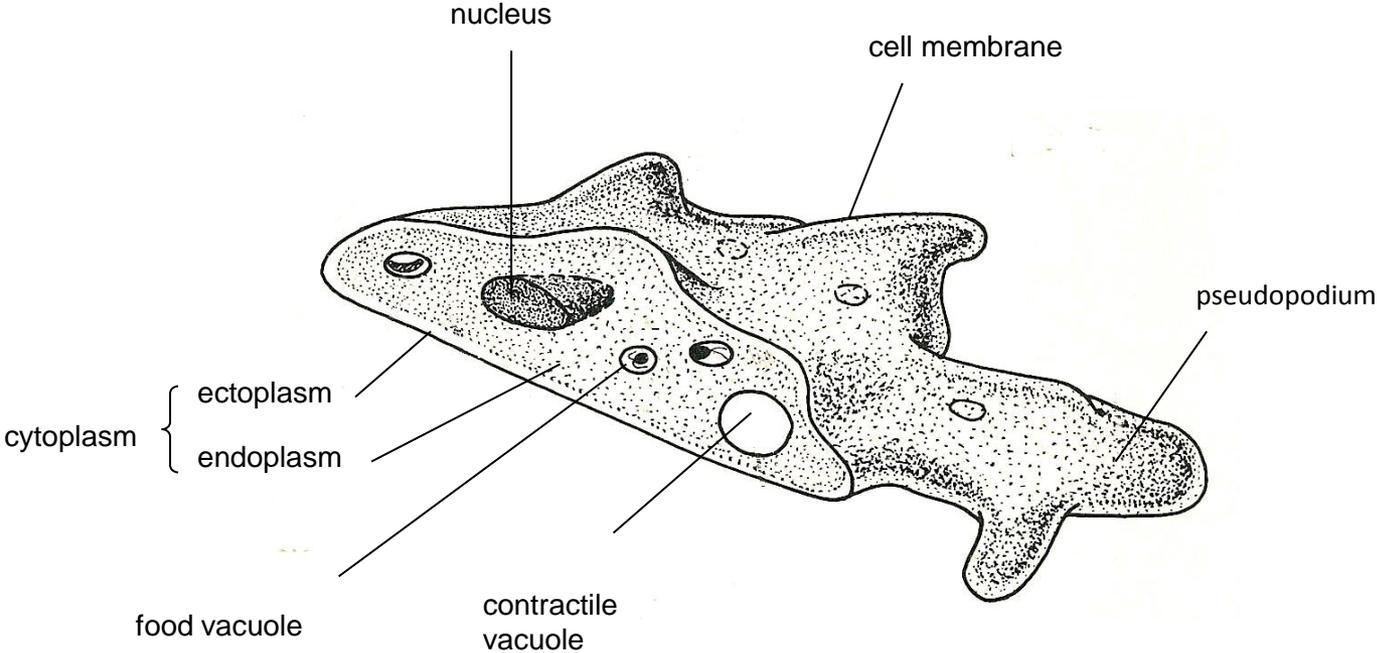


Protozoa

Amoeba



Cell membrane controls the entry and exit of substances into and out of the cytoplasm.

Cytoplasm is the living substance in which all the chemical reactions necessary for life are carried out.

Ectoplasm is a clear gel-like layer enclosing the **endoplasm** which is more fluid and contains granules and other inclusions.

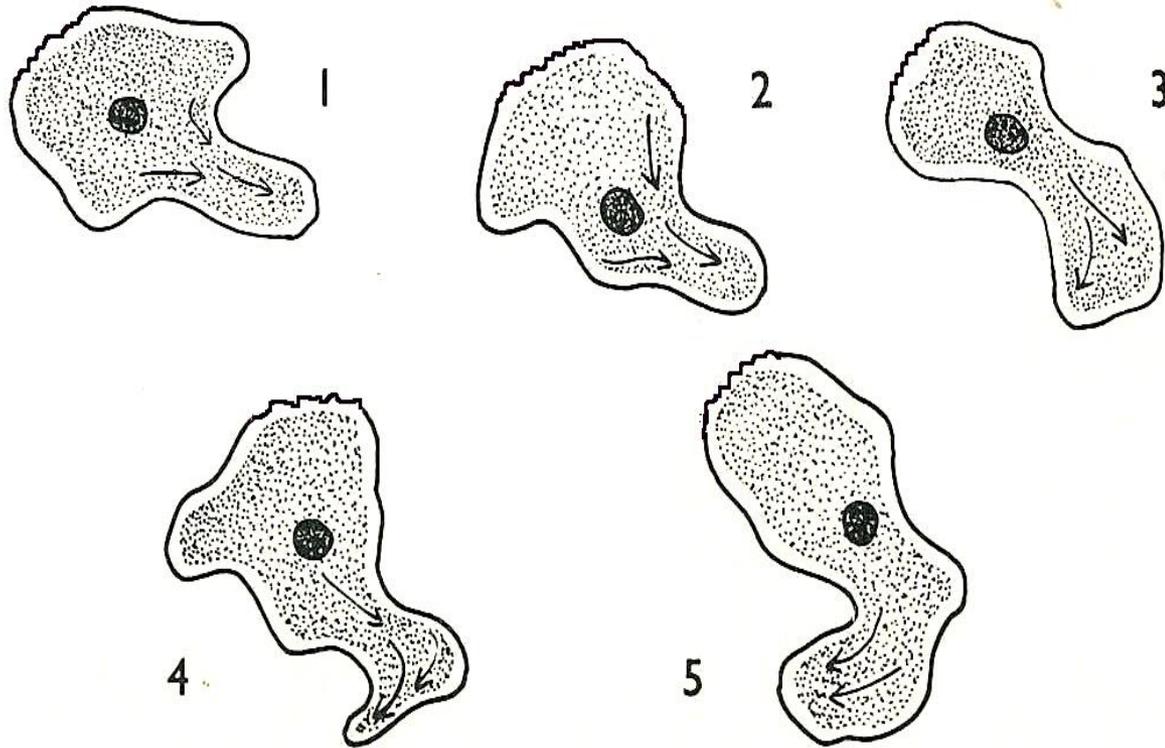
Nucleus controls most of the reactions taking place in the cell and plays a vital part in cell division.

The concentration of solutes in the cytoplasm is greater than that in the surrounding fresh water, so water tends to enter the cytoplasm by osmosis via the partially permeable cell membrane. This excess water collects in the **contractile vacuole** which swells and discharges its contents to the outside from time to time.

Pseudopodium is a protuberance from the surface of the amoeba into which the cytoplasm flows; in this way the amoeba moves about over the mud at the bottom of the pond. (pseudopodium means 'false foot')

Microscopic organisms are taken into the cytoplasm with a drop of water forming a temporary vacuole called **food vacuole**. These organisms are then digested.

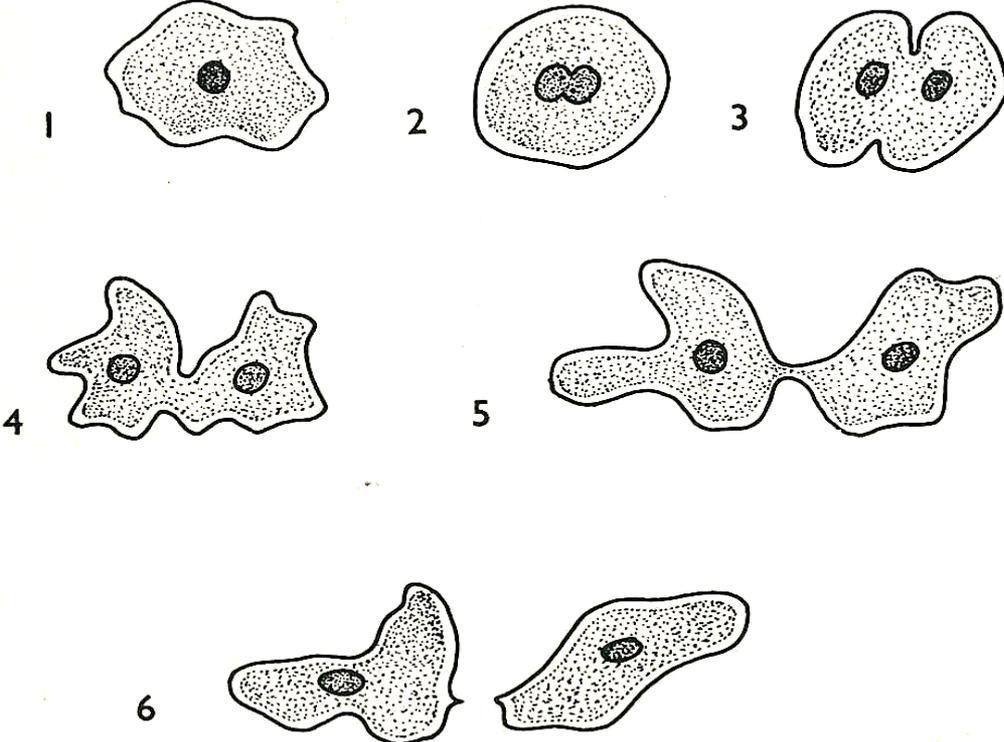
Locomotion



Locomotion

1. At one point on the amoeba, the ectoplasm extends and the endoplasm flows in, forming a **pseudopodium**.
2. The pseudopodium continues to extend and the endoplasm continues to flow so that the whole amoeba is moving to the right.
3. A new pseudopodium starts to form and ...
- 4 ...the endoplasm flows into this.
5. As a result, the amoeba has changed its direction of movement.

Reproduction



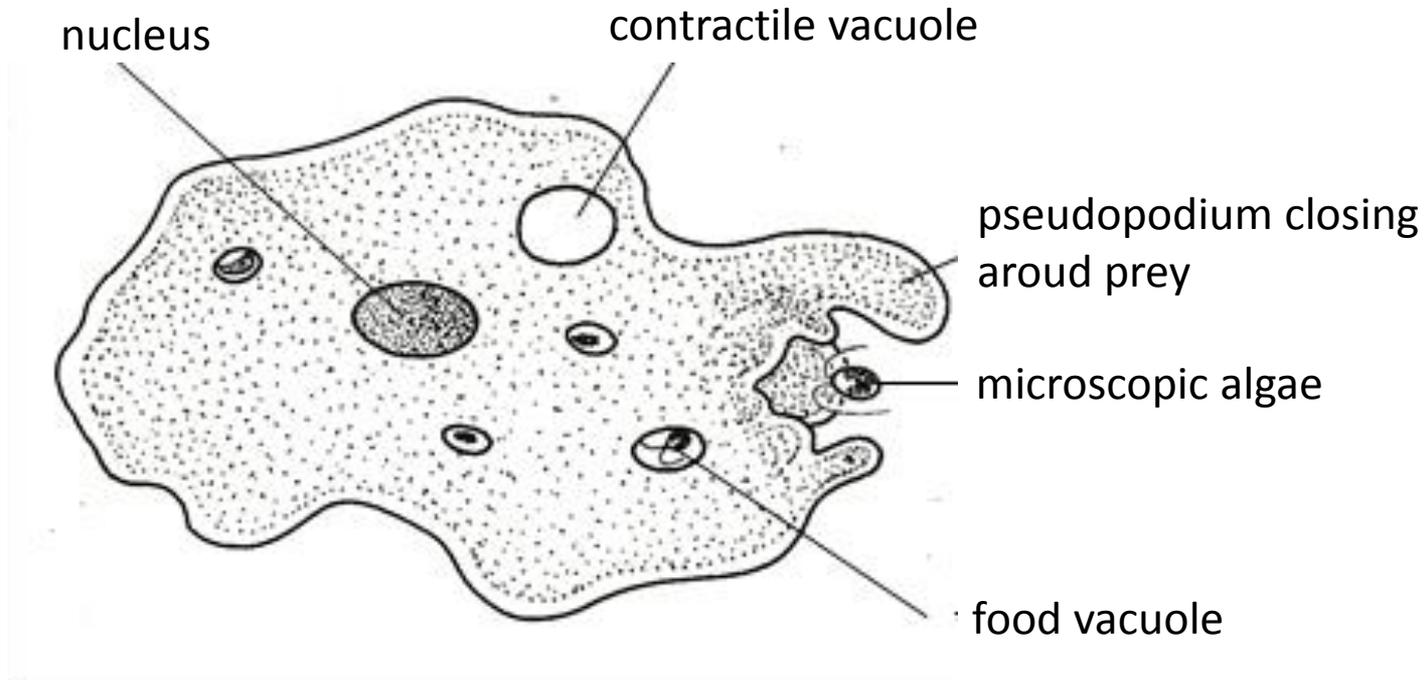
Reproduction

1. Amoeba stops moving and rounds off.
2. The nucleus begins to divide.
3. The nucleus has divided and the cytoplasm starts to constrict.
4. and 5. The constriction continues to divide the cytoplasm.
6. The daughter amoebae separate.

This is a form of asexual reproduction called **binary fission**.

There is no evidence of sexual reproduction in this species of Amoeba.

Feeding

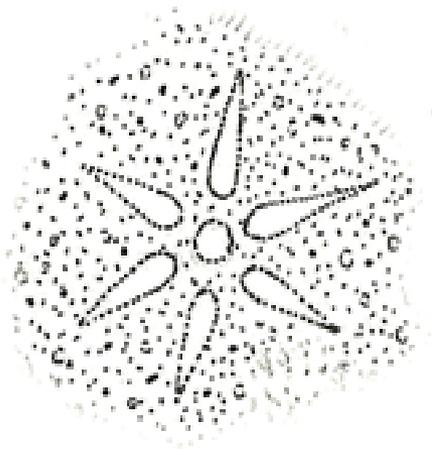


Amoeba feeds on microscopic organisms such as single-celled algae and bacteria. When the amoeba encounters a suitable organism, the cytoplasm flows round the prey and engulfs it, with a drop of water, in a food vacuole. The cytoplasm secretes enzymes into the food vacuole. The enzymes digest the soft parts of the prey and the soluble products are absorbed back into the cytoplasm. Any undissolved residue is left behind as the amoeba flows on.

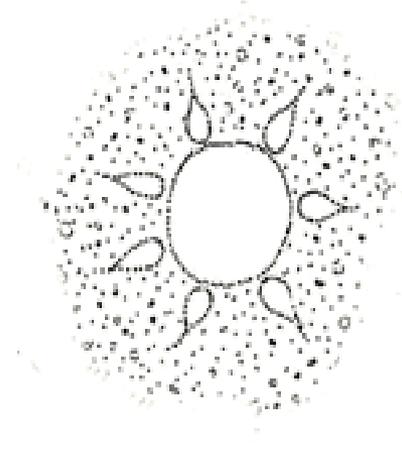
Videos from the life of amoeba

<http://www.biology-resources.com/biology-videos-protista.html>

Osmoregulation

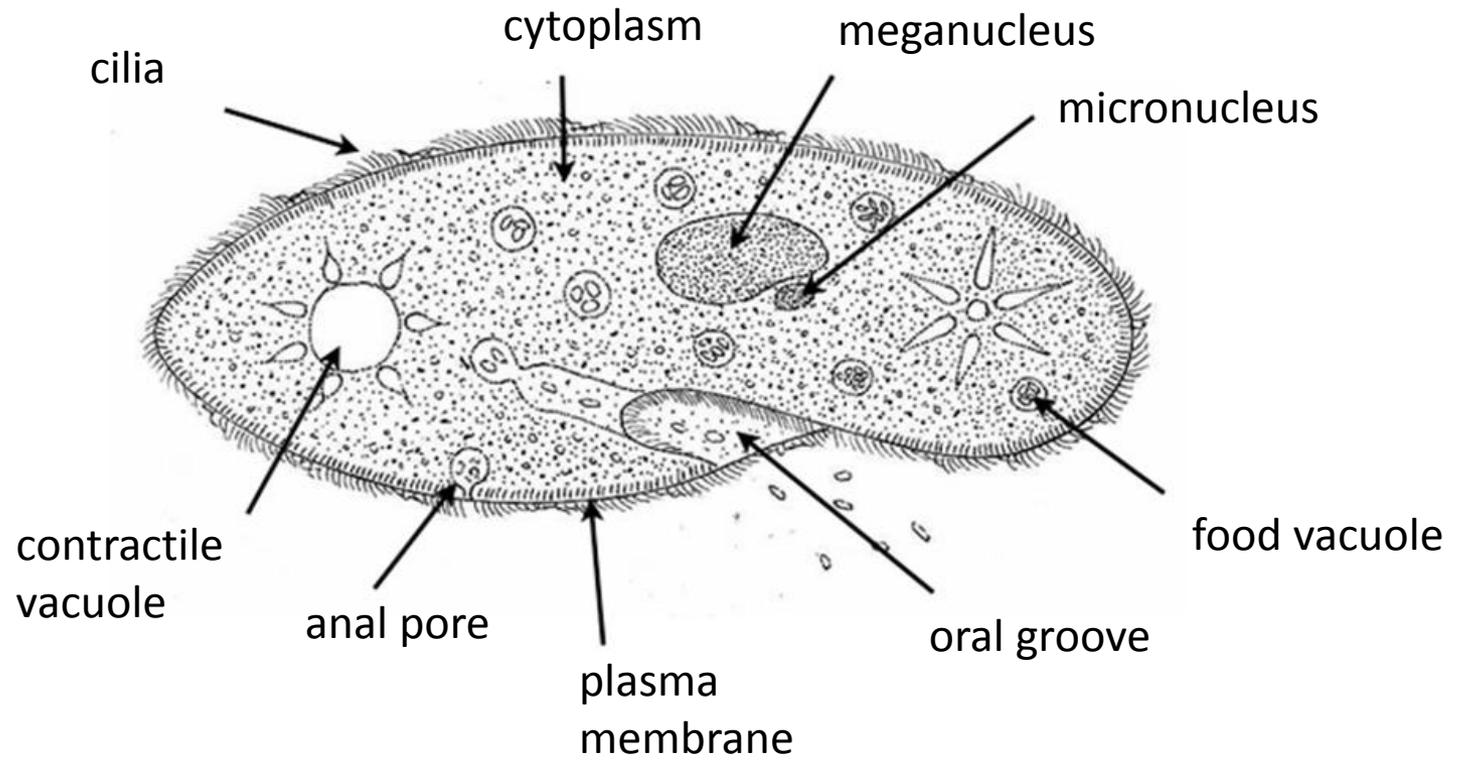


contractile vacuole
filling with water

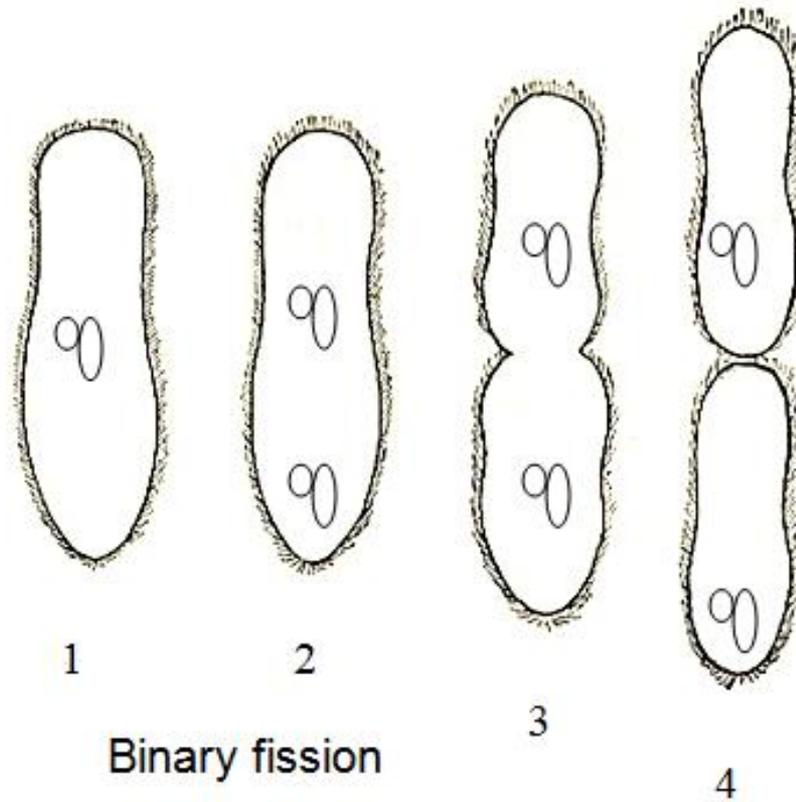


vacuole full and about to empty

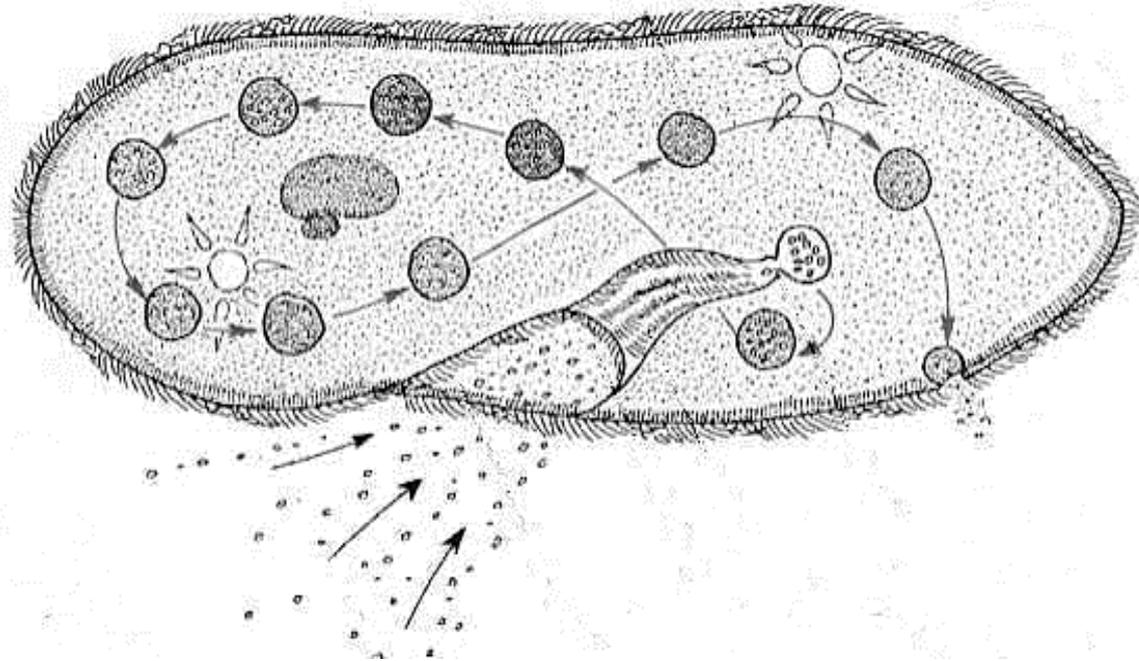
Paramecium



Reproduction



Feeding



Feeding of Paramecium

Paramecium and amoeba both live in fresh water pools or ponds and feed on microscopic organisms such as bacteria and single-celled algae. Amoeba is able to take in food at almost any point on its surface. Paramecium, on the other hand, can take in food only at the **cytostome (oral groove)**. The cilia in the oral groove create a current of water which wafts the food organisms up to the cytostome where they are ingested in a **food vacuole**. This food vacuole then follows a specific route through the cytoplasm. On its travels, enzymes are secreted into the vacuole and the food is digested. The digested substances are then absorbed into the cytoplasm. Any undigested matter is expelled through the **anal pore**. This contrasts with amoeba which can expel the undigested remains from almost any point.

Locomotion

