

**NORTH POINT SENIOR SECONDARY BOARDING SCHOOL
ARJUNPUR**

CLASS – VII

SUBJECT – SCIENCE (BIOLOGY)

**CHAPTER – NUTRITION IN
ANIMALS**

TEACHER – PARAMITA PAL

NUTRITION IN GRASS EATING ANIMALS:

Food of grass eating animals consists of plant materials , particularly grass. Grass is rich in a specific carbohydrate called cellulose. Humans and many other animals cannot digest cellulose.

animals cannot digest cellulose. The grass-eating animals have a unique method of digesting cellulose.

Have you seen a cow or a buffalo doing something while resting? They keep chewing even when they are not eating. In fact, the grass-eating animals quickly swallow the **fodder** and store it in a separate part of the stomach called **rumen**. In the rumen, food is partially digested. The partially digested food is called **cud**.

The cud is then brought to the mouth in small lumps and chewed. *The process of chewing the cud is called **rumination*** and the animals are called **ruminants**. During rumination, cud mixes with saliva and becomes pulpy or semi-liquid paste. After chewing, the pulpy food is passed to the rest of the stomach.

Stomach in ruminants is different from the human stomach. In ruminants, stomach has four chambers—**rumen**, **reticulum**, **omasum** and **abomasum** (Figs. 2.10 and 2.11).

The first chamber of a ruminant stomach is the **rumen**. It is the largest chamber. As mentioned earlier, food is stored here and digestion of cellulose also takes place here.

From the rumen, the food enters the second chamber called the **reticulum**. In fact, the rumen and reticulum are closely associated and their contents mix freely. In these two chambers, the food is partially digested and converted into a soft pulp called the cud.

The pulpy food is brought back to the mouth when the animal is resting. After chewing, the food from the mouth is pushed into the third chamber called the **omasum**. It is the smallest chamber. From here, food enters the fourth chamber called the **abomasum**. This is the true stomach. Digestive juice is secreted here to help in the process of digestion. From the fourth chamber, the food enters the small intestine. Absorption of nutrients occurs here.

Why have ruminants developed the habit of ‘chewing the cud’?

This is basically a survival mechanism. For their food, carnivores are on the lookout for herbivores. The herbivores, to avoid being caught, quickly eat their food and then reach a safe place. Now, they chew and digest the food.

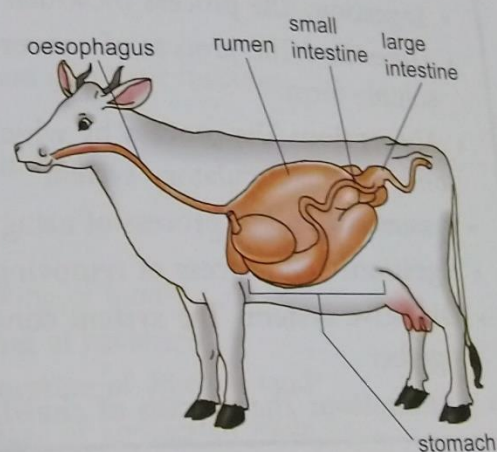
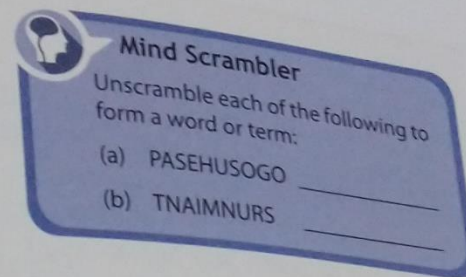


Fig. 2.10: Stomach of a ruminant

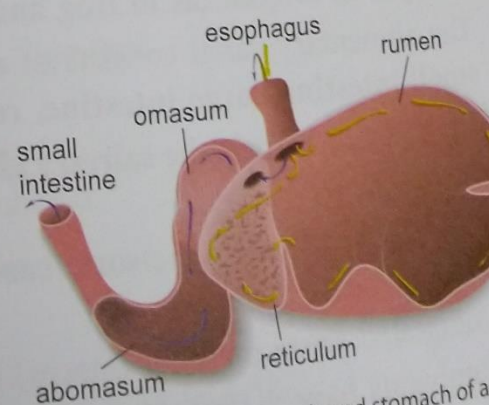
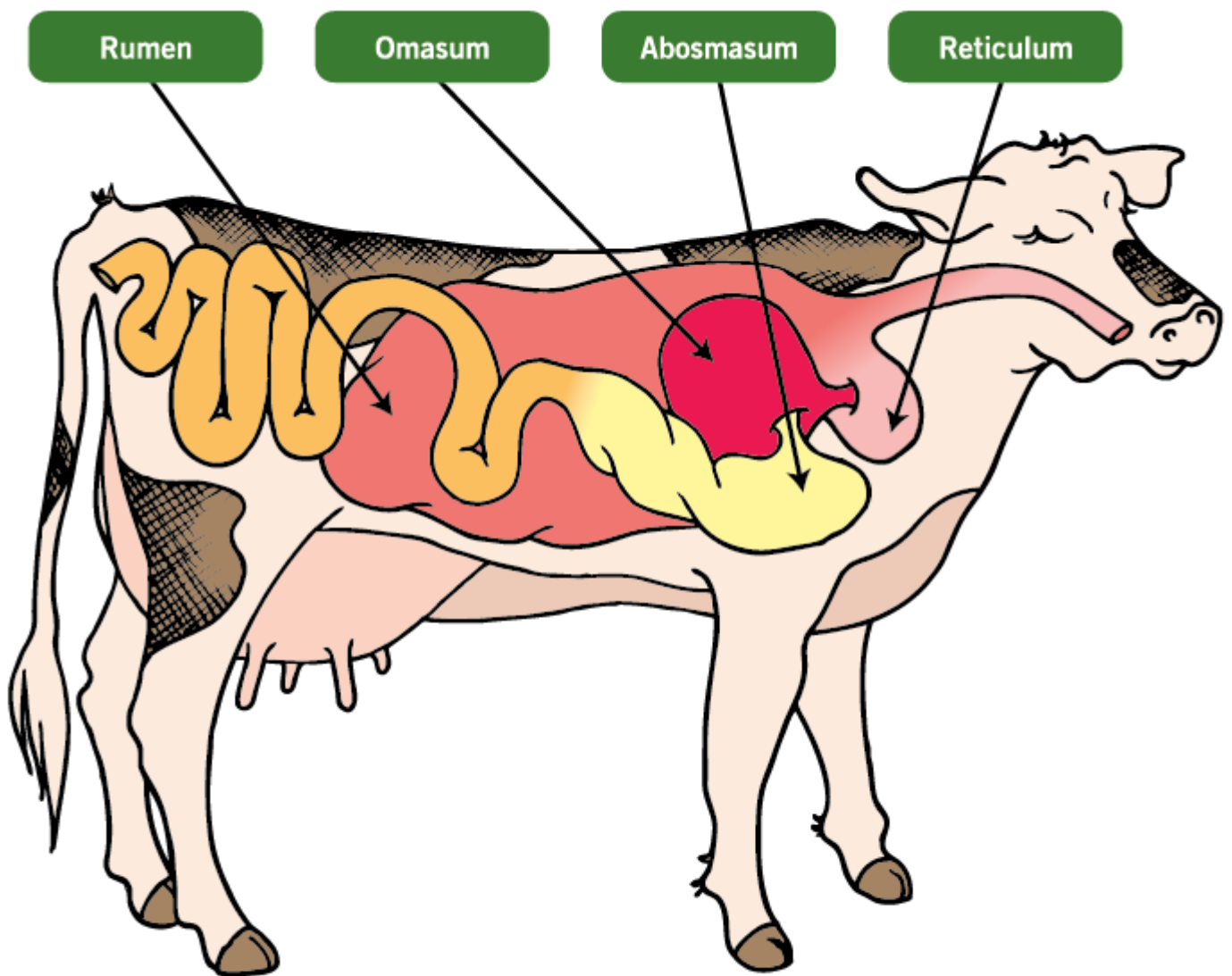
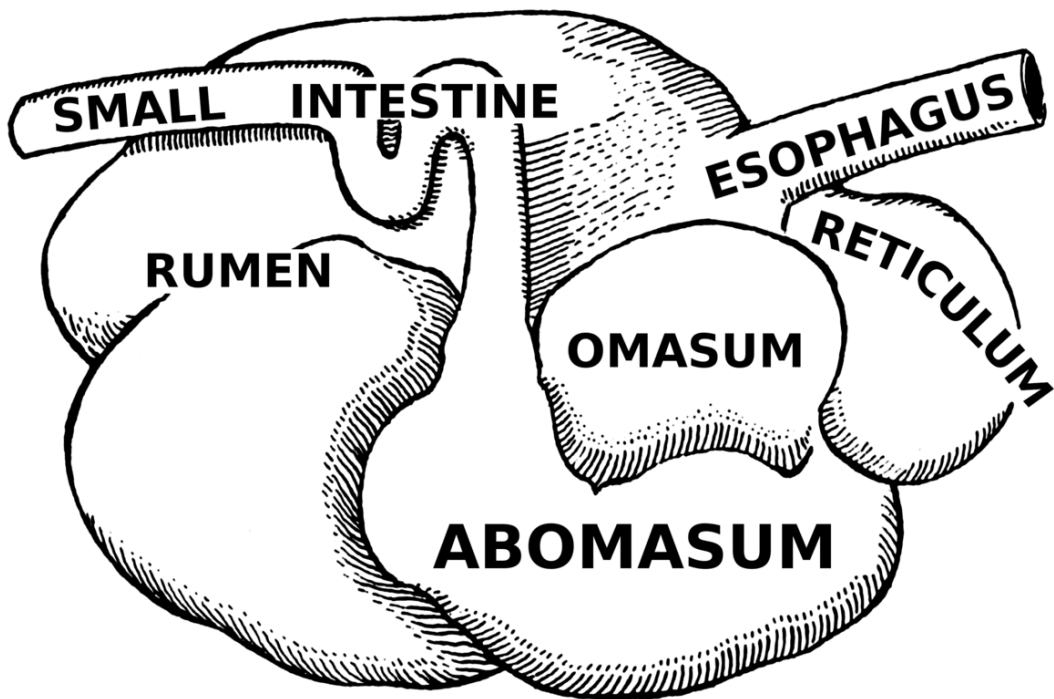


Fig. 2.11: Four-chambered stomach of a ruminant (cow)



A. Answer in Detail

1. Draw a labelled diagram of the human digestive system.
2. Mention the functions of each of the following:
(a) Saliva (b) Tongue (c) Pancreas (d) Liver (e) Pseudopodia
3. How does digestion take place in ruminants? Explain with the help of a diagram.
4. How is digestion different in humans from that of ruminants?
5. Give differences between the following:
(a) Alimentary canal and digestive system (b) Food canal and food pipe

B. Answer Briefly

1. What is bile? Where is it produced? Give its functions.
2. List various steps in the process of nutrition.
3. Name the four different types of teeth found in humans and give their function.
4. What are villi? What is their location and function?
5. What are the two roles performed by the small intestine in humans?
6. Where does digestion start in humans?
7. Which part of the alimentary canal is involved in
(a) ingestion of food? (b) chewing of food?
(c) pushing down of food? (d) killing of bacteria?
(e) complete digestion of food? (f) absorption of digested food?
(g) absorption of water? (h) storage of undigested waste food?

C. Answer in One Word or a Few Words

C1. Fill in the blanks.

1. Nutrition in most animals is _____.
2. The process of converting food into simpler and soluble form is called _____.
3. Chewing of food is a _____ process.
4. The digestive juices in the stomach help to breakdown _____ into simpler substances.
5. Villi are present on the inner wall of _____ intestine.
6. Liver secretes _____ into the small intestine.
7. In *Amoeba*, _____ are used for procuring food.
8. The stomach in ruminants is _____ chambered.

C2. State whether the following statements are True (T) or False (F).

1. In an adult human, the total number of incisors are 4. []
2. Food pipe is also called alimentary canal. []
3. The U-shaped structure in the upper abdomen which receives food from the food pipe is called the stomach. []
4. Food is mostly digested in the stomach. []

5. Bile juice is stored in the gall bladder.
6. Absorption of digested food takes place in the large intestine.
7. Ruminants can digest cellulose, which cannot be digested by humans.
8. Cud chewing is a feature found in ruminants.

C3. Match the two columns.

Column A

1. Deer
2. *Amoeba*
3. Humans
4. Mouth cavity
5. Liver
6. Stomach
7. Small intestine
8. Large intestine

Column B

- (i) Food vacuole
- (ii) Omnivore
- (iii) Ruminant
- (iv) Bile juice
- (v) Hydrochloric acid
- (vi) Saliva
- (vii) Absorption of water
- (viii) Villi

C4. Multiple Choice Questions (MCQs): Choose the correct answer for each of the following.

1. Feeding tube is present in
 (a) spider. (b) butterfly. (c) frog. (d) *Amoeba*.
2. Humans are
 (a) herbivores. (b) carnivores. (c) omnivores. (d) autotrophs.
3. The total number of teeth in an adult human is
 (a) 28. (b) 30. (c) 32. (d) 34.
4. Digestion of food starts in the
 (a) mouth. (b) stomach.
 (c) small intestine. (d) anywhere in the alimentary canal.
5. Most of the digestion takes place in the
 (a) stomach. (b) small intestine. (c) pancreas. (d) large intestine.
6. Fat is completely digested in the
 (a) mouth. (b) stomach. (c) small intestine. (d) large intestine.
7. The digestive juice present in saliva acts on
 (a) starch. (b) proteins. (c) fats. (d) cellulose.
8. Ruminants are able to digest _____ which humans cannot.
 (a) cellulose (b) carbohydrates (c) vitamins (d) complex food

DO AND LEARN

Class Presentations

1. Make a chart of digestive systems of a human being and a cow. Note down the differences between the two systems. Make a report and present in your class.
2. Make a PowerPoint presentation on digestion of food in animals.

