

**PENANG SANGAM HIGH SCHOOL**  
**P.O.BOX 44, RAKIRAKI**  
**LESSON NOTES**

**Year/Level:** 12C/D

**Subject:** Biology

<b>Strand</b>	1 structure & life processes
<b>Sub Strand</b>	1.4 comparative form and function in plants and animals
<b>Content Learning Outcome</b>	Identify the two main modes of nutrition

**NUTRITION**

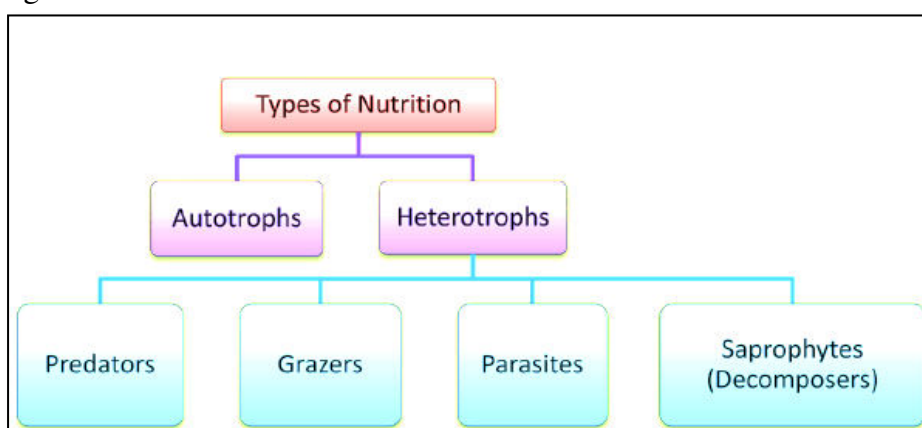
- Nutrition is the process of providing food to the body cells for health and development (growth). They get their energy from food.
- Every organism has a nutrition method adapted to its lifestyle.

**Nutrition methods**

- Plants and animals have different processes of obtaining food (energy).
- Plants and some bacteria have chlorophyll (green pigment) to help them make their own food.
- Animals, fungi and other bacteria depend on plants and other organisms for food.

There are two main modes of nutrition: **Autotrophic** and **Heterotrophic**.

- **Autotrophic nutrition** is the process by which green plants manufacture their own food by converting solar energy (sunlight) into chemical energy (food).
- **Heterotrophic nutrition** is the process whereby organisms that cannot make their own food obtain their food (energy) either directly or indirectly from plants or other organisms.



- **Autotrophs** (*'auto' means self*); organisms that are capable of making their own food using the solar energy (sunlight) into chemical energy (food). E.g. plants, some bacteria and some protists.

- **Heterotrophs** (*'hetero' means different or other*) organisms that cannot make their own food and depend on plants or animals food. E.g. animals, fungi, most bacteria and protists.
- **Predators:** organisms that prey (hunt and kill) on other organisms. E.g. sharks prey on big or small fish, toads prey on lizards and insects, cats prey on mouse and birds, mynah bird preys on worms.
- **Grazers:** organisms that feed on an entire population, often without killing them. E.g. cows, goats, green sea turtle, filter feeders (kai and coral), herbivorous insects and some fish.
- **Parasites:** organisms that live and feed on or in an organism of a different species and cause harm to their host. E.g. bacteria, fungi, fleas, ticks, nits, lice, tapeworms, protists etc.
- **Saprophytes (decomposers):** organisms which get their energy by feeding on dead organic matter causing it to decay. E.g. fungi, bacteria, maggots, insects, grubs, snails, slugs, beetles, millipedes, ants etc.
- **Microphages:** animals (mostly aquatic) that feed on very small particles suspended in water like phytoplankton and tiny organic fragments.
- **Fluid feeders:** Are organisms that feed on liquid food from plants and animals. There are two groups of fluid feeders;
  - ✦ **Wallowers** - are organisms that literally wallow (roll about relaxed in water or mud) in their foods. E.g. a gut parasite such as tapeworm.
  - ✦ **Suckers** – are insects and spiders with mouthparts in the form of a proboscis for piercing and sucking. E.g. Housefly, mosquitoes.
- **Filter feeders:** Include aquatic organisms like sponges, sea squirts, bivalve mollusc and mosquitoes on land. They employ filtering systems to collect, sort and concentrate the particles from water.
- **Gulpers:** Organisms that gulp down their food whole and swallow without chewing their food first. E.g. snakes, *hydra*, sea anemone, frogs and fish eating birds.
- **Masticators:** Organisms that bite tear or chew their food into smaller pieces before swallowing. Herbivorous animals such as a cow are a very good example of a masticator which chews it food for long.

### **Heterotrophs depend on the autotrophs for food.**

- Food is required by the organ system of the body to keep the organism alive and to provide **energy** for the various bodily processes and activities carried out by the organism.
- Different types of organisms are adapted differently to their environment and way of life. **Active and large organisms** require plenty of energy and so need lots of food quickly. E.g. humans, cows, dogs, cats etc.
- **Sessile organisms** require only small amounts of energy and so do not need much food.

### **Exercise**

Give two examples of organisms that fit in each of the following consumer categories;

- i. Predator \_\_\_\_\_
- Grazer \_\_\_\_\_
- Parasite \_\_\_\_\_
- Saprophyte \_\_\_\_\_
- Minute particle feeder \_\_\_\_\_