as a series of soft, saliva-moistened balls, called boluses. With each swallow, food accumulates in your stomach, making it expand like a balloon.

After an hour or two, the food has been mashed and mixed with acid and enzymes to form a creamy liquid called chyme. This is squeezed into the small intestine a little at a time.

A few hours later, some food

Muscular waves in stomach wall
The innermost layer is obliquely-oriented; this is not seen in other parts of the digestive system; this layer is responsible for creating the motion that churns and physically breaks down the food.

**Mucus**

A layer of mucus along the inner walls of the stomach is vital to protect the cell linings of that organ from the highly acidic environment within it. In the digestive system, mucus is used as a lubricant for materials which must pass over membranes, e.g., food passing down the esophagus.
Liver/Gall Bladder - At this point, our food is hit with more chemicals. The liver makes a chemical called bile but bile is not stored in the liver. Instead it is stored in the gall bladder. When the gall bladder mixes bile with our food, it does an important job: breaking down the fat (from milk, butter, cheeses) into tiny droplets. This fat will supply us with much energy later.

The pancreas also adds a digestive chemical as the food leaves the stomach. This digestive juice works on breaking down the carbohydrates (from breads, potatoes, etc.) and the proteins (from meats, cereals, peanut butter)

Small Intestines
The Small Intestine is the real hero of the digestive system. The small intestine is a tube that is about 22 feet long! This is where the real digestion takes place. As the food passes through, it is mixed with the new chemicals and soon our "food" is now digested small enough to be put to use by the body.
Villi
Along the walls of the intestine are thousands of tiny fingers called villi. Blood vessels (capillaries) in the villi can absorb the tiny food molecules and send them off to the rest of our body through the blood.
Section of human villi. Along the outer edges are the epithelial cells, through which nutrient molecules are absorbed. Inside are muscles that give the villi motion and capillaries and lymph ducts that transport nutrients.


Kidneys & Bladder: Urinary System
Water from the food and beverages we consume is absorbed in both the small and large intestines. This liquid passes through and is filtered by the kidneys. Humans are 2/3 water, so most of the liquid continues on in the blood network, some is sent to the bladder for elimination as urine.

The urinary system is the organ system that produces, stores, and eliminates urine. In humans it includes two kidneys, two ureters, the urinary bladder, two sphincter muscles, and the urethra.

The kidney is one of the various organs (together with the lungs, intestine and skin) that participates in the elimination of the wastes of the organism. The kidneys are bean-
shaped organs about the size of a bar of soap. They are near the middle of the spine, just below the ribcage.

A kidney consists of about 1 million filtering units termed nephrons, each consisting of a glomerulus, ball-shaped network of capillaries, and a network of tubules. Blood plasma is filtered by the glomerulus, and the resultant "prourine" passes through the tubular system where water, electrolytes and nutrients are reabsorbed under the supervision of hormone activity and the autonomic nervous system.

Humans produce about 1.5 liters of urine over 24 hours, although this amount may vary according to circumstances. Increased fluid intake generally increases urine production, while increased perspiration and respiration may decrease the amount of fluid excreted through the kidneys. A reduced intake of water will normally result in less urine production as well.

The bladder stores urine; it swells into a round shape when it is full and gets smaller when empty. In the absence of bladder disease, it can hold up to 16 fluid ounces (500 ml) of urine comfortably for 2 to 5 hours. Read more about the urinary system here.

---

**Colon**
Colon or Large Intestine - Whatever the body cannot put to use is sent to the large intestine. Many plants, for example, contain cellulose which cannot be digested. The big job of the large intestine is to remove water. Water has been necessary up until now but it is no longer needed and in the large intestine water is sent into the bloodstream. Food spends about 12 hours in the large intestine where it becomes feces and later leaves the body through the anal opening when we go to the bathroom.
**Intestinal bacteria.** A healthy large intestine contains millions of bacterial microbes, especially the type E. coli (above). They live in a mutually helpful partnership with the body, called symbiosis. The body provides a warm, moist, nutrient-rich environment. In return, the bacteria break down leftovers and wastes, produce certain vitamins (B6 and K) that the body absorbs, and also make waste gases called "flatus" that sometimes emerge through the anus.

---

**Rectum**
The rectum acts as a temporary storage facility for feces. As the rectal walls expand due to the materials filling it from within, stretch receptors from the nervous system located in the rectal walls stimulate the desire to defecate. If the urge is not acted upon, the material in the rectum is often returned to the colon where more water is absorbed. If defecation is delayed for a prolonged period, constipation and hardened feces results. Learn more about the rectum here.

The Anal Canal. When the rectum is full the increase in intrarectal pressure forces the walls of the anal canal apart allowing the fecal matter to enter the canal. The rectum shortens as material is forced into the anal canal and peristaltic waves propel the feces out of the rectum. The internal and external sphincter allow the feces to be passed by muscles pulling the anus up over the exiting feces.

Feces. The average person gets rid of about 0.3 pounds of feces daily. About half of this weight is water. The rest is rubbed off parts of the digestive tract lining, mucus, millions of dead intestinal bacteria, plant fiber and other undigested remnants from food. Feces are brown in color which comes from pigments, such as bilirubin.

Learn more about feces here.
Flow: feces, flatulence, etc.