

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

Year/Level: 12C/D

week 12

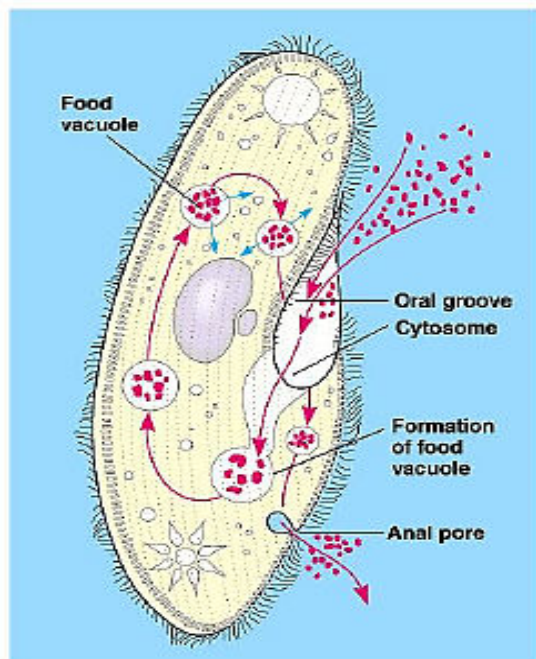
Subject: Biology

Strand	1 structure & life processes
Sub Strand	1.4 comparative form and function in plants and animals
Content Learning Outcome	Discuss the process of digestion in selected organisms.(protist)

Nutrition in Protists

- Protists are unicellular organisms that are usually classified as a separate kingdom.
- Some protists function as one-celled plants; they photosynthesize.
- Others obtain food from their environment, like one-celled animals.
- A common example of protists is the Paramecium.
- Paramecium is a genus of protists that lives in fresh water.
- Their mode of locomotion is by beating of the cilia that cover their cell membranes.
- They feed on bacteria that float in water. Cytosome

How does a Paramecium feed?



Source: <http://www.mun.ca/biology/>

Paramecium feeding steps:

1. A paramecium is a minute particle feeder which uses its cilia to beat food particles in the surrounding water down the oral groove. The oral groove and the cytopharynx (a sac-like structure at the end of the oral groove) act as the mouth of the Paramecium.
2. Food vacuoles surround the food accumulating at the end of the cytopharynx. Lysosomes, containing digestive enzymes, fuse with the vacuoles to digest the food.
3. The digested food diffuses through the cell cytoplasm and mitochondria oxidise it to produce ATP.
4. Wastes are egested by exocytosis at the cell membrane.

Other Heterotrophic Protists

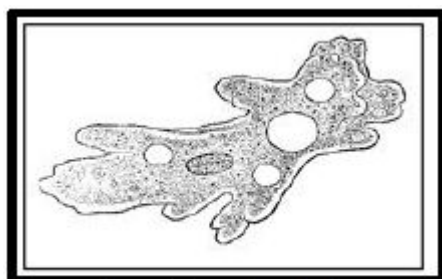
- Most other heterotrophic protists, such as Amoebas, also eat by endocytosis i.e. surrounding and digesting food in food vacuoles.
- Protist feeding is the simplest example of internal digestion.
- They digest food inside their bodies.
- This is important because protists are motile.
- A protist's energy needs are too great to stay in one place and wait for their enzymes to digest food.
- If protists had external digestion like fungi and bacteria, they would have starved.

Adaptations for Feeding

- Natural selection favours organisms with adaptation for efficiently ingesting the kind of food they need.
- For example, an organism that sucks blood has different mouth parts from animals that feed on grass.
- Similarly, an ant that eats wood has different mouth structures from insects that drink nectar.

Exercise

1. Heterotrophic protists take in food by surrounding it with a piece of cellular membrane, forming a vesicle. What is this kind of transport called?
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2. Study the diagram of the *Amoeba sp.* given below to answer the following question.



Source: <https://www.thinglink.com>

The above organism feeds through

- A. diffusion.
- B. engulfing food particles.
- C. decomposing and absorption.
- D. ingestion through mouth-like structure.