1. **Food pipe or Esophagus**: it connects mouth to the stomach and runs along neck and chest. It carries slightly digested food from the mouth to the stomach. Food is pushed downward by a wave like movement of the wall of food pipe as a result of alternate contraction and relaxation. This movement is called peristalsis. The chewed food enters the esophagus from mouth and is passed down to stomach is called bolus. Sometimes, food is not accepted by our stomach and is vomited out because the food moves in the opposite direction, i.e. from stomach to mouth by anti – peristaltic movement in esophagus. Our windpipe and food pipe runs adjacent to each other. Air and food share a common passage in the throat. When we swallow food, a flap like valve closes the passage of the windpipe and guides the food into the food pipe. But if we laugh or talk while eating, the windpipe remains open and food particle enters into the windpipe and we experience hiccups, cough or choking sensation.

2. **The Stomach**: it was first discovered by an American doctor William Beaumont in 1822. It is a thick walled bag like structure which is present on the left side of the absent. Its shape is like flattened U and it is the widest part of the alimentary canal. The semi digested food from esophagus enters into stomach where further digestion takes place. The churning of food into stomach takes place for three hours. The food is broken down into smaller pieces and forms semi – solid paste. The inner lining of stomach secretes mucus, hydrochloric acid and digestive enzymes. The function of mucus is to protect the lining of stomach from the action of hydrochloric acid. The secretion of hydrochloric acid makes the medium acidic inside the stomach. It kills the harmful bacteria present in the food and also helps in the digestion of proteins in the stomach. The partially digested food which moves from stomach to the small intestine is called chyme.

3. **Small Intestine**: It is highly coiled long tube with length of about 7.5 metre. The small intestine is a narrow tube which receives secretions from the liver and pancreas. The wall of small intestine also secretes digestive juices. The complete digestion of food takes place inside the small intestine ad the food components are also absorbed here. The largest gland of the body, liver is a reddish brown coloured gland, situated in the upper part of the abdomen on the right side. It secretes bile juice which is stored in a sac like structure called as 'gall bladder.' The bile juice helps in digestion of fats. The complete digestion of fats is done by pancreatic juice. Pancreas is a large cream coloured gland which is located just below the stomach and secretes pancreatic juices. It breaks down fats into simpler compounds like fatty acid and glycerol, carbohydrates into simple sugars and proteins into simpler amino acids. Now the food is said to be digested. This digested food is now absorbed by the walls of small intestine.

Absorption in the Small Intestine: the blood vessels in the walls of the intestine absorb the digested substances to produce energy for growth and development of animals. The inner walls of small intestine have thousands of finger like outgrowths called 'villi.' These villi help in increasing the surface area of small intestine for the absorption of digested food. Villi possess a network of thin and small blood vessels to its surface. These blood vessels absorb the digested food materials and transport it to the different organs of the body where these are used to build repair the body and to provide energy.

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The glucose breaks down into carbon dioxide and water and release huge amount of energy with the help of oxygen inside the cell. Fatty acid and glycerol help in building the component of cells and form fats which is stored in the body as food reserve while amino acid is used in growth and repair of the body. The undigested food material is not absorbed by the small intestine and it passes from here to the large intestine.

4. **Large Intestine**: It is 1.5 meter long tube. It is wider and shorter than small intestine. The undigested semi – solid food is passed from small intestine to large intestine. The large intestine absorbs water and salt from the undigested food. The remaining waste material then passes to the rectum and remains there for sometime in the form of semi solid faeces. This wastes matter is then removed through the anus from the body by the process called 'egestion'.

Diarrhoea: it is a condition in which a person passes out stools frequently. It is a disease which is caused by an infection, food poisoning or indigestion. It usually occurs in children and can be fatal. In this condition, there is loss of water and salts from the body of a person through frequent watery stools. The person should be given a solution of sugar and salt in clean water several times a day. This solution is called Oral Rehydration Solution (ORS). The ORS makes up the loss of water and salt in the body and sugar provides energy which helps in the recovery of disease.

Digestion in Grass-Eating Animals

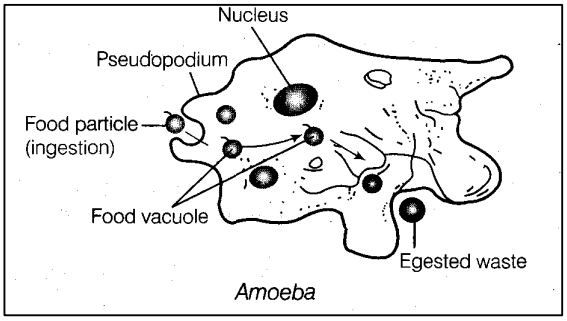
The herbivorous animals such as cow, buffaloes, etc eat grass. These animals quickly swallow the grass and store it in a part of stomach called **rumen**. The food is not chewed completely. Rumen possess cellulose digesting bacteria which breakdown the food by fermentation. This partially digested food or grass present in the rumen of cow is called cud.

This cud is brought back into the mouth of the cow from the rumen into small lumps and animal chews it again. This process is called rumination and animals are called ruminants.

When this cud is thoroughly chewed in the mouth of the cow, it is swallowed again. This time the chewed cud does not go back to rumen but enter into the other compartments of cow's stomach and then into the small intestine for complete digestion and absorption of food. The cellulose digesting bacteria are not present in the body of human being, therefore human beings and other carnivore cannot digest cellulose present in plant food items.

Feeding and Digestion in Amoeba

Amoeba is a microscopic single celled organism, which is found in pond water. It is a very simple animal and cannot be seen by naked eyes. Amoeba has a cell membrane, a rounded dense nucleus and many small bubble-like vacuoles in its cytoplasm. These vacuoles are of two types, i.e. food vacuole and contractile vacuole. Food vacuole contains food surrounded by water while contractile vacuole contains liquid or water and controls water regulation activity in Amoeba. Its shape is not



Amoeba

fixed, i.e. it constantly changes its shape and position. The body of Amoeba has finger-like projections, called pseudopodia or false feet. It captures food and helps in locomotion of Amoeba.

The food of Amoeba is microscopic organisms like tiny plants and animals present in pond water. When Amoeba senses its food, it pushes out pseudopodia around the food particle and engulfs it. The two pseudopodia join around the food particle and trap the food particle with a little water forming vacuole around food, thus the food gets trapped. Digestive juices present inside the vacuole, acts on the food and break it into simpler substances. This digested food is then absorbed and is used for growth, maintenance and multiplication of Amoeba. The undigested food residue is expelled outside by the vacuole. The basic process of digestion of food and release of energy is a similar to the other organisms.

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