

CHAPTER - 2

NUTRITION IN ANIMALS

CLASS

:- VII

SUBJECT

:- SCIENCE

1) Animal nutrition :-

The mode of taking food by an organism and its utilisation in the body is called nutrition.

Animals get their food directly or indirectly from plants.

Animal nutrition :- includes nutrient requirement, mode of taking food and its utilisation in the body.

Digestion :- The process by which complex food substances are broken down into simpler substances is called digestion.

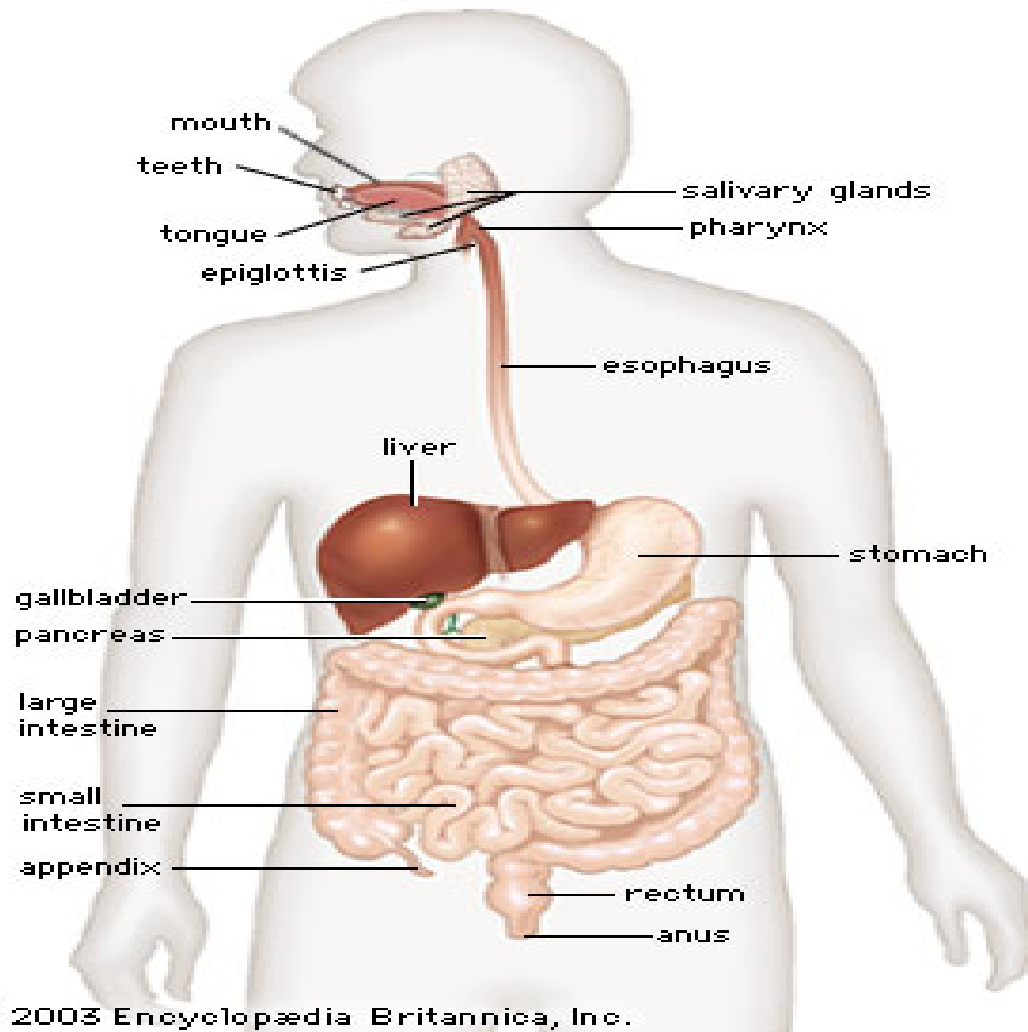
2) Different ways of taking food :-

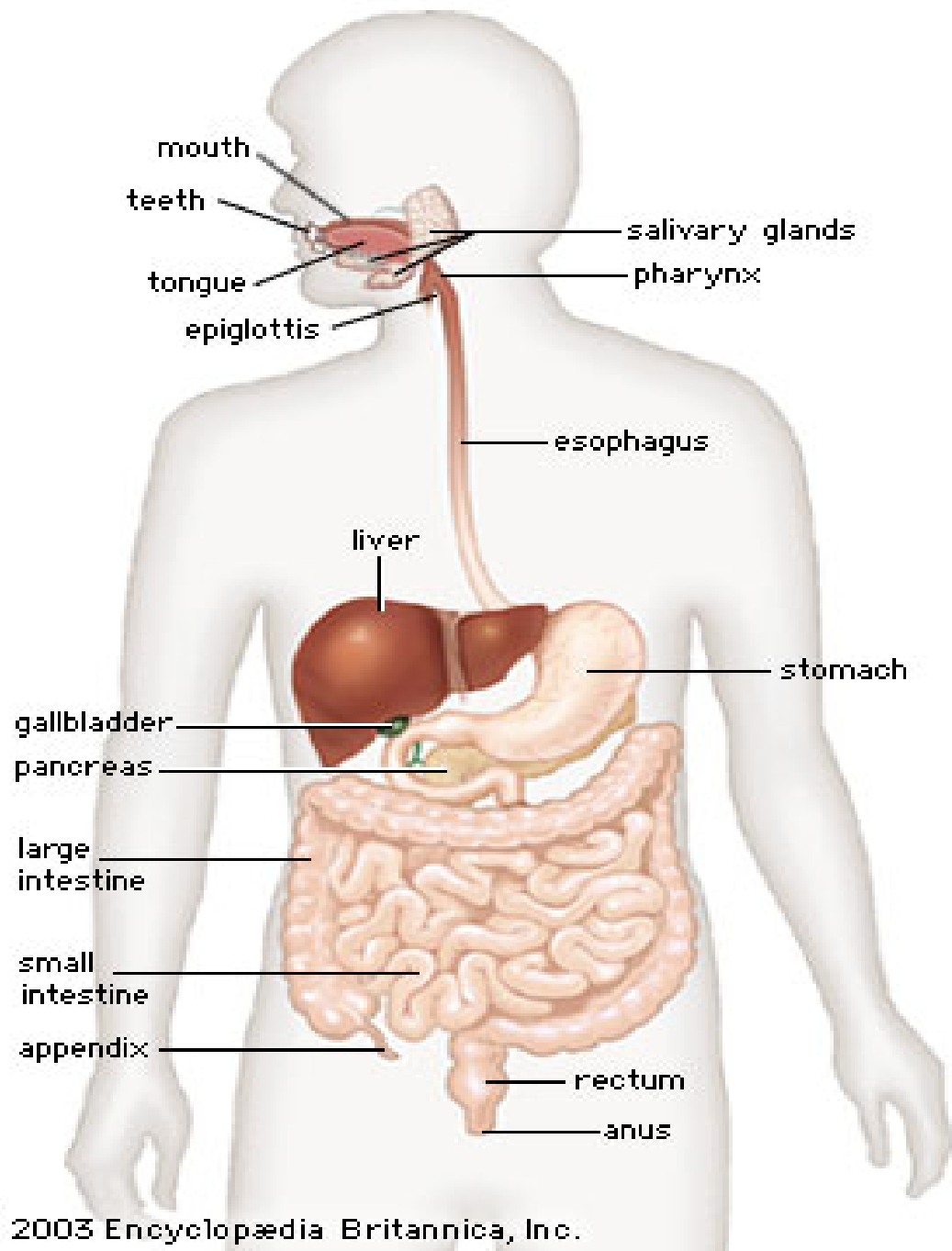
Name of animal	Kind of food	Mode of feeding
Snail	Grass	Chewing
Ant	Insects	Scrapping
Eagle	Flesh	Swallowing
Humming bird	Nectar	Sucking
Lice	Blood	Sucking
Mosquito	Blood	Sucking
Butterfly	Nectar	Sucking
House fly	Decaying matter	Brewing



3) Digestion in humans :-

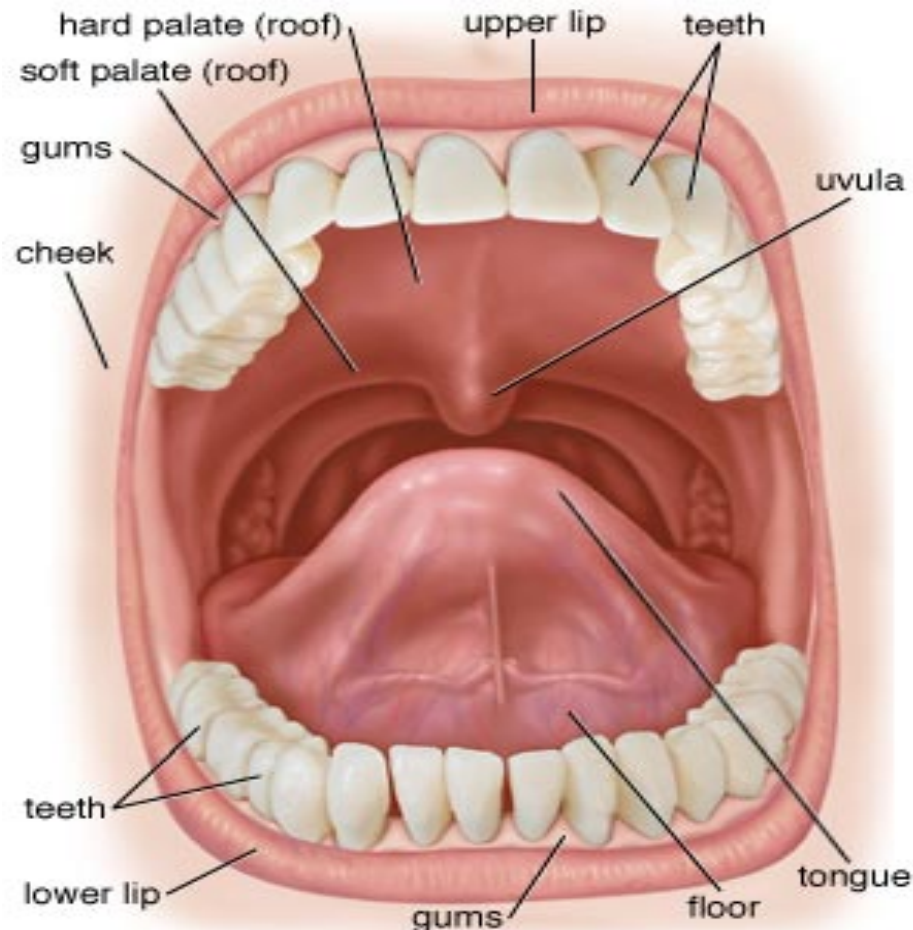
The main parts of the alimentary canal are :- buccal cavity (mouth), oesophagus (food pipe), stomach, small intestine, large intestine, rectum and anus. The main glands are :- salivary glands, liver and pancreas. The alimentary canal and the glands together is called the digestive system.





i) The mouth and buccal cavity :-

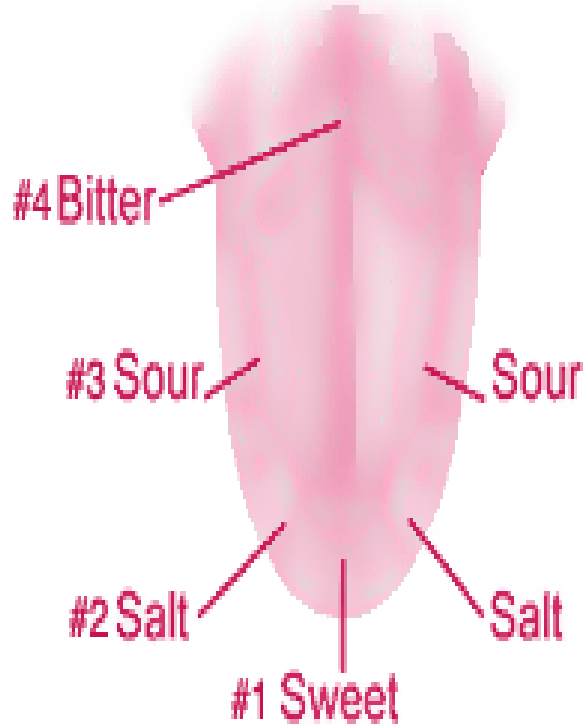
Food is taken into the body through the mouth. This process is called **ingestion**. In the mouth the food is broken down into smaller pieces by the teeth. The mouth has salivary glands which secrete saliva. The saliva breaks down starch into sugars. The tongue helps to mix the food with saliva and swallow the food.



Tongue :-

The tongue has taste buds to detect different tastes of food. The different regions of the tongue detect different tastes.

Taste Areas on the Human Tongue



Teeth :-

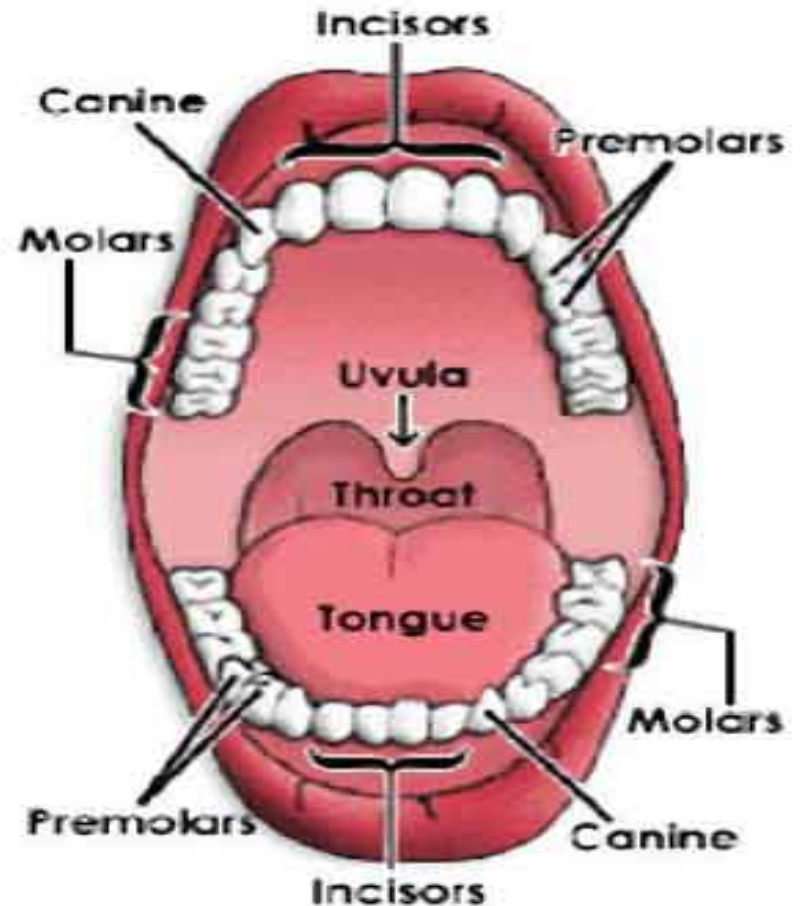
There are four types of teeth. They are incisors, canines, premolars and molars.

Incisors :- help in biting and cutting the food.

Canines :- help in piercing and tearing the food.

Premolars and molars :- help in chewing and grinding the food.

Type of teeth	Number of teeth		Total
	Lower jaw	Upper jaw	
Incisors	4	4	8
Canines	2	2	4
Premolars and molars	10	10	20



ii) The food pipe (oesophagus) :-

The food pipe passes along the neck and chest. The swallowed food is pushed down by the movement of the walls of the food pipe into the stomach.

iii) The stomach :-

The stomach secretes digestive juices, hydrochloric acid and mucous. The digestive juices breaks down proteins. Hydrochloric acid makes the medium acidic and kills bacteria which enter along with the food. Mucous protects the walls of the stomach from the acid.

iv) The small intestine :-

The small intestine is a long coiled tube. It receives secretions from liver and pancreas. It also secretes digestive juices.

The liver is the largest gland in the body. It secretes bile juice which is stored in the gall bladder. It breaks down fats.

The pancreas secretes pancreatic juice which breaks down carbohydrates and proteins.

The intestinal juice completes the digestion of starch into glucose, fats into fatty acid and glycerol and proteins into amino acids.

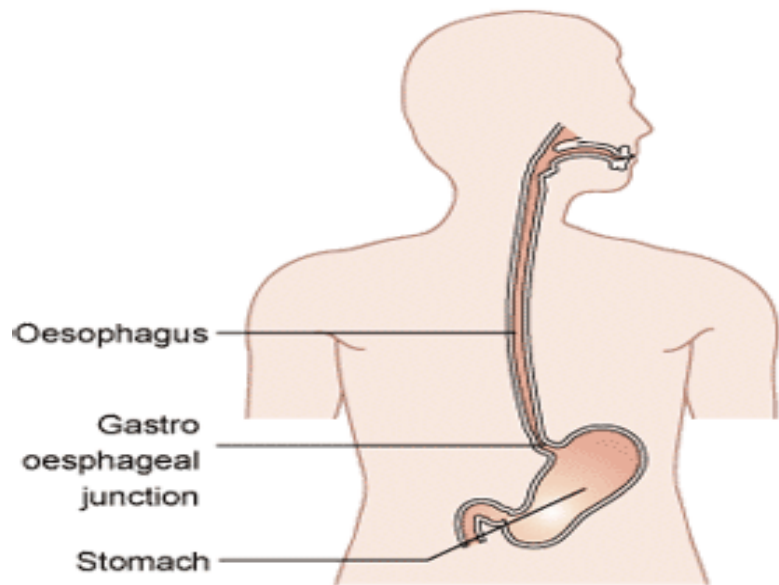
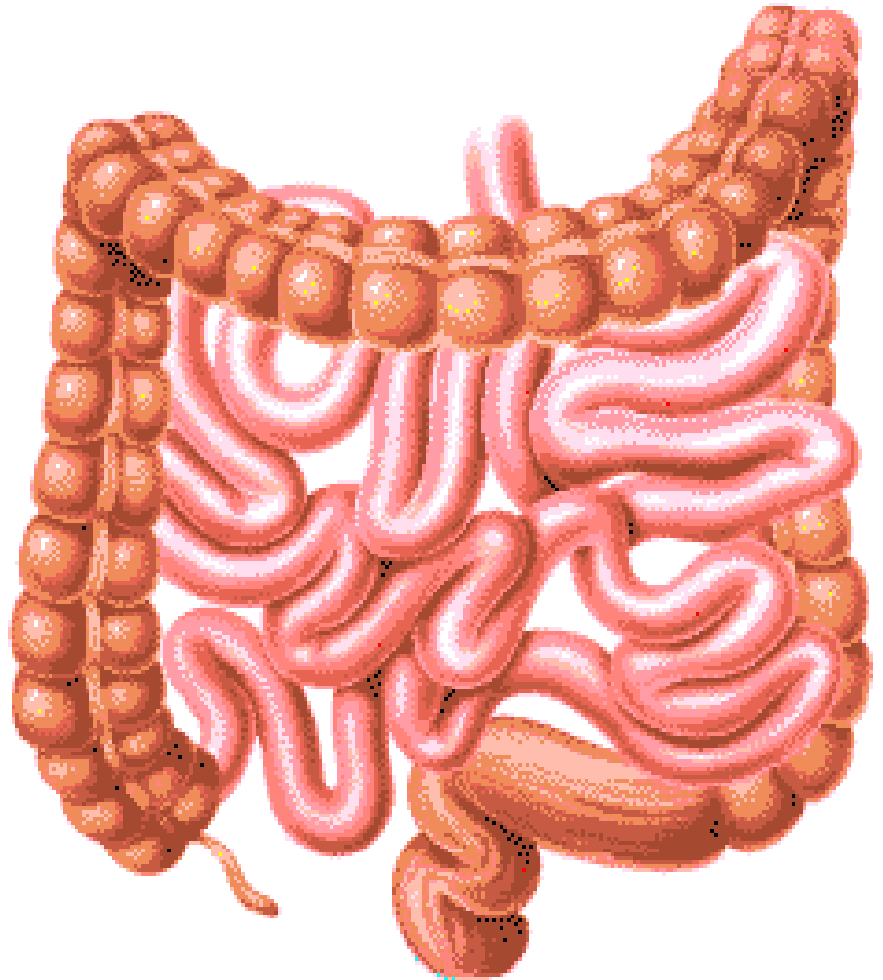
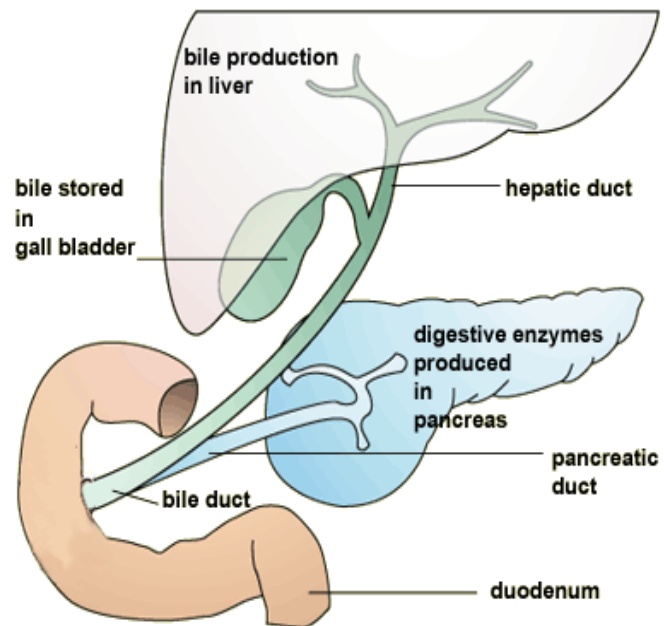
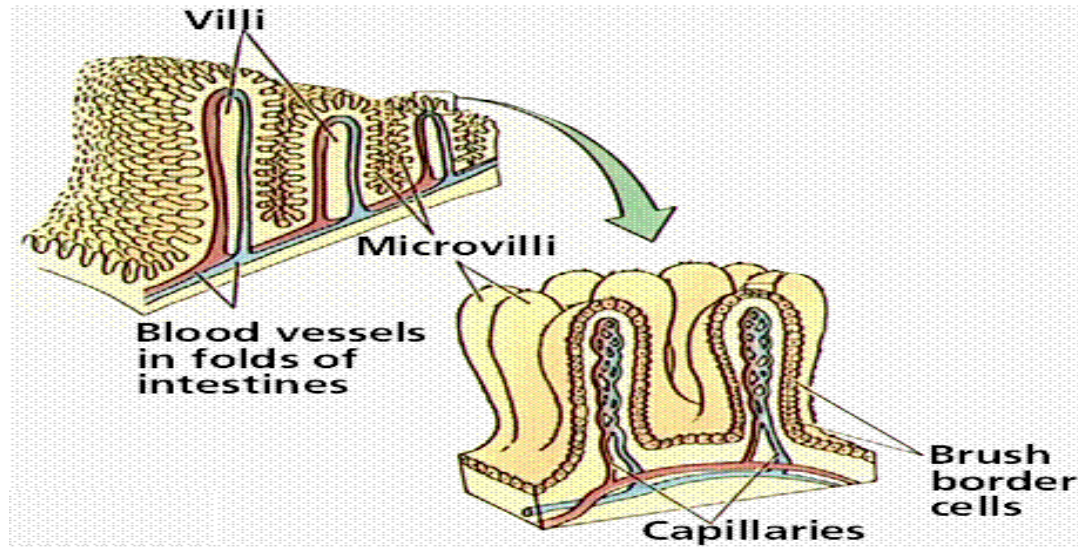


Diagram of the gastro oesophageal junction
© CancerHelp UK



Absorption of digested food in the small intestine :-

The digested food is absorbed by the walls of the small intestine. This process is called **absorption**. The small intestine has several finger like projections called villi having blood vessels. The villi helps to increase the surface area for absorption. The absorbed materials are carried by the blood to the different parts of the body and used by the body. This is called **assimilation**. The undigested food then passes into the large intestine.

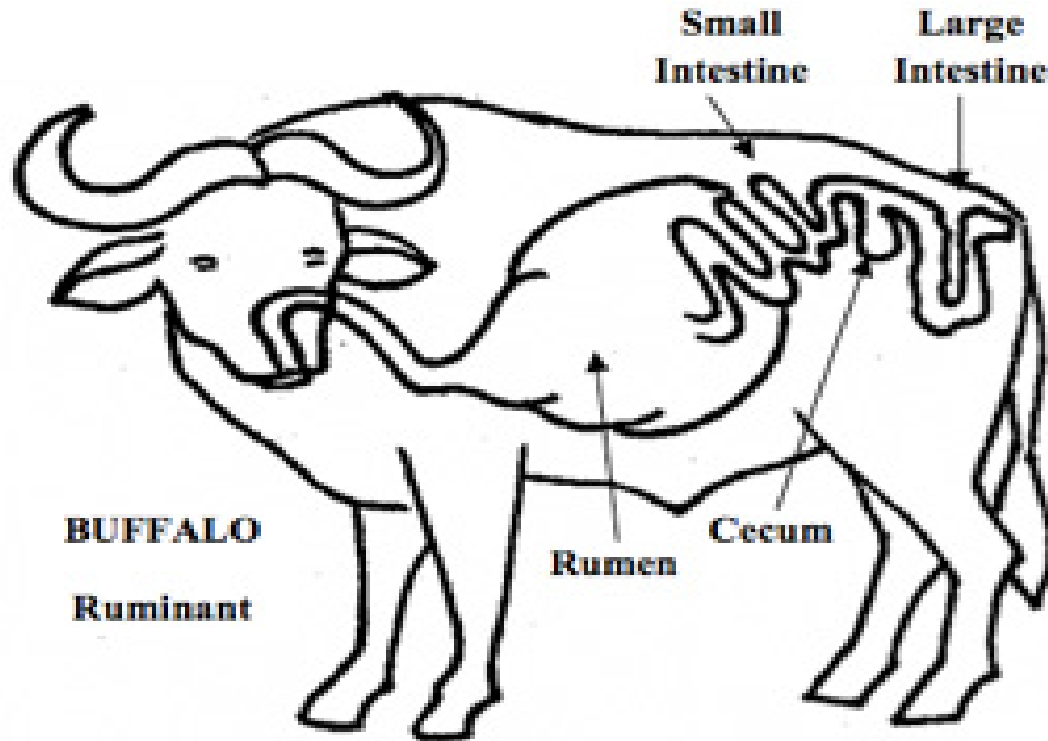


v) The large intestine :-

In the large intestine water and some salts are. The remaining waste then passes to the rectum and remains there as faeces. It is removed through the anus from time to time. This process is called **egestion**.

4) Digestion in grass eating animals (Ruminants) :-

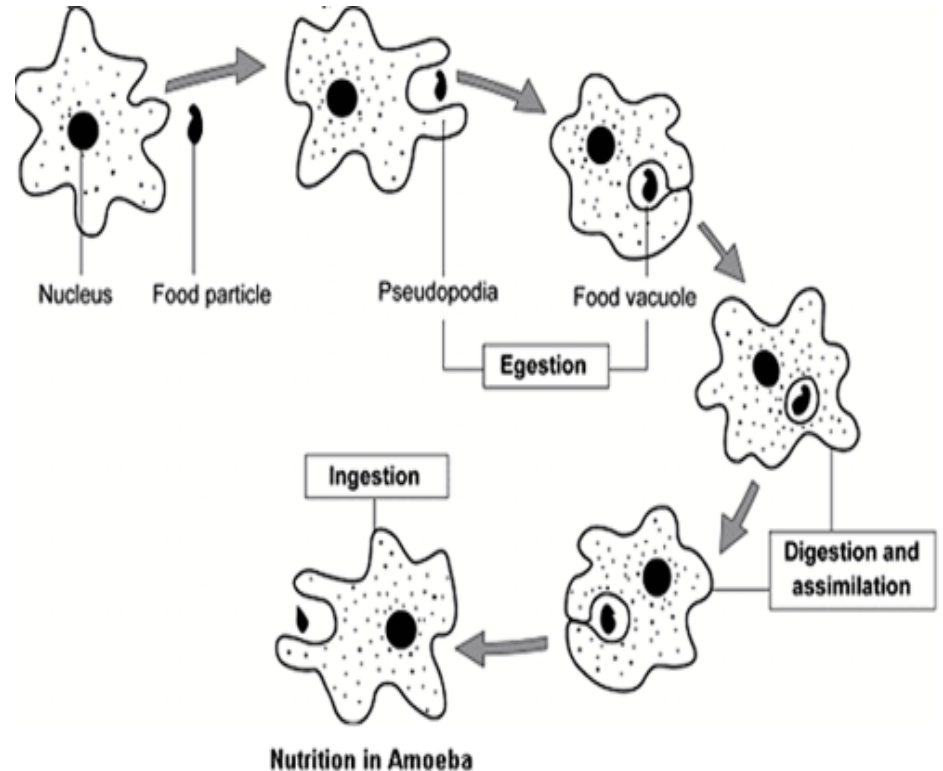
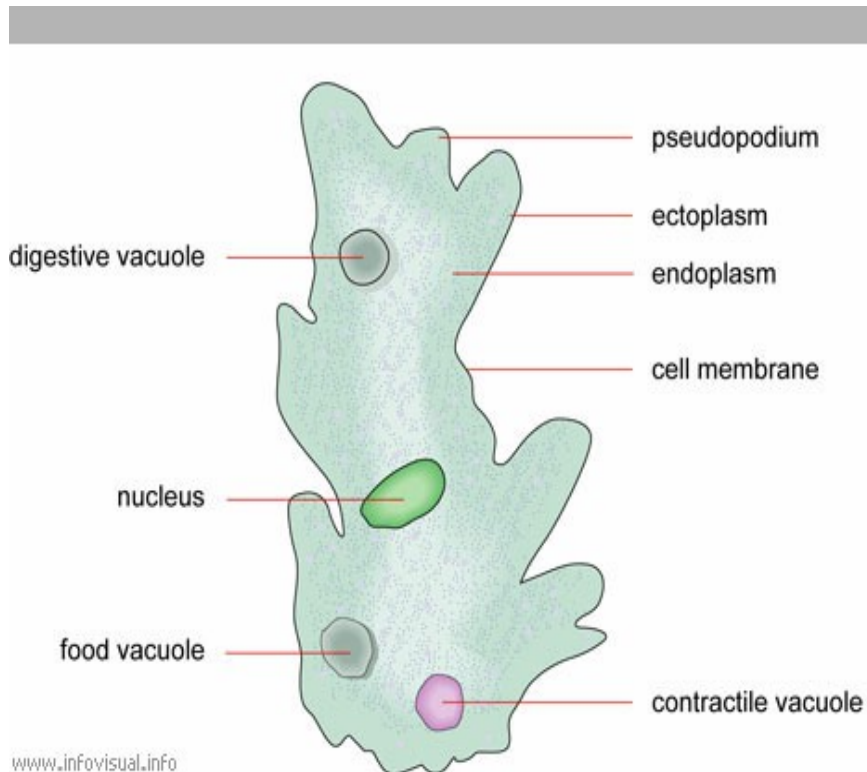
Grass eating animals like cows and buffaloes quickly swallow the grass and store it in a separate part of the stomach called rumen. Here the food is partly digested and is called cud. Then the cud is brought back to the mouth in small lumps and chewed. This process is called **rumination**. The chewed food then passes into a sac like structure between the small intestine and large intestine. The cellulose in the grass is digested with the help of some bacteria.



5) Feeding and digestion in amoeba :-

Amoeba is a single celled organism found in pond water. The cell has a cell membrane, cytoplasm and a nucleus. The cytoplasm has many bubble like vacuoles. The cell has finger like projections called pseudopodia or false feet which helps it to move and capture food.

When amoeba comes near food particle, pseudopodia is produced around the food particle. The food particle is trapped in a food vacuole. In the food vacuole the food is digested by digestive enzymes and absorbed. The undigested waste is then sent out by the vacuole.



Activity – 1 :-

Food and modes of feeding in animals :-

Name of animal	Kind of food	Mode of feeding
Snail	Grass	Chewing
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Eagle	Flesh	Swallowing
Humming bird	Nectar	Sucking
Lice	Blood	Sucking
Mosquito	blood	Sucking
Butterfly	nectar	Sucking
House fly	Decaying matter	brewing

Activity – 2 :-

To observe the types and number of teeth :-

Look into a mirror. Use the index finger and feel the teeth. Count the number of incisors, canines, premolars and molars. Record your observations in the table below.

Type of teeth	Number of teeth		Total
	Upper jaw	Lower jaw	
Incisors			
Canines			
Premolars and molars			

Activity – 3 :-

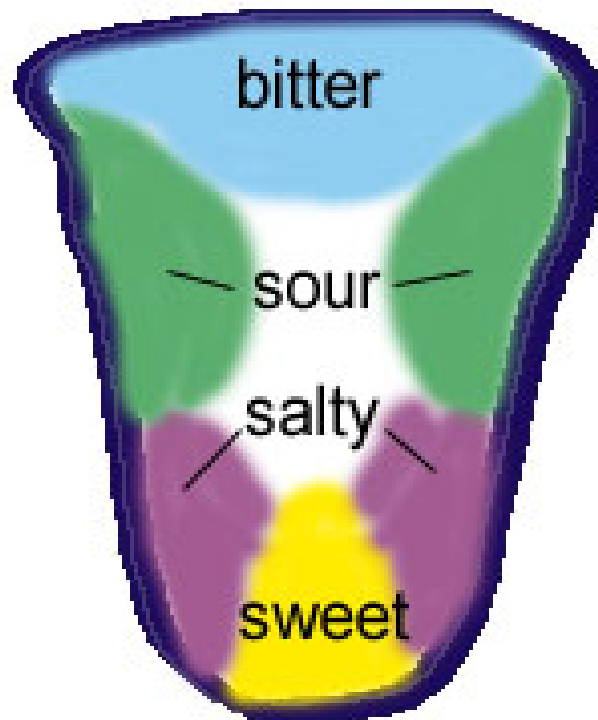
Effect of saliva on starch :-

Take two test tubes. In one test tube put some boiled rice. In the other test tube put some boiled rice after chewing for 3 – 5 minutes. Add some water to both the test tubes. Then pour 2 – 3 drops of iodine solution in each test tube. The boiled rice turns blue black due to presence of starch. The chewed rice does not turn blue black because the saliva converted the starch into sugar.

Activity – 4 :-

To determine the different taste regions of the tongue :-

Prepare solutions of sugar, common salt, lemon juice and juice of crushed neem leaves or bitter gourd. Use a clean tooth pick and put each solution one by one on different areas of the tongue. Mark the areas of the tongue which could detect the sweet, salty, bitter and sour substances.



SCIENCE

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