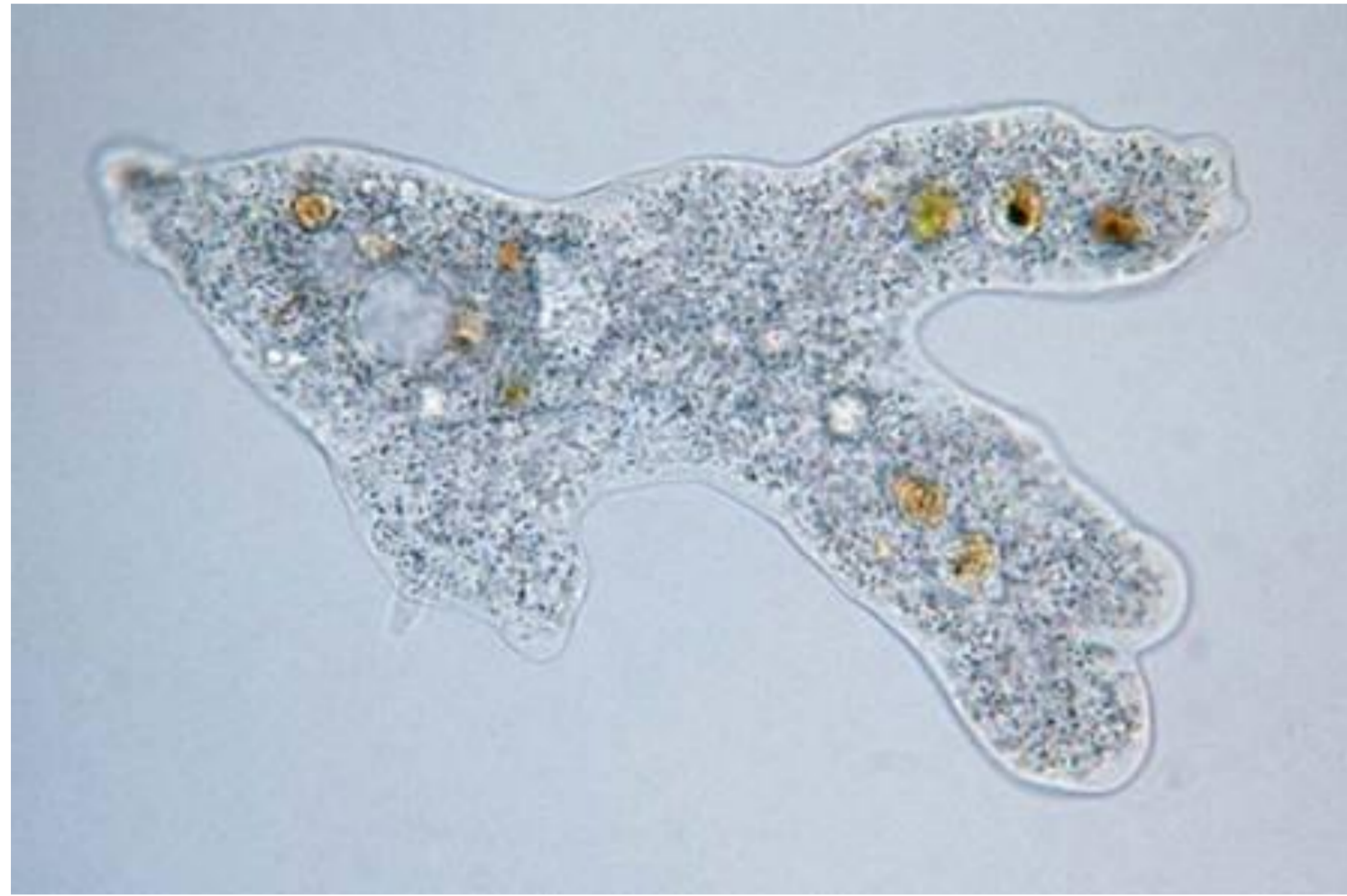


3.1.6 Protista, e.g. Amoeba

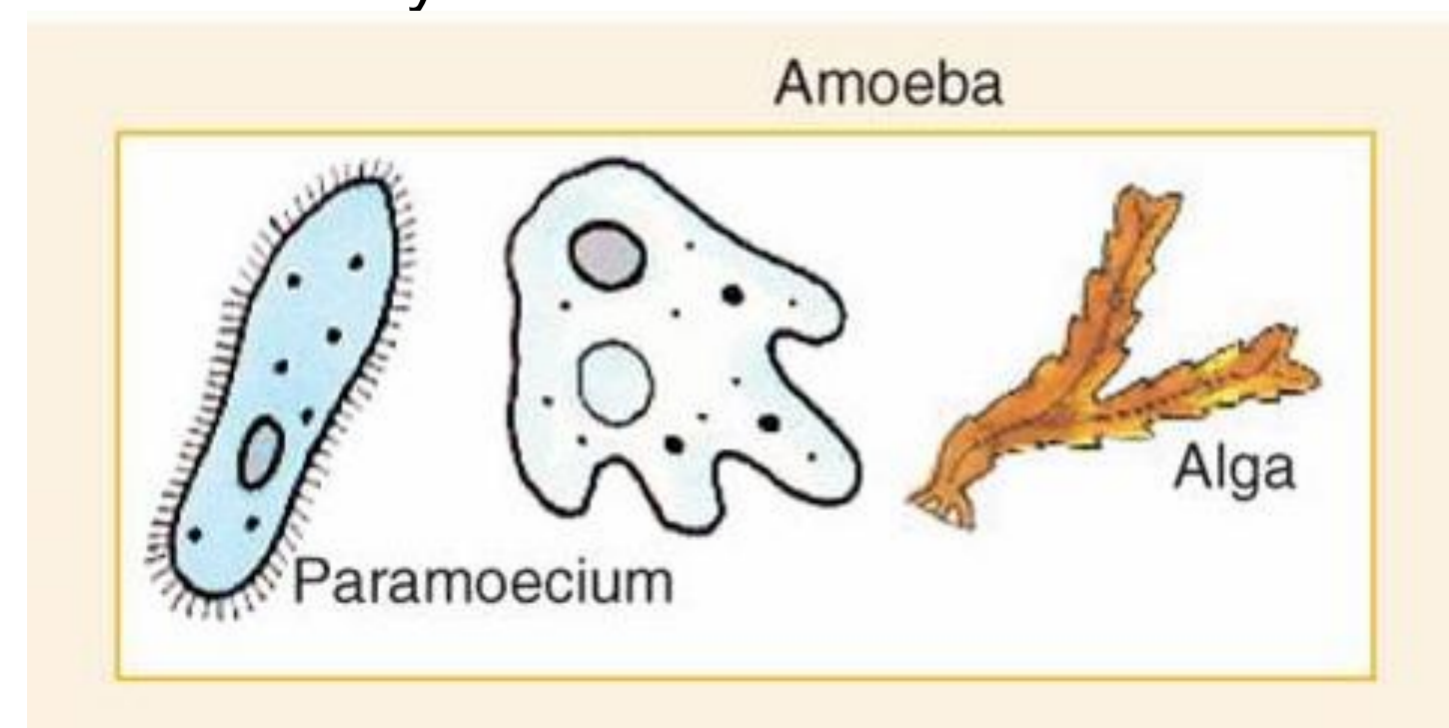


Protista characteristics

- Contains single-celled and simple multi-cellular organisms
- They are eukaryotic – they have a membrane-enclosed nucleus and membrane enclosed organelles
- Some feed by taking in organic substances, others can photosynthesise.

Examples include:

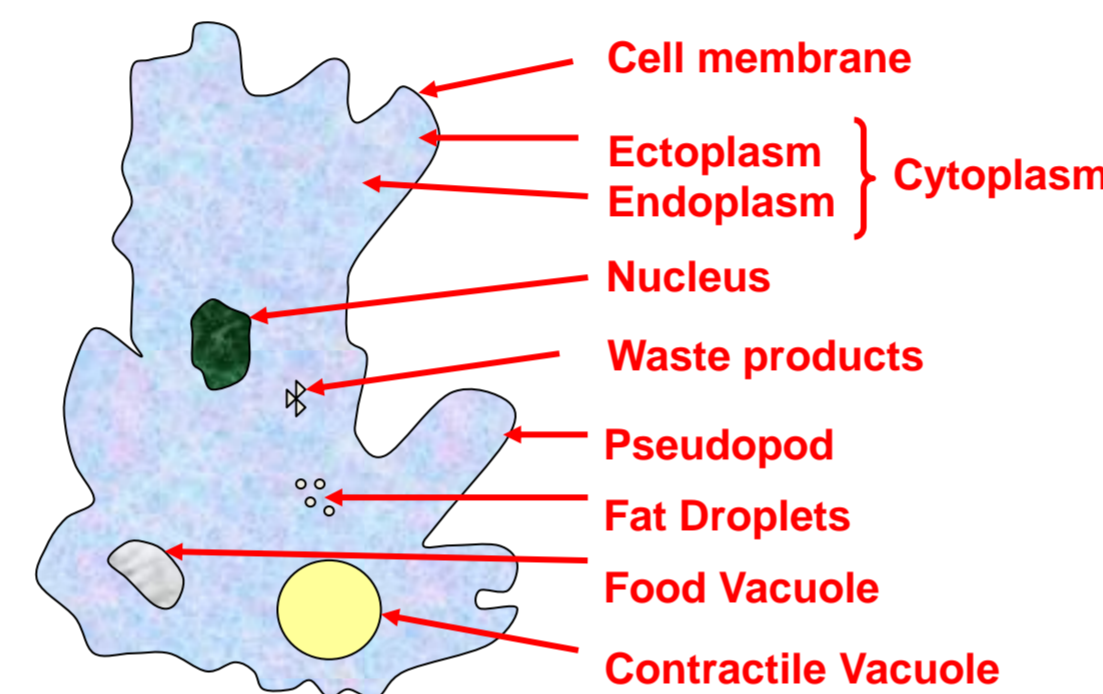
- **Amoeba** – moves by means of pseudopods and is well known as a representative unicellular organism.
- **Algae** – a large and diverse group of plant like organisms ranging from unicellular to multicellular forms.
- **Paramecium** – consist of a single cell yet are visible to the naked eye.



Amoeba

- Consists of a single cell
- It is a consumer. It feeds on small plants, animals and bacteria
- It lives in freshwater ponds (most likely to be found on the mud at the bottom)

Structure of Amoeba



- Cell membrane – semi-permeable
- Cytoplasm divided up into
 - Endoplasm
 - Ectoplasm

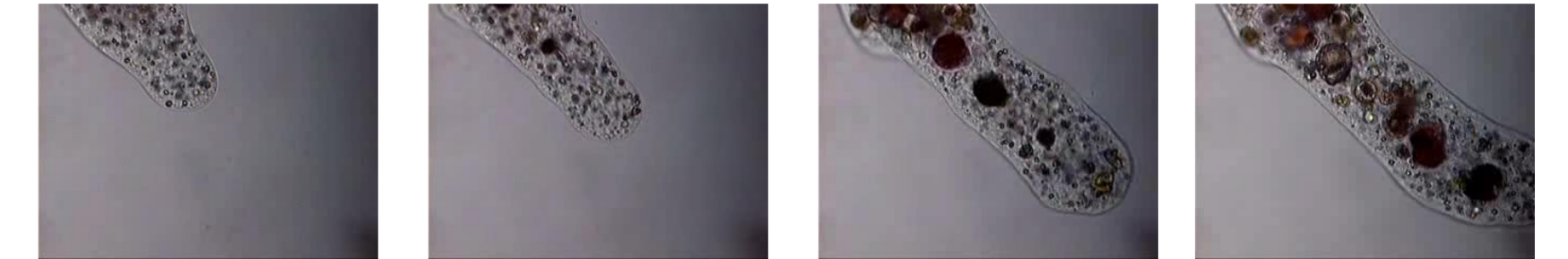
Endoplasm and ectoplasm

- The endoplasm is fluid-like. It has a grainy appearance due to the presence of food vacuoles and waste materials
- Ectoplasm can become soft in places to allow the development of pseudopodia

Development of Pseudopod

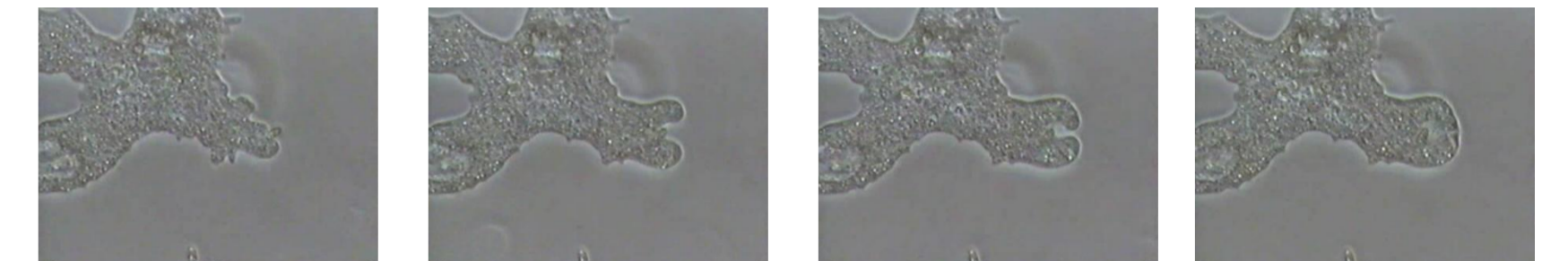
- Pseudopods are referred to as 'false feet' as they are produced at any point on the body and have no fixed position
- Pseudopodia extend in the direction Amoeba wishes to move
- Pseudopods develop when the ectoplasm softens and moves forward and the endoplasm moves in to replace it
- Amoeba uses pseudopodia to engulf its prey

Endoplasm and ectoplasm



Food vacuoles

- Amoeba feeds by surrounding its prey with pseudopodia and secreting digestive enzymes into the vacuole created
- Food can then be stored within the vacuole.



Contractile vacuole – how it works

- Amoeba's cytoplasm has a higher solute concentration than the surrounding fresh water
- As a result water constantly rushes in by osmosis
- In order to deal with this uptake of water Amoeba forms a contractile vacuole
- The contractile vacuole swells with water and moves to the edge of the cell...
- Where it bursts and expels the water...
- The cycle is then repeated

Contractile vacuole

- The contractile vacuole is said to be responsible for osmoregulation
- Without it the Amoeba would expand and burst

Contractile vacuole bursting

