



Nutrition in Animal

Nutrition:

Nutrition: The process by which animals take in and use food for energy,
growth, and repair.

Animals are heterotrophs, meaning they depend on other organisms for food
(unlike plants, which are autotrophs).

②. Digestion Process:

- ✓ • **Ingestion:** Taking in food.
- ✓ • **Digestion:** Breaking down food into simpler molecules.
- ✓ • **Absorption:** Nutrients pass into the bloodstream, mainly in the small intestine.
- ✓ • **Assimilation:** Nutrients are used by cells for energy and growth.
- ✓ • **Egestion:** Removal of undigested waste.

Alimentary Canal :-

The alimentary canal is the long tube in our body through which food passes, gets digested, and wastes are removed.

It starts at the mouth and ends at the anus.

□ Main parts of the alimentary canal:

✓ Mouth – food enters and chewing starts

✓ Oesophagus (food pipe) – passes food to stomach

✓ Stomach – mixes food with digestive juices

✓ Small intestine – digestion completes and nutrients are absorbed

✓ Large intestine – absorbs water and forms waste

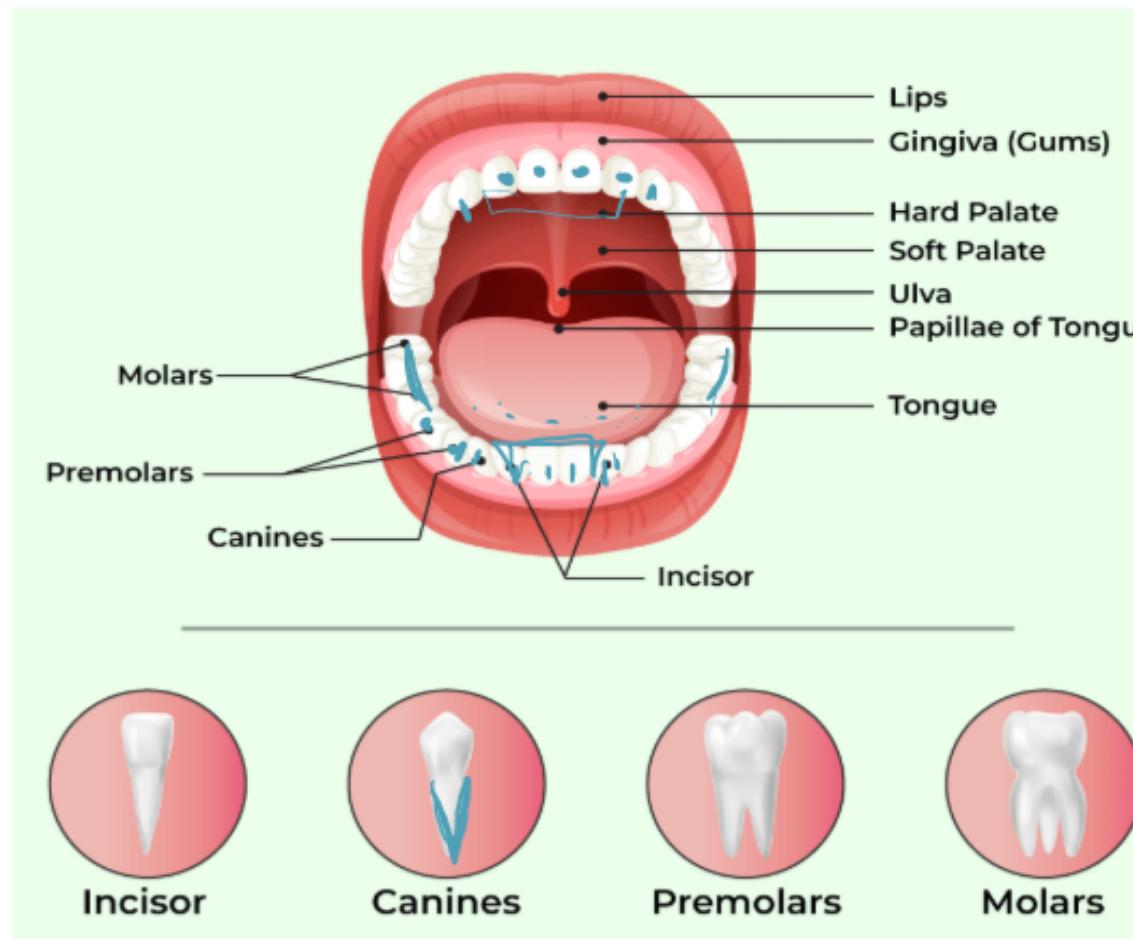
✓ Anus – removes undigested waste (poop)

The digestive system is the organ system in our body that breaks down food into simple substances so that the body can absorb nutrients and use them for energy, growth, and repair.

It includes parts like the mouth, stomach, intestines, and helper organs like the liver and pancreas.

Cells
↓
Tissue
↓
Organ
↓
Organ System

39



8 4 8 12

32

Salivary amylase

1. Mouth (Buccal Cavity)

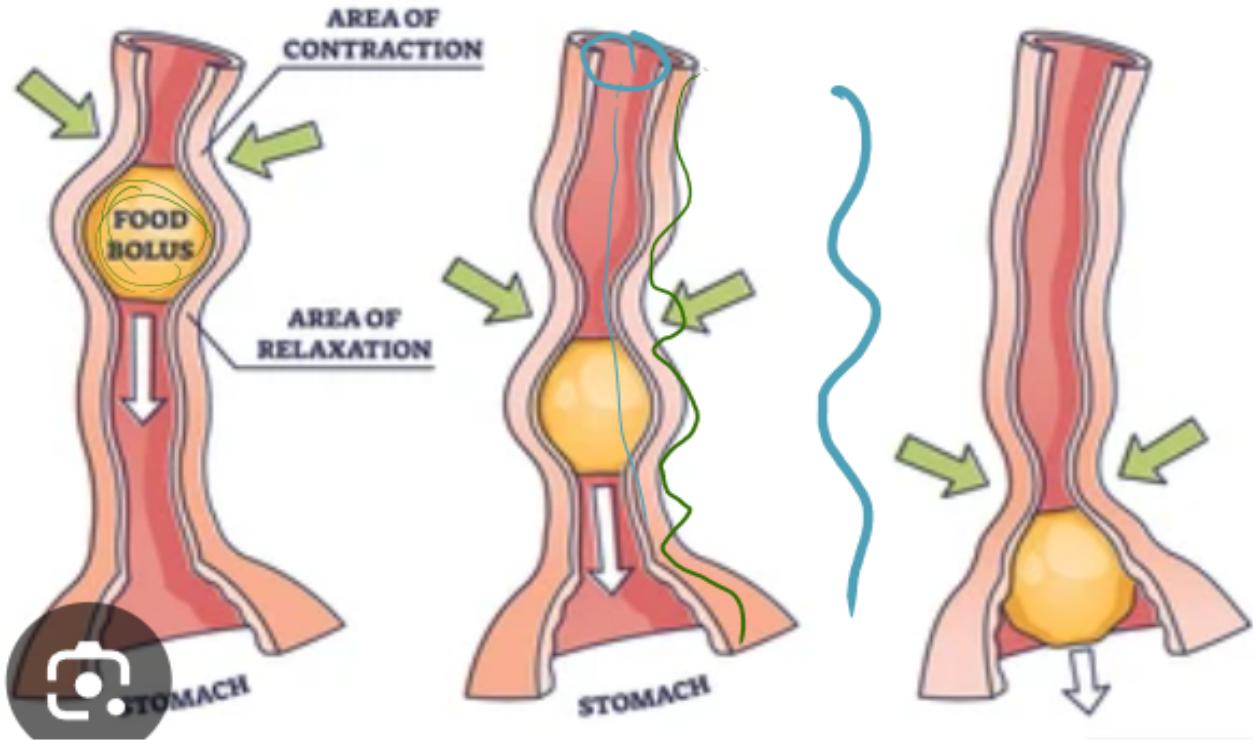
- The buccal cavity is the mouth which contains the teeth, tongue and the palate. This is the beginning of the alimentary canal and thus digestion. The food enters the mouth and is mechanically ground by the different sets of teeth, like the incisors, canines, premolars and the molars.

- The salivary glands present here secrete the clear liquid, saliva, that helps in lubricating the food.
- The saliva is mixed with the food by the tongue, that has the taste buds for detecting the various tastes.
- This turns the chewed food into a ball called as bolus, which travels down the alimentary canal for further digestion

Starch
↓
Sugar

(V) (V)
(A) (D)

PERISTALSIS



Food Pipe
(Oesophagus)

Bolus is a soft, round lump of chewed food that forms in the mouth before it is swallowed.

How it is formed?

Chewing (Mastication):

When we eat, our teeth break the food into smaller pieces.



Saliva mixes:

Our salivary glands release saliva.



Saliva makes the food wet and slippery.

It also has enzymes (like amylase) that start digestion.

Tongue action:

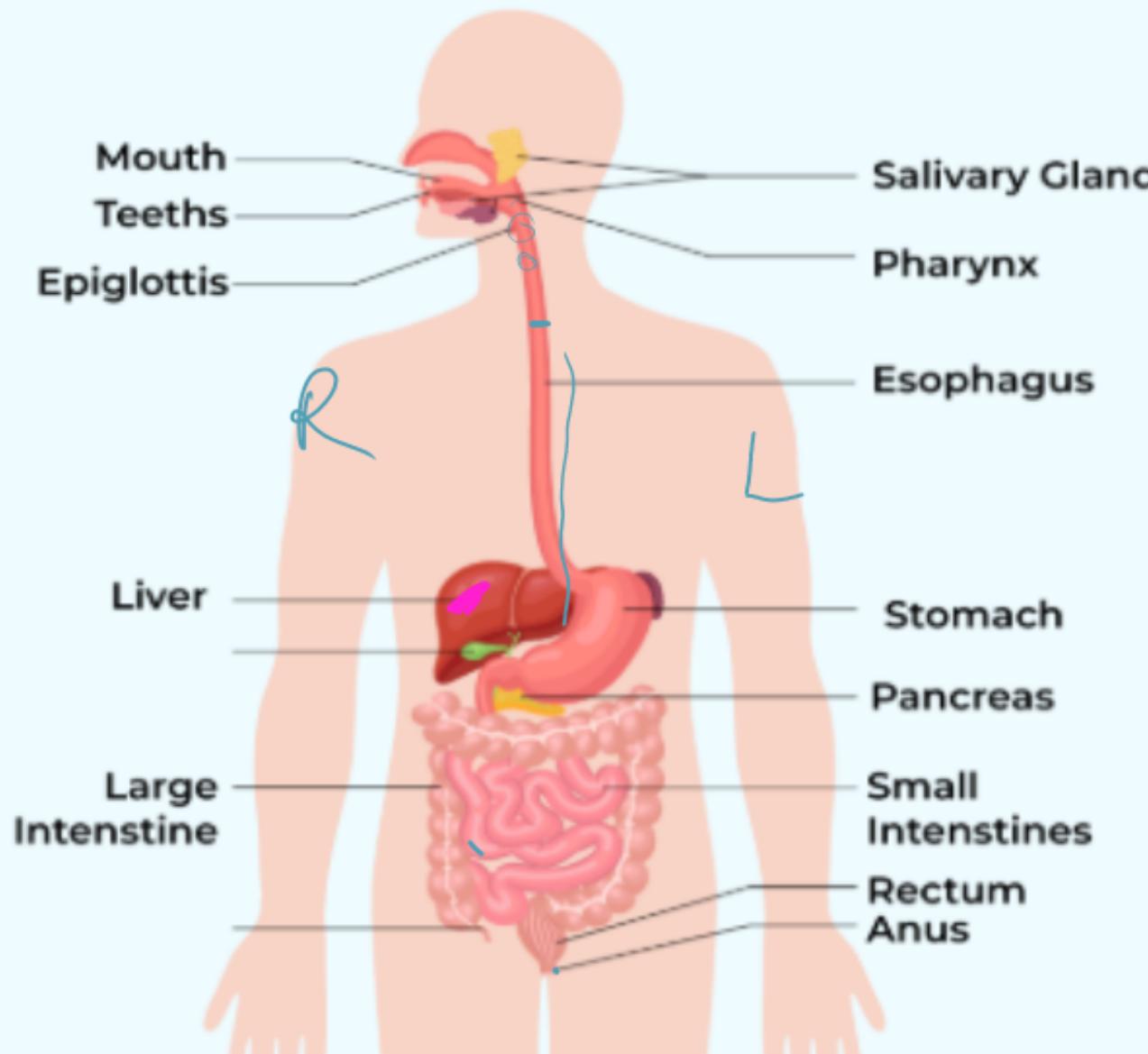
The tongue rolls this soft, moist food into a small ball — this is called a bolus.



Peristalsis is a wave-like movement of muscles that helps push food through the esophagus (food pipe) and other parts of the digestive system.



Human Digestive System



2. Oesophagus (Food Pipe)

The bolus is pushed down the oesophagus using a wave-like movement called peristalsis.

It connects the mouth to the stomach.



3 Stomach :

The stomach is flattened in the J shape and is a thick-walled bag-like organ.

It is the widest part of the alimentary canal. It is located on the left side of the body.

It receives food from the food pipe at one end and opens into the small intestine.

The stomach's inner lining secretes mucus, hydrochloric acid and a protein-digesting enzyme (pepsin).

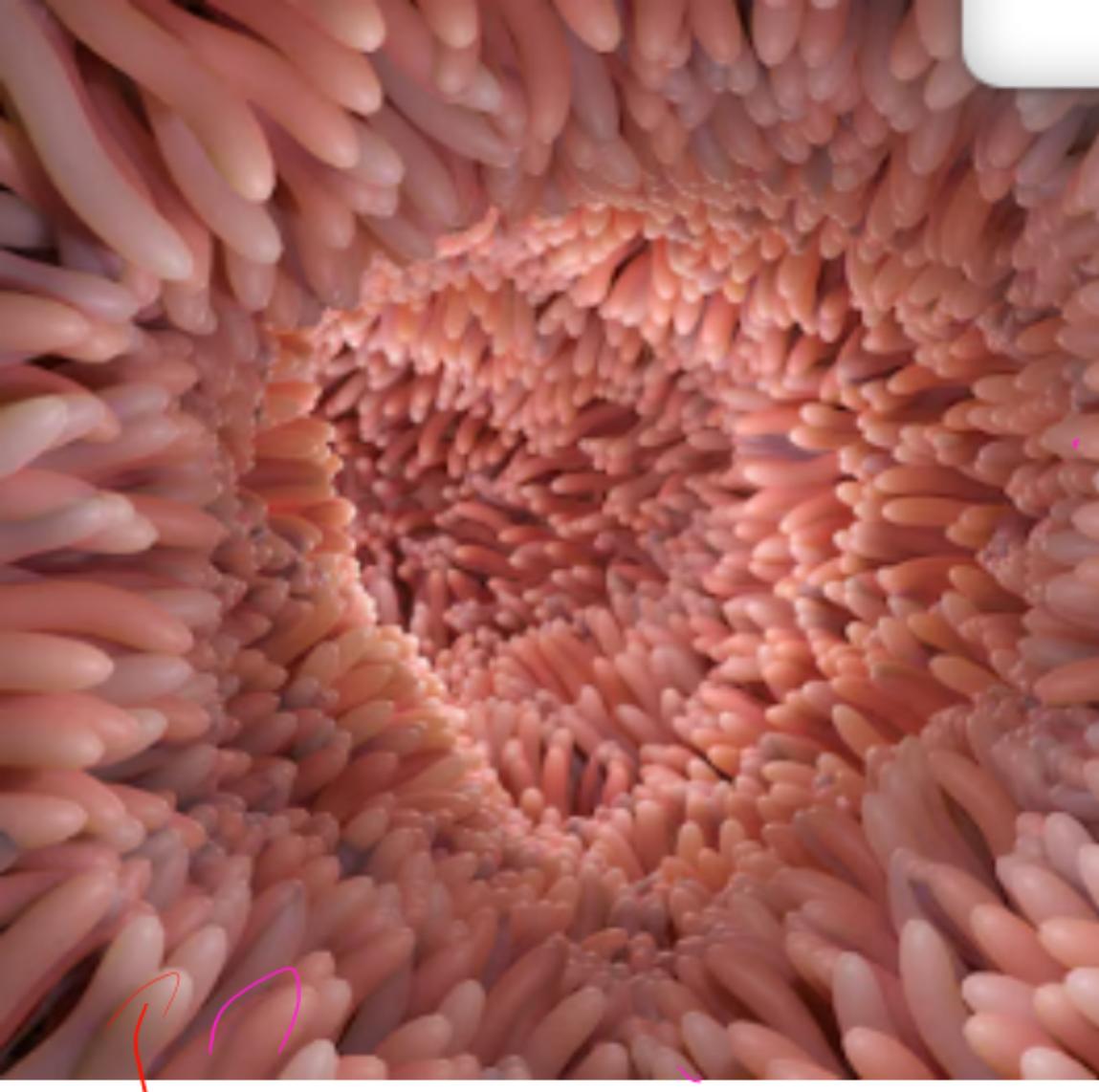
Function of the stomach

The mucus protects the lining of the stomach.

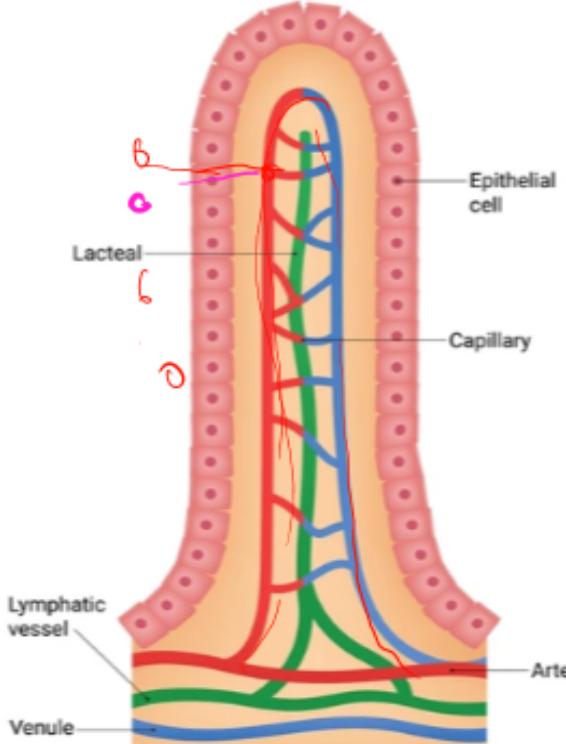
The acid kills many bacteria that enter along with the food and makes the medium in the stomach acidic so that enzymes may act on the food.

The protein-digesting enzyme breaks down the proteins into simpler substances.

HCl  **Gastric Juices**



Intestinal Villi



4. Small Intestine

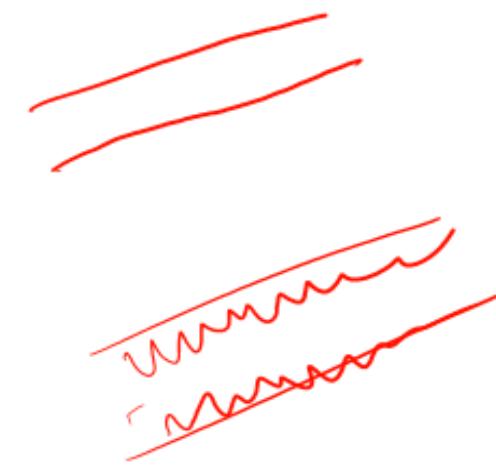
The longest part of the digestive system (about 6–7 meters).

- Most of the digestion and absorption of food happens here.

Liver and pancreas send juices to help:

Liver sends bile (breaks fat)

Pancreas sends enzymes to digest proteins, fats, and carbohydrates.



At the end of the small intestine, intestinal juice completes the process of digestion of food, and carbohydrates are broken into glucose, fats into fatty acids and proteins into amino acids.

Nutrients are absorbed by tiny finger-like structures called villi into the blood.

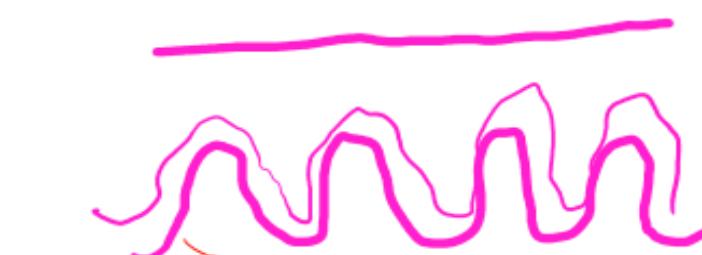
Liver → Bile juice
↓ store in

Gall Bladder

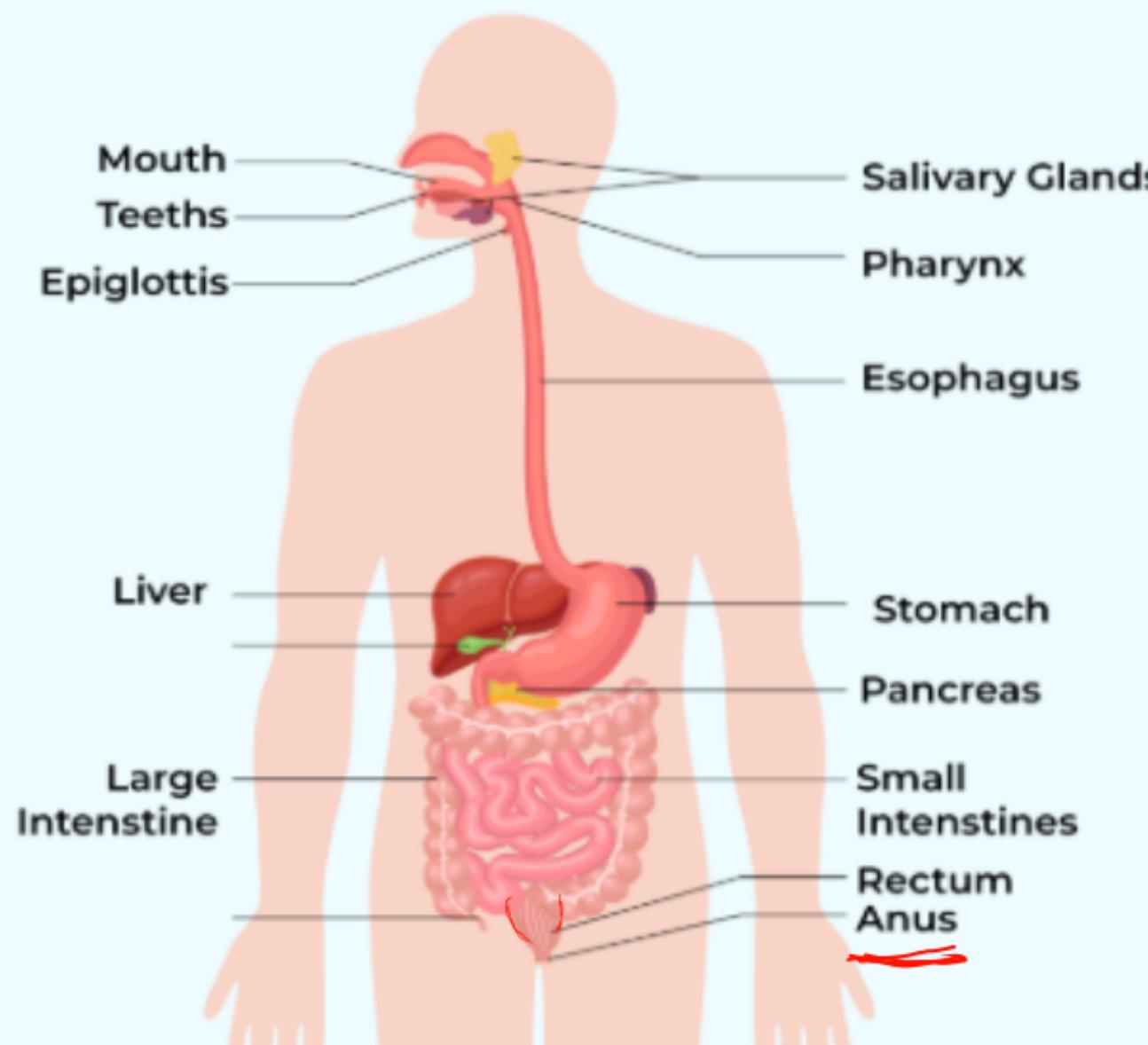
↓ releases in
Small intestine

Absorption

Villi (villus)



Human Digestive System



✓ 5. Large Intestine

Absorbs excess water from undigested food.
Remaining waste becomes solid.

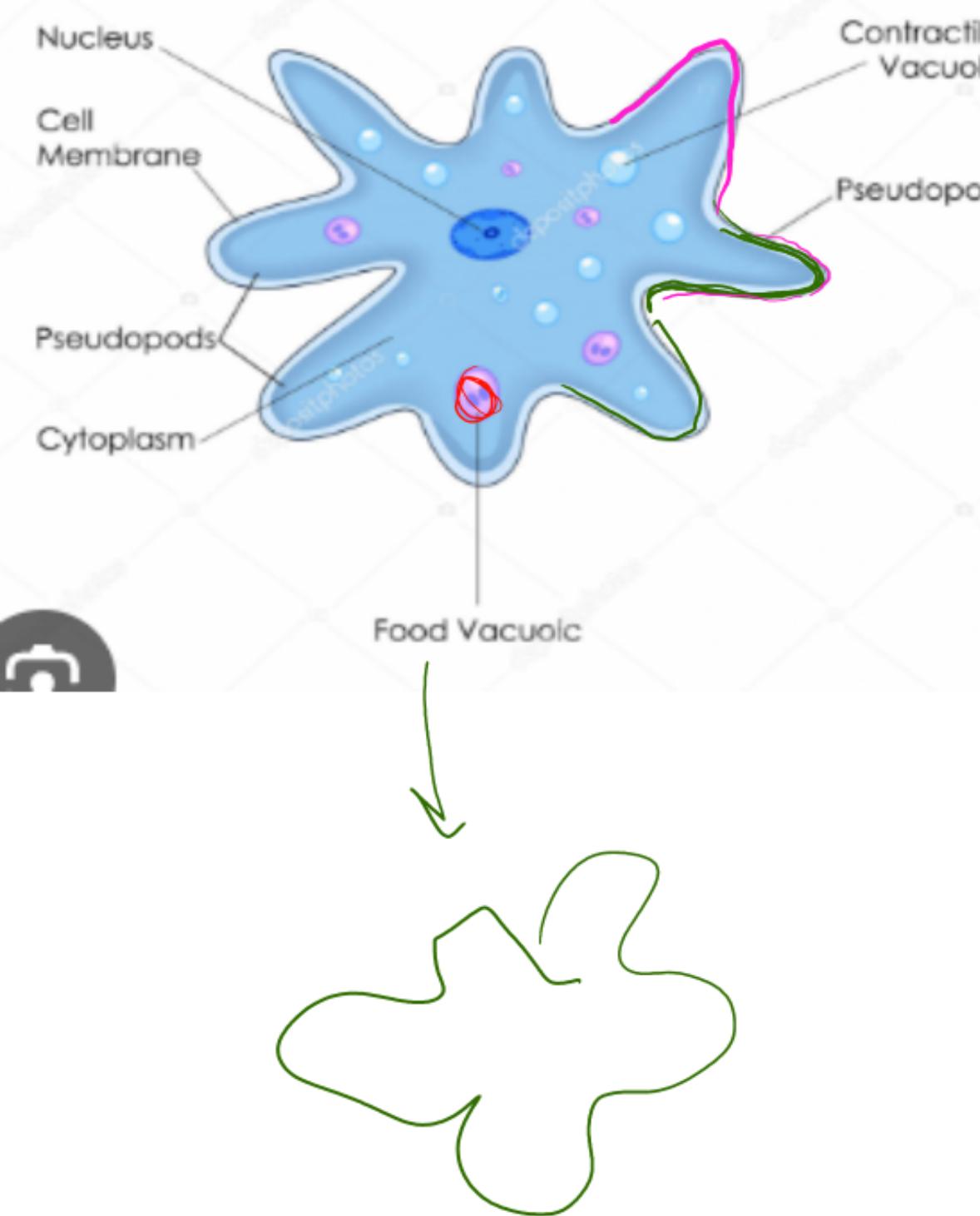
✓ 6. Anus

Waste is removed from the body as faeces through the anus.
This process is called egestion.

ingestion

egestion

Amoeba



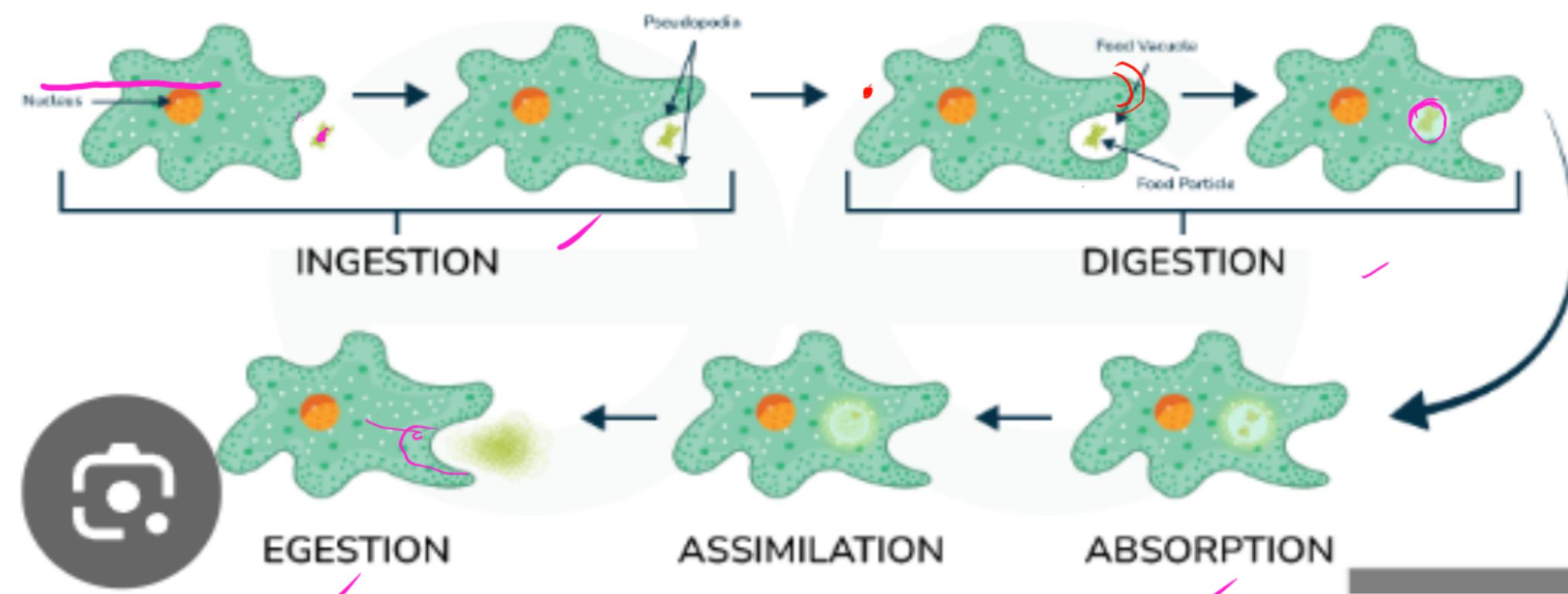
1. What is Amoeba?

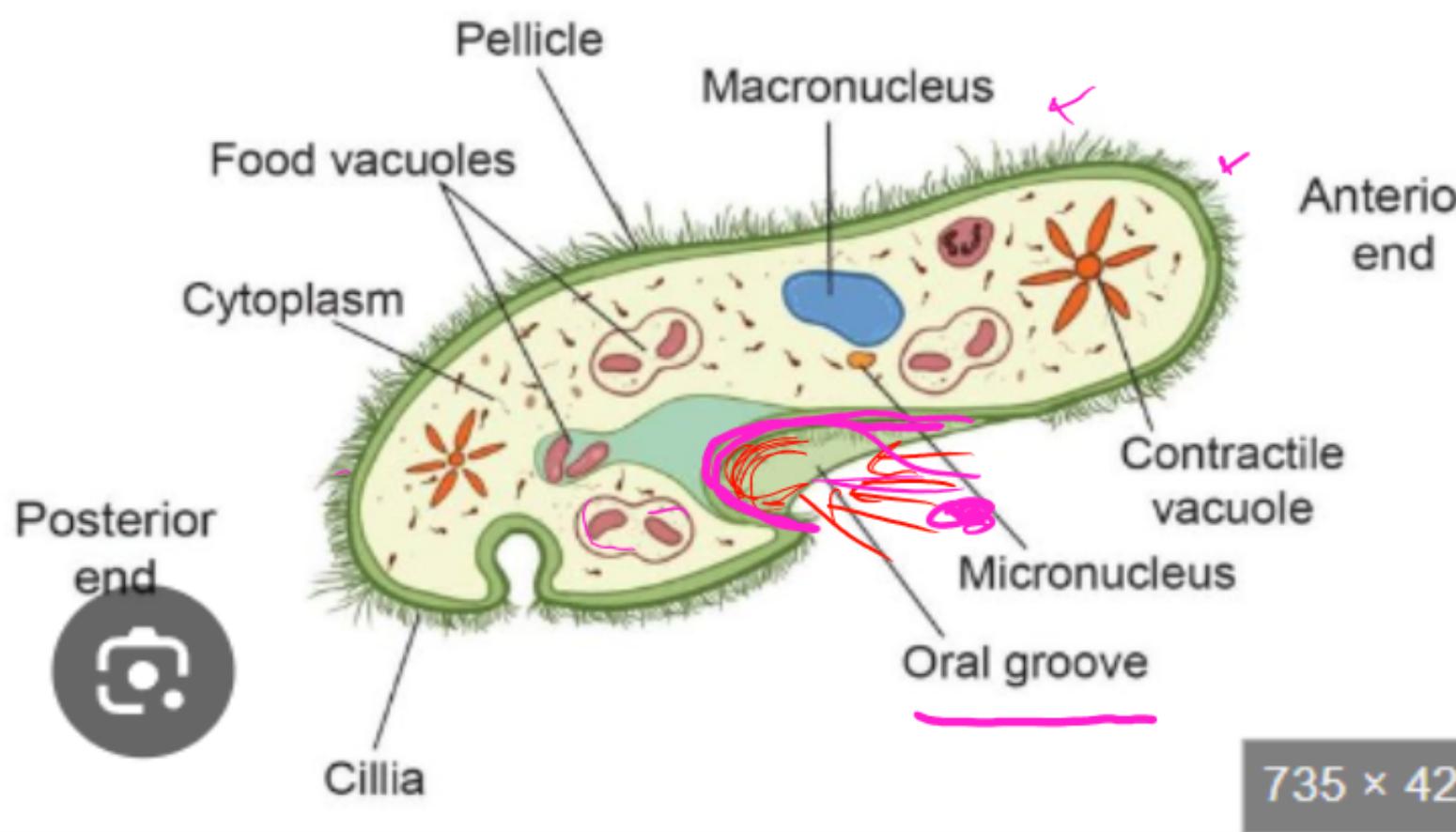
Amoeba is a unicellular organism (made of only one cell).

It lives in pond water, lakes, and moist soil.

It is a protozoan (animal-like microorganism).

Nutrition in Amoeba





735 × 429

The oral groove is a slit-like depression (or groove) on one side of the paramecium's body.

It acts like a mouth.

What does it do?

Cilia (tiny hair-like parts) around the oral groove beat back and forth.

This movement pushes food particles and water into the groove.

Food (like bacteria, algae, and other tiny organisms) is then passed into the inner part of the cell for digestion.

1. What is Paramecium?

Paramecium is also a unicellular protozoan.

It lives in fresh water, like ponds and lakes.

It is more organized than Amoeba.

What is it?

A food vacuole is a bubble-like structure that forms inside the paramecium after food enters.

It contains food surrounded by digestive juices (enzymes).

What does it do?

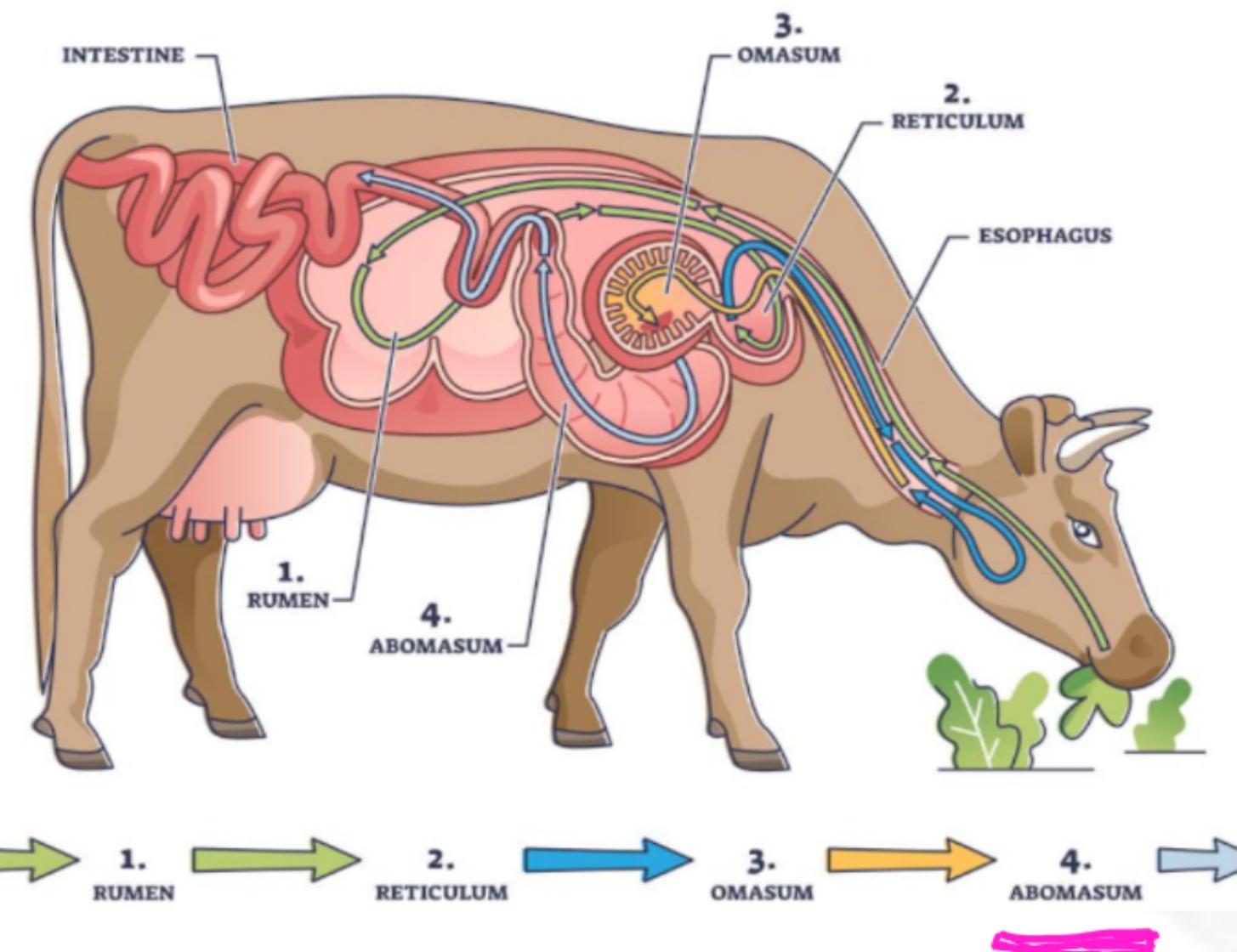
The food is digested inside the food vacuole.

Nutrients from the food are absorbed into the cell.

Undigested food is pushed out of the body through a special spot called the anal pore.



RUMINANT DIGESTION



Ruminants are animals like cows, buffaloes, goats that eat plant-based food (grass).

They have a special stomach with four parts to digest tough food like cellulose (found in grass).

Those 4 parts are : Rumen, Reticulum, Omasum, Abomasum

Steps of Digestion in Ruminants:

1. Chewing and Swallowing:

They quickly swallow the grass without chewing much.
The food goes to the first stomach called the rumen.

2. Fermentation in Rumen:

In the rumen, bacteria break down cellulose into simpler substances.

3. Cud Chewing (Rumination):

The partially digested food (called cud) is brought back into the mouth. They chew it slowly for hours. This is called ruminant.

Ruminants

4. Swallowing Again:

After chewing, it goes to the other three parts of the stomach for further digestion.

5. Intestine:

Final digestion and nutrient absorption happens in the small intestine.

2. Steps of Digestion in Starfish:

Step	What Happens
1. Catching prey	Starfish uses its tube feet to open the shell of a clam or mussel.
2. Evertting the stomach	It pushes out its cardiac stomach through its mouth and into the shell of the prey!
3. External digestion	The stomach releases digestive enzymes onto the prey's soft body, and digestion begins outside the body.
4. Pulling back	The starfish then pulls the stomach back into its body with the partially digested food .
5. Final digestion	Inside the starfish, digestion is completed in the pyloric stomach and digestive glands .

