

**NORTH POINT SENIOR SECONDARY BOARDING
SCHOOL , ARJUNPUR**

CLASS VII

SUBJECT – SCIENCE (BIOLOGY)

CHAPTER : NUTRITION IN ANIMALS

TEACHER : PARAMITA PAL

To know about

- steps in animal nutrition.
- nutrition in *Amoeba*.
- nutrition in humans.
- nutrition in grass-eating animals.

In chapter 1, you have learnt about nutrition in plants. You have also learnt that animals are heterotrophic in their mode of nutrition. They cannot prepare their own food. They eat either plants or animals.

Do you remember the food items which we get from plants and animals? For a quick recap, bread (made from wheat flour), rice, dals, fruit and vegetables are obtained from plants. Milk, curd, cheese, eggs and meat come from animals. The food, thus obtained, is used for growth, repair and functioning of the body.

In this chapter, we will learn about nutrition in animals.

2.1 STEPS IN ANIMAL NUTRITION

Majority of animals take food in the form of solids. *This form of nutrition in which food is eaten in solid form is called holozoic nutrition.*

As the food eaten consists of complex substances such as carbohydrates and proteins, these are broken down in the animal body to utilize the nutrients.

The food eaten by animals undergoes five steps:

Ingestion, digestion, absorption, assimilation and egestion.

Ingestion: *The process by which food is taken inside the body of an organism is called **ingestion**.*

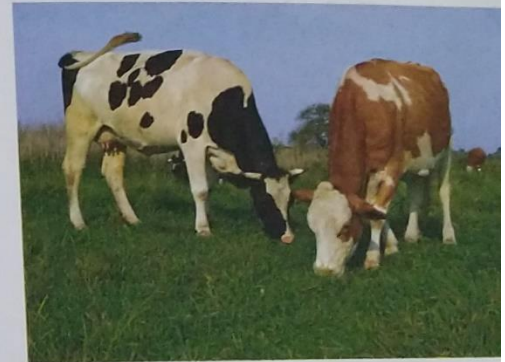


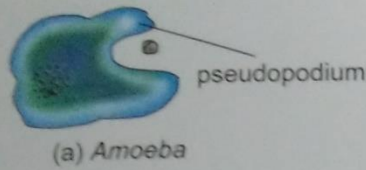
Fig. 2.1: Cows eating grass



Do you know?

Why can't your body use the form in which you eat it?

- Many food items do not dissolve in water, which means these cannot get through cell membranes.
- The things you eat are chemically complex, so cells cannot break them down either to release energy or use them for growth.



(a) Amoeba



(b) Spider web



(c) Butterfly



(d) Frog

Fig. 2.2: Methods of getting food

Different organisms use different methods to get food. There are special structures in each organism for taking food inside the body. Figure 2.2 shows the mode of obtaining food in case of some organisms.

- In *Amoeba*, **false foot (pseudopodium)** is used to engulf the food particle [Fig. 2.2(a)].
- A spider weaves a **web** to catch the prey [Fig. 2.2(b)].
- A butterfly uses its **feeding tube** to suck nectar from flowers [Fig. 2.2(c)].
- The mosquitoes feed on the blood of animals and obtain it through their **feeding tube** by sucking.
- A frog uses its **tongue** to catch its food [Fig. 2.2(d)].
- A starfish gets its food in an amazing method. It feeds on small animals like snails, fish and worms. The tube feet, present in the body of a starfish, capture the food. Now the starfish pops out its stomach through its mouth and wraps the stomach around the captured animal. The stomach is then withdrawn into the body, where the food is digested.
- Snakes like the python **swallow** the animals they prey upon.
- We use our **hands** to put food in our mouth.

Activity 2.1

(Study)

To study the type of food and the mode of feeding in some animals

Observe/find out and note down the type of food eaten and the mode of feeding in the animals given in the table:

Type of food eaten and the mode of feeding in animals

S. No.	Name of the animal	Type of food eaten	Mode of feeding
1.	Ant		
2.	Crow		
3.	Wall lizard		
4.	Snail		
5.	Louse		
6.	Housefly		
7.	Hummingbird		

Digestion: The food taken in is solid and complex. The process of converting or breaking down complex food into simple and soluble forms is called **digestion**. Most animals use both physical and chemical methods for converting the complex food into simpler soluble form.

Absorption: It is the process by which the digested nutrients are taken to different parts of the body by the circulatory system (through blood). The cells in the body then absorb these digested food molecules.

Assimilation: It is the process of using absorbed food molecules for producing energy and growth.

Egestion: The process of removing undigested food materials from the body is called **egestion**.

2.2 NUTRITION IN AMOEBIA

Amoeba is a microscopic, single-celled organism found in pond water. It is a simple organism having an irregular shape. Its body consists of a cell membrane, a rounded nucleus and many bubble-like vacuoles (Fig. 2.3).

Amoeba is capable of constantly changing its shape and position. It gives out one or more finger-like projections called **false feet** or **pseudopodia** (singular pseudopodium). These help in movement and capturing food. *Amoeba* does not have a mouth or a digestive system.

Its food consists of microscopic organisms. On sensing food, *Amoeba* gives out pseudopodia which surround the food particle and ultimately take the food particle inside the body. The food particle inside the *Amoeba* forms a **food vacuole**.

Digestion of the food particle is a chemical process and is performed by **digestive juices** (called **enzymes**). The digestive juices are secreted into the food vacuole and help in breaking down food into simpler substances. Then the digested food is absorbed. On assimilation, the *Amoeba* grows in size. The undigested food is thrown outside at any point with the help of a temporary vacuole.

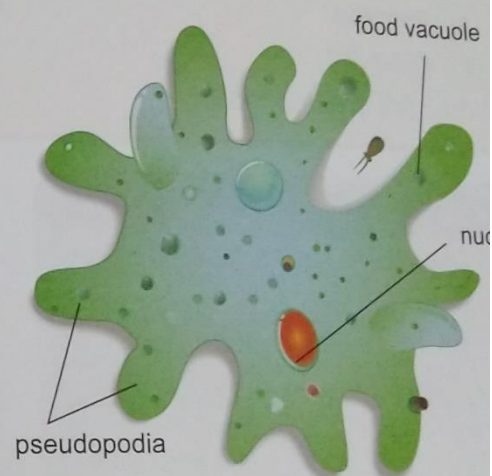
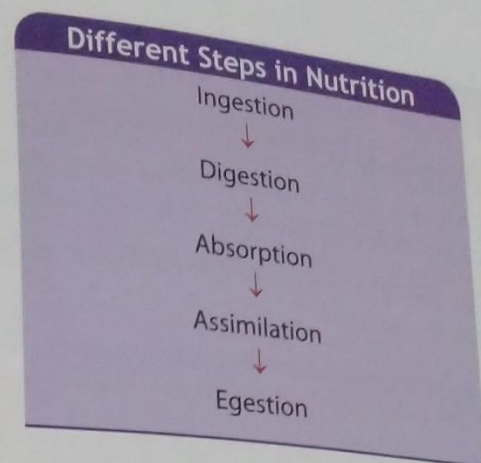
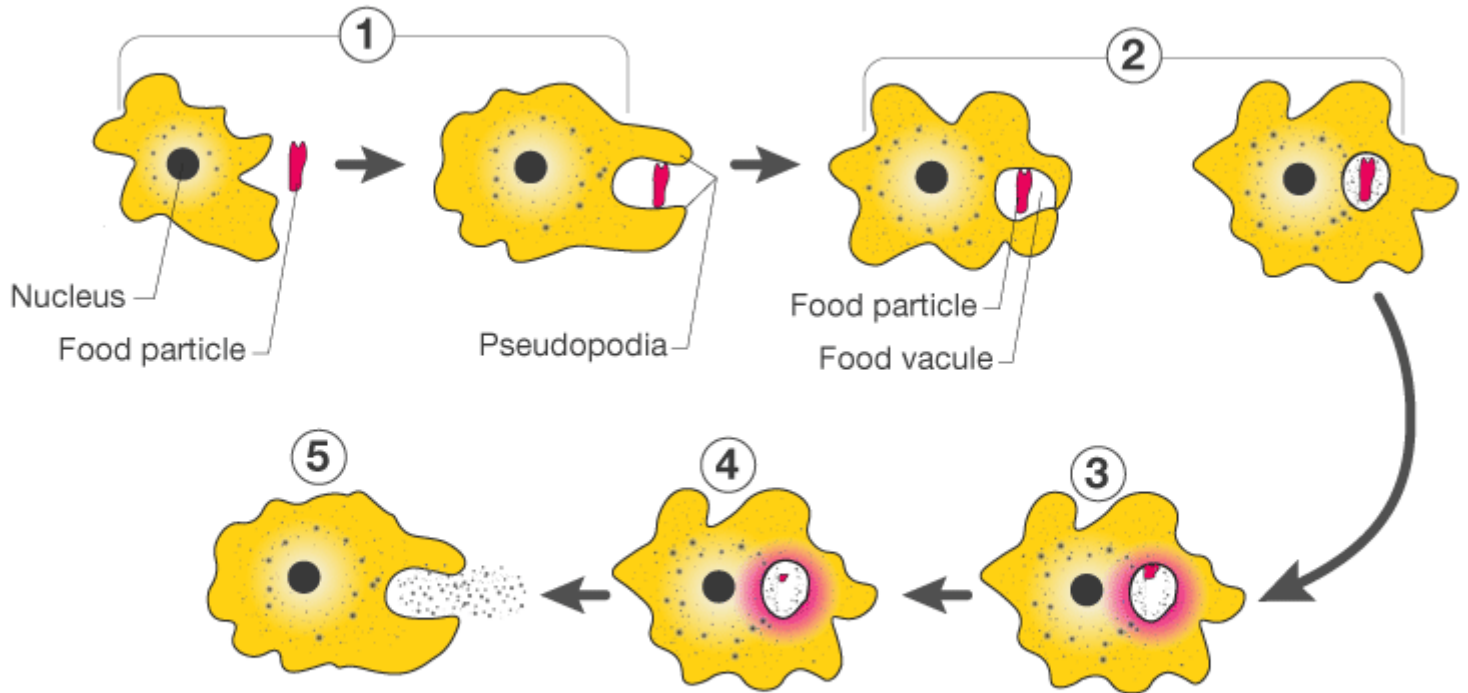


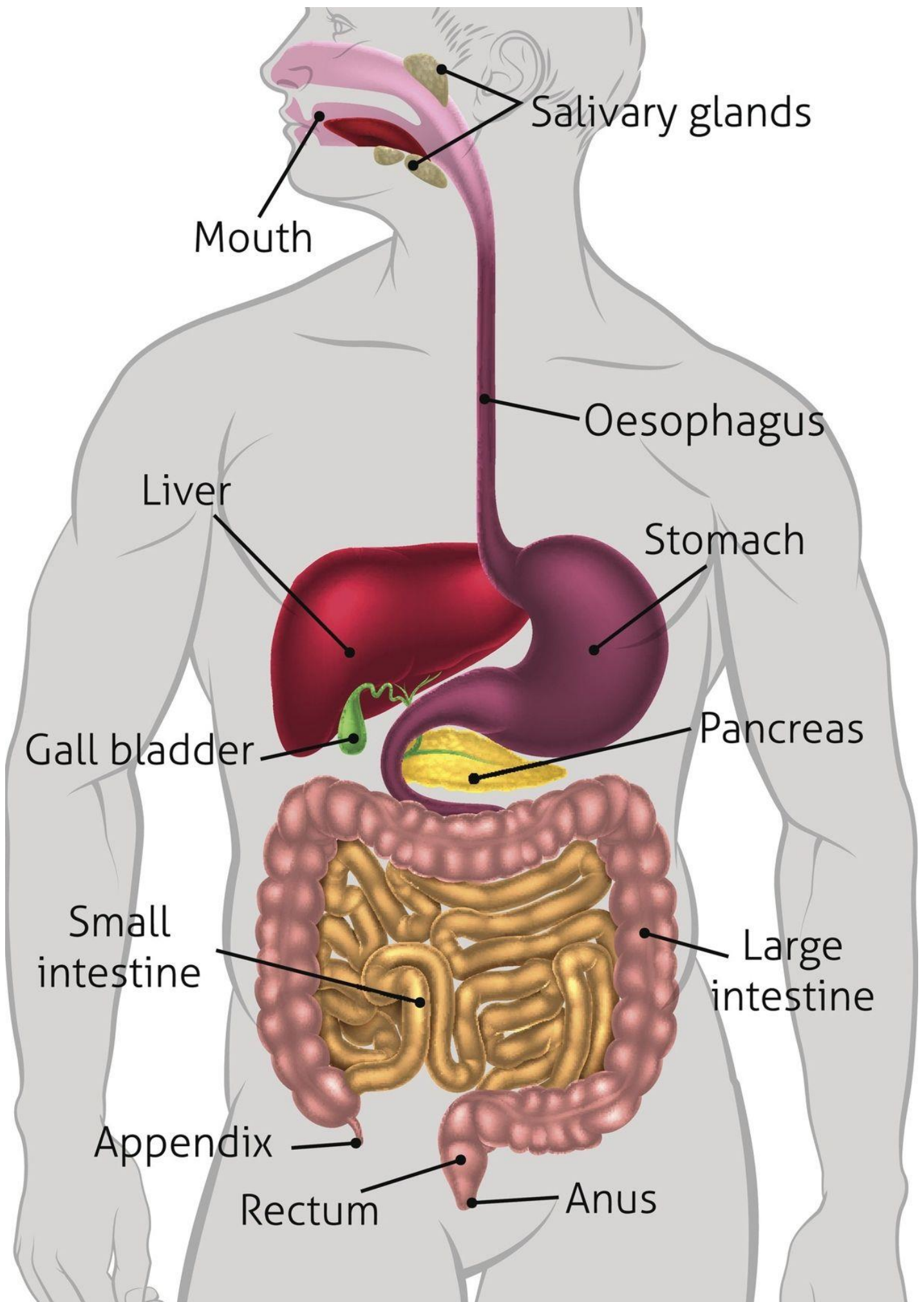
Fig. 2.3: Structure of Amoeba

Enzymes

These are special molecules in cells which help in the breakdown of complex food into simpler form.



1 Ingestion | 2 Digestion | 3 Absorption | 4 Assimilation | 5 Egestion



Answer Orally

1. Define the following.
 - (a) Holozoic nutrition
 - (b) Ingestion
 - (c) Digestion
 - (d) Absorption
 - (e) Assimilation
 - (f) Egestion
2. Name the organs of ingestion in the following organisms.
 - (a) *Amoeba*
 - (b) Butterfly
 - (c) Frog
 - (d) Mosquito
3. What are pseudopodia?

Alimentary Canal

- The canal through which food passes, starting from the mouth
- Also called **food canal** or **digestive tract**

2.3 NUTRITION IN HUMANS

We human beings eat food everyday. What happens to the food? Where does it go?

You have already learnt that humans are omnivores. Our body is therefore, able to digest both plant and animal food.

We take in food through our mouth. From there, it passes through a number of organs in the body. These organs together form a **food canal** called **alimentary canal** or **digestive tract**.

The alimentary canal is a long and coiled tube. It consists of the following seven organs (Fig. 2.4):

- (i) Mouth and mouth cavity (buccal cavity)
- (ii) Oesophagus or food pipe
- (iii) Stomach
- (iv) Small intestine
- (v) Large intestine
- (vi) Rectum
- (vii) Anus

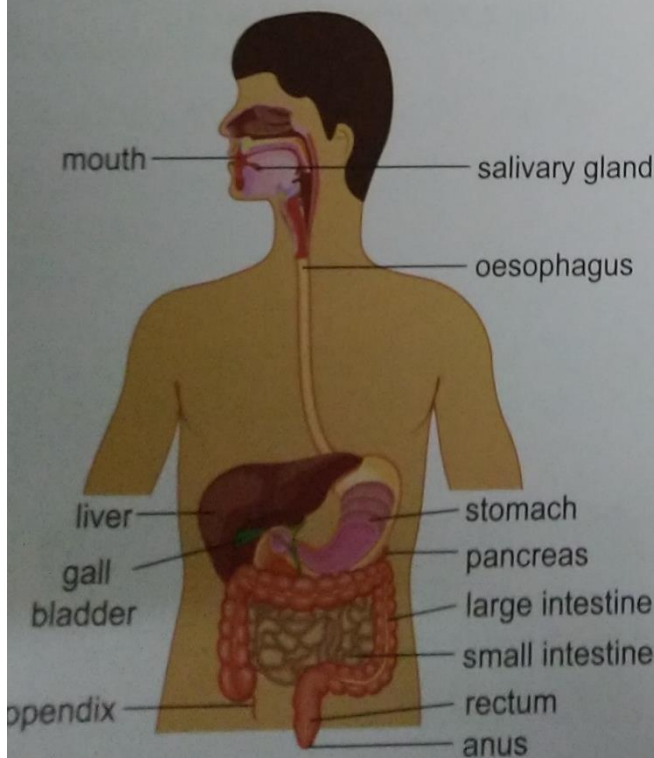


Fig. 2.4: Human digestive system

ASSIGNMENT 1 (NUTRITION IN ANIMALS)

1. WRITE ALL THE ANSWERS OF ' ANSWER ORALLY' GIVEN IN PAGE NO.20 IN YOUR BOOK.
2. DRAW THE MODE OF NUTRION IN AMOEBA FROM THE NOTES GIVEN AVOBE.
3. PRACTICE THE LABELLING OF HUMAN DIGESTIVE SYSTEM.