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PHOTOSYNTHESIS AND RESPIRATION

SUBJECT-BIOLOGY

CHAPTER NO- 4

NUTRITION- Different Modes of Nutrition, Comparison between Autotrophic and Heterotrophic Nutrition

PERIOD-1

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LEARNING OBJECTIVE

Students will be-

- explain the importance of nutrition in living organisms.
- Recall, compare and contrast the characteristics of autotrophic and heterotrophic nutrition.
- identify types of heterotrophic nutrition.
- identify organisms that use holozoic nutrition.

PRE-KNOWLEDGE QUESTIONS

- 1. How do plants obtain food?
- 2. What are the animals feeding on other animals called?
- 3. How head louse obtain food?
- 4. Animals those who eat plants and other animals are called_____.

NUTRITION

- **Nutrients** are the components found in our food such as carbohydrates, vitamins, minerals, fats, etc. These components are necessary for living organisms to survive.
- The process of obtaining food and utilizing it to grow, stay healthy and repair any damaged body part is known as **Nutrition**.

MODES OF NUTRITION

Types Of Nutrition

AUTOTROPHS

(autos : self ; trophos : feed)

Use simple inorganic substances and either light energy (photosynthesis) or chemical energy (chemosynthesis) to synthesise food.

HETEROTROPHS

Obtains energy through intake & digestion of organic substances (animal / plant tisssue)

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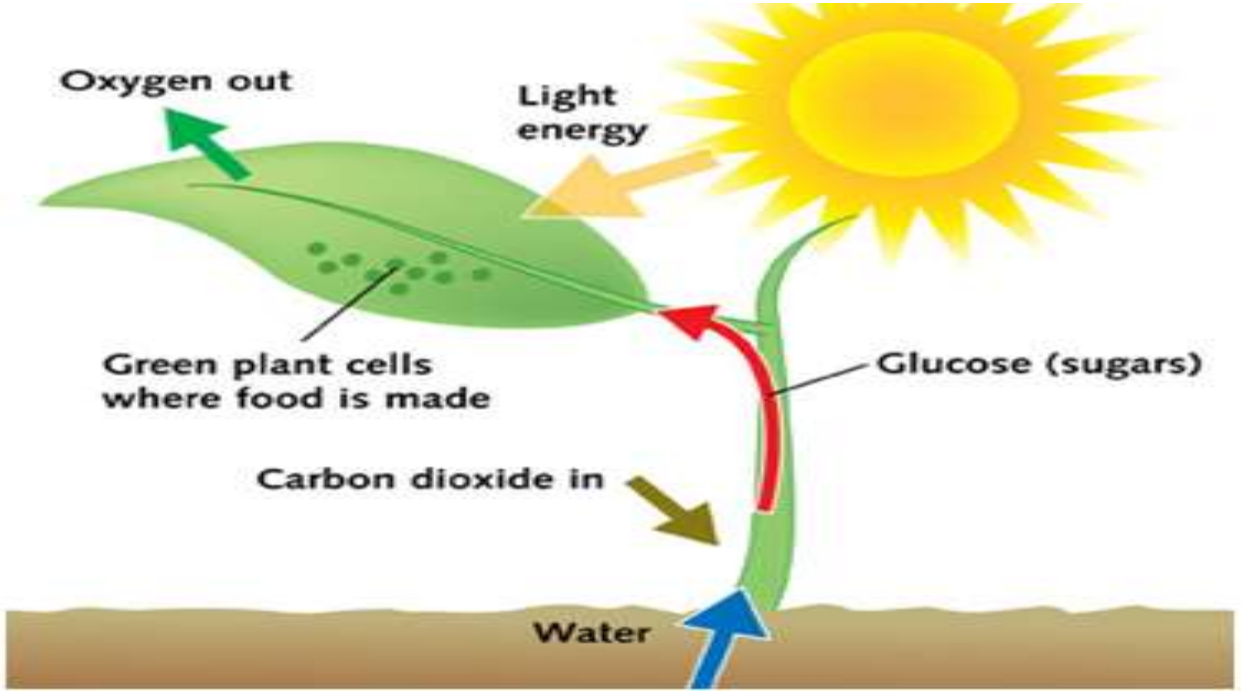
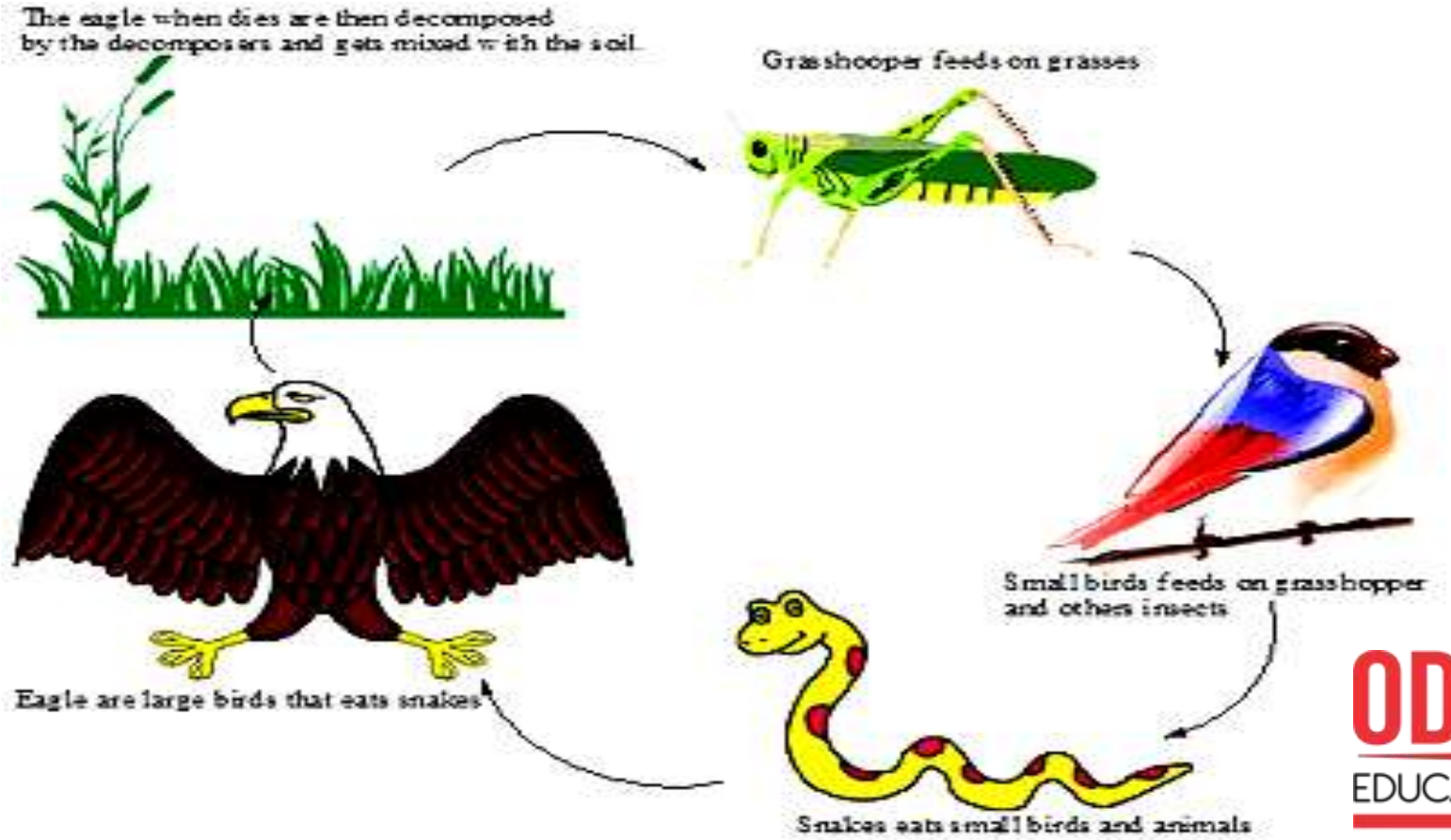
AUTOTROPHIC NUTRITION

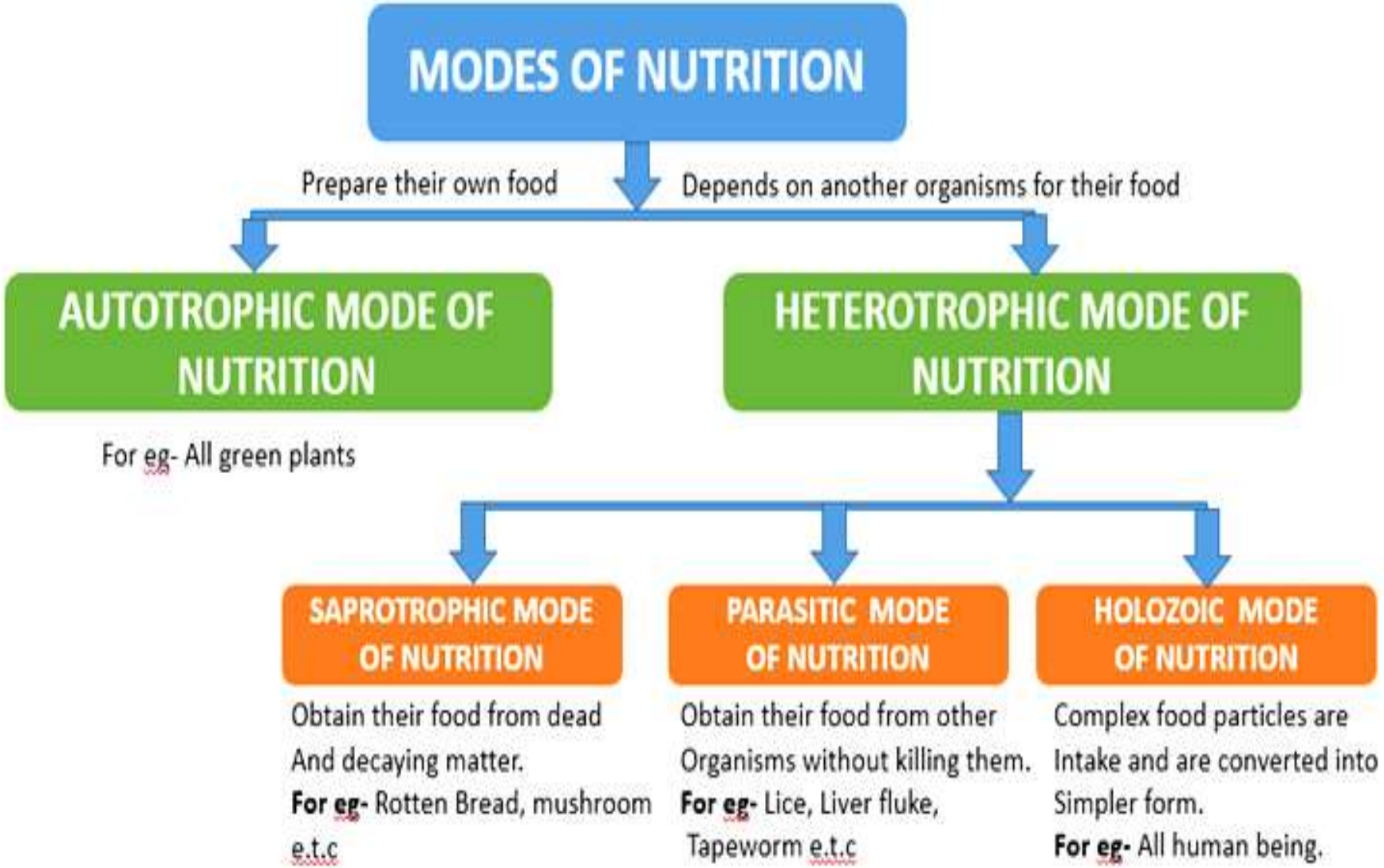
- Autotrophic – Plants exhibit **autotrophic nutrition** and are called primary producers. Plants synthesis their food by using light, carbon dioxide and water.
- Plants produce their food by taking raw materials from their surroundings, such as minerals, carbon dioxide, water and sunlight.



HETEROTROPHIC NUTRITION

Heterotrophic nutrition is a mode of **nutrition** in which organisms depend upon other organisms for food to survive. They can't make their food own like Green plants. **Heterotrophic** organisms have to take in all the organic substances they need to survive.





Holozoic nutrition:
The word holozoic is made from two words- holo= whole and zoikos= animals and literally means animals which eat their food whole. Complex food is taken into a specialist digestive system and broken down into small pieces to be absorbed. E.g.: human

Saprophytic nutrition:
In saprophytic nutrition, the organisms obtain their food from dead and decaying organic matter of dead plants, dead animals and other decomposing organic matter. Organisms feed on dead organic remains of other organisms. E.g.: decomposers.

Parasitic nutrition:
Organisms obtain food from other living organisms (the host), with the host receiving no benefit from the parasite. These parasites suck and feed on the blood of the host. E.g.: tapeworms.

Symbiotic nutrition:
Two organisms live in close association to benefit each other or one of the two benefits the other. E.g.: fungi and algae, Rhizobium and leguminous plants roots.

Types of holozoic nutrition

Herbivores

Organisms that feed on plants

Carnivores

Organisms that feed on other organisms

Omnivores

Organisms that feed on both plants and other animals

Autotrophic Nutrition	Heterotrophic Nutrition
• Organisms prepare their food on their own.	• Organisms depend on other organisms and materials to obtain nutrition.
• They require water, carbon dioxide, chlorophyll and sunlight to prepare food.	• They do not require any particular things or conditions to obtain their food.
• They do not harm others	• In some cases, like in parasitic nutrition they harm the host organism.
• Example green plants, volvox etc.	• Example human beings, fungi etc.

HOME ASSIGNMENT

1. What is the main mode of nutrition in plants?
2. Define the following and give one example of each: a. Autotrophic nutrition b. Heterotrophs
3. What are the different types of heterotrophic nutrition?
4. What are saprotrophs? Give some example of saptrotrophs.
5. What are parasites? Give some example of parasitic organisms.

THANKING YOU

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