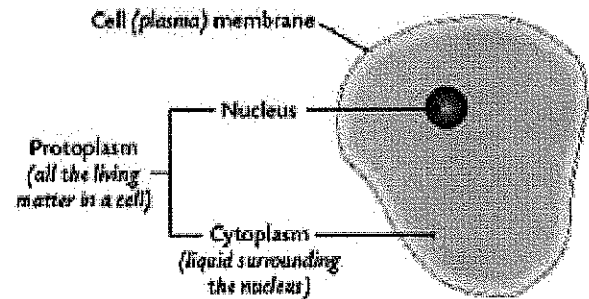
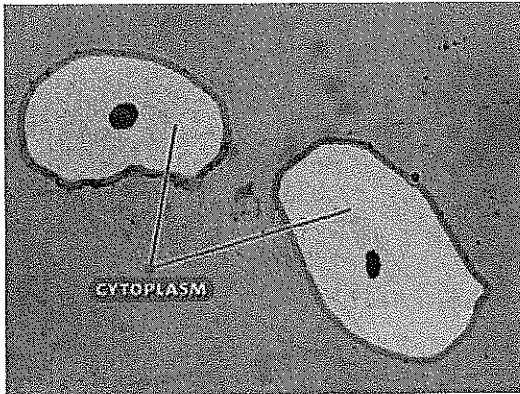


Cytoplasm

1. Diagram:



2. Structure:

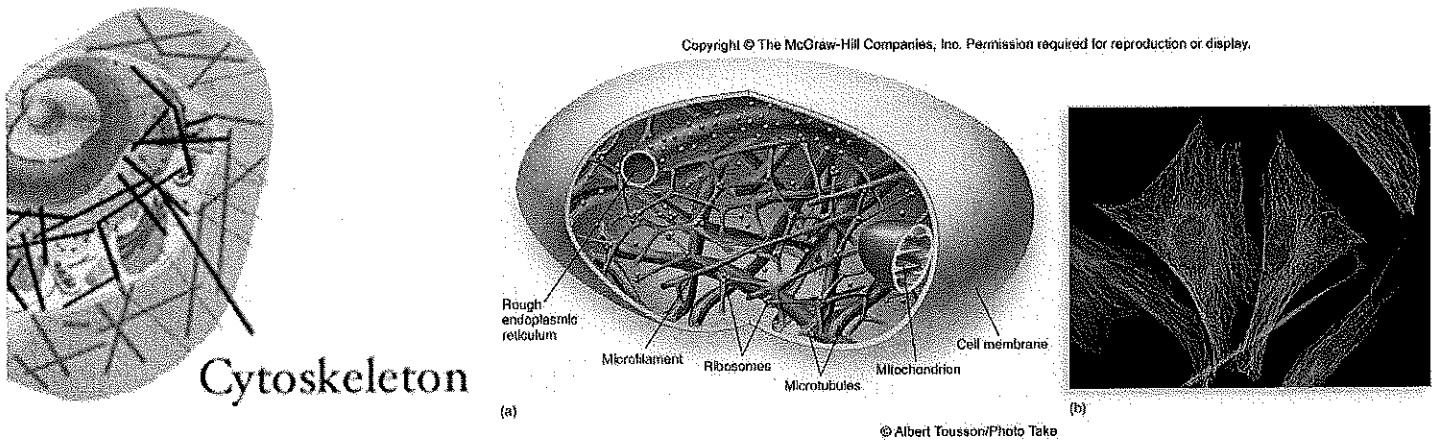
- Semifluid environment inside the plasma membrane

3. Function:

- All of the chemical processes of the cell take place directly in the cytoplasm of a prokaryotic cell
- In a Eukaryotic cell all of the processes are preformed within organelles that are in the cytoplasm

Cytoskeleton

1. Diagram:



2. Structure:

- Cytoskeleton is made up of 2 parts:
 - Microtubules – long hollow protein cylinders that form a rigid skeleton for the cell
 - Microfilaments – thin protein threads that help give the cell shape

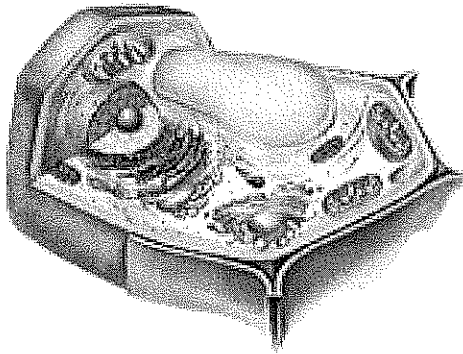
3. Function:

- The cytoskeleton provides a framework for the cell and provides an anchor for the organelles inside the cells
- Microtubules assist in moving substances within the cell
- Microfilaments enable the entire cell or parts of the cell to move

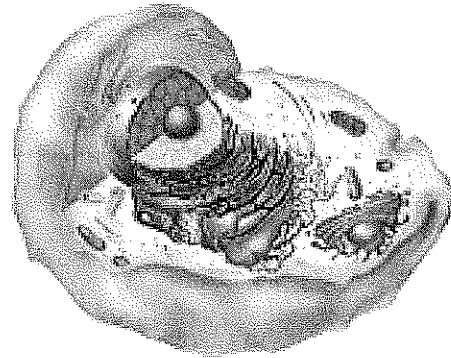
Cell Structures

Eukaryotic Cells

- Plant and animal cells



Plant Cell

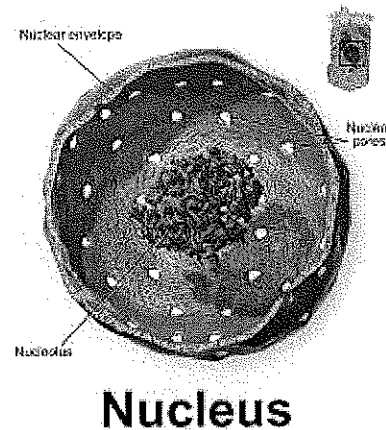
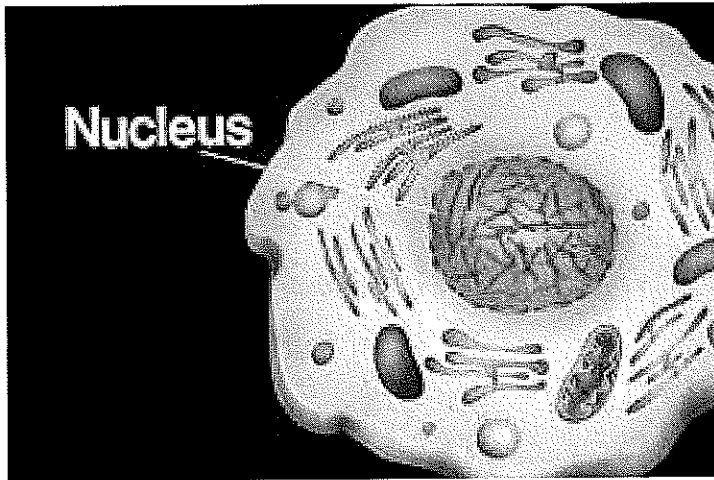


Animal Cell

- Contain membrane bound organelles
- These organelles make it possible for different chemical processes to take place at the same time in different parts of the cytoplasm
- Each organelle is specialized in its function

Nucleus

1. Diagram:



2. Structure:

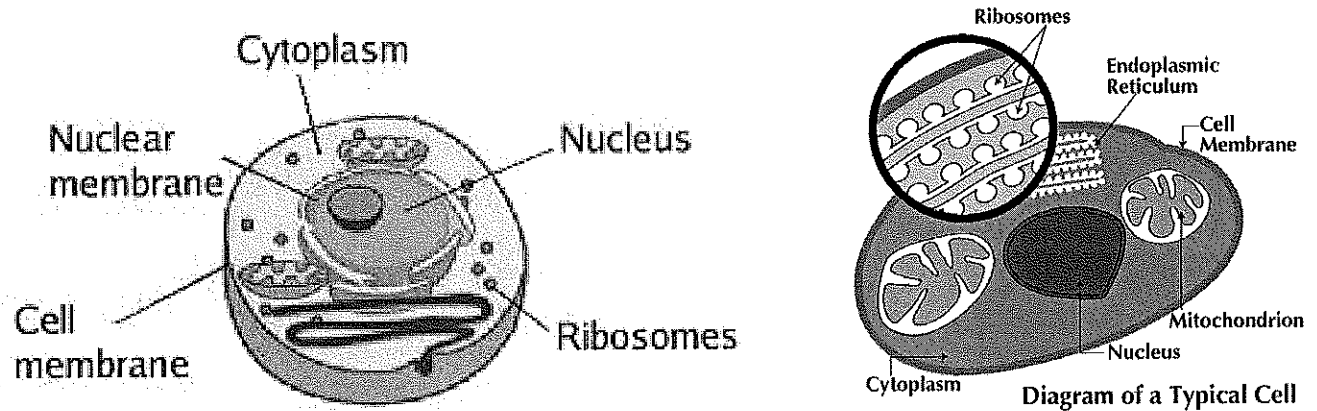
- The nucleus is surrounded by a double membrane called the nuclear envelope
- The nuclear envelope has pores
- The nucleolus is located in the center of the nucleus

3. Function:

- The pores allow larger sized substances to move in and out of the nucleus
- Nucleolus produces ribosomes
- Contains most of the cell's DNA, which stores information used to make proteins for cell growth, cell function and reproduction
- The DNA is attached to protein, forming a structure called Chromatin

Ribosomes

1. Diagram:



2. Structure:

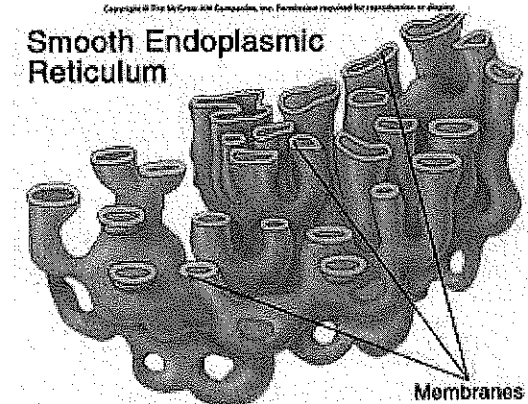
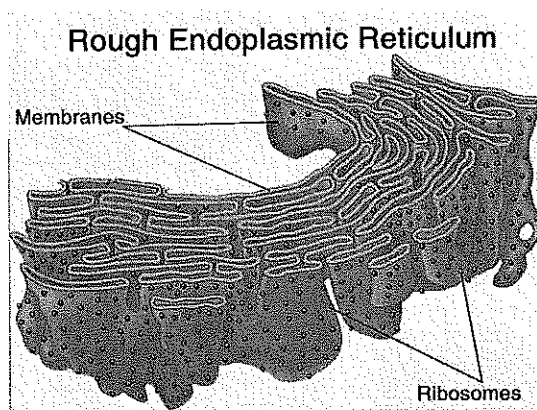
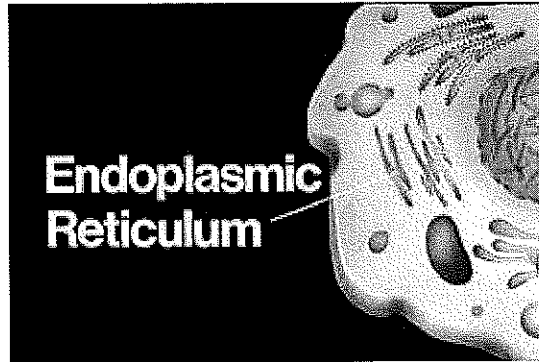
- Made of 2 Components – RNA & Proteins
- They are NOT membrane bound
 - This is why they are found in prokaryotic cells also
- Some Float freely in the Cytoplasm
- Others are bound (attached) to the Endoplasmic Reticulum

3. Function:

- Free floating Ribosomes produce proteins for use within the cytoplasm of the cell
- Bound Ribosomes produce proteins that will be bound within membranes or used by other cells

Endoplasmic Reticulum

1. Diagrams:



2. Structure:

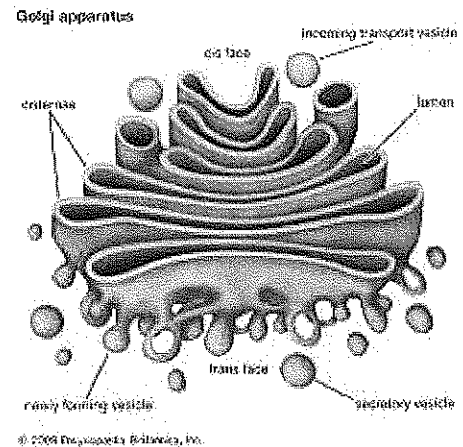
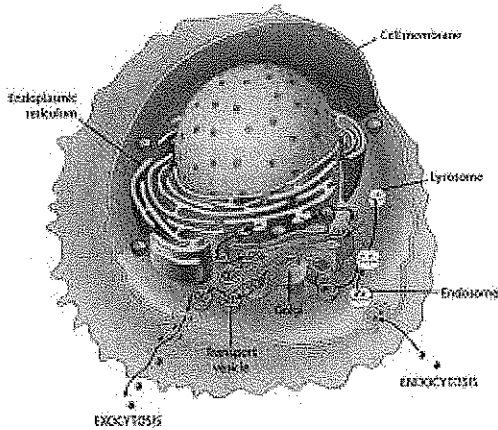
- A membrane system of folded sacs and interconnected channels
- The area where ribosomes are attached is called Rough ER
- The area where no ribosomes are attached is called Smooth ER

3. Function:

- The channels serves as the site for protein and lipid synthesis

Golgi Apparatus

1. Diagram:



2. Structure:

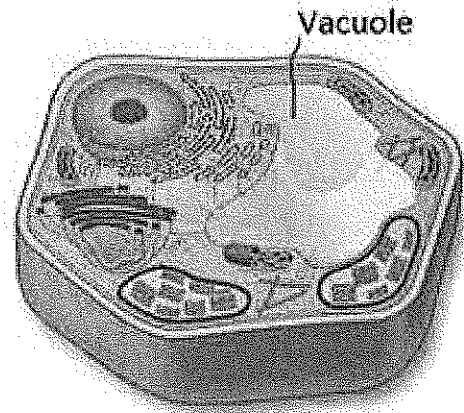
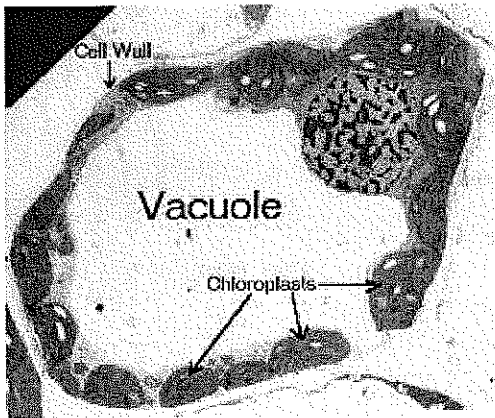
- A flattened stack of membranes

3. Function:

- They modify, sort, and package proteins into sacs called vesicles
- These vesicles can fuse with the plasma membrane
 - when they fuse they can release proteins into the cell's outside environment

Vacuoles

1. Diagrams:



2. Structure:

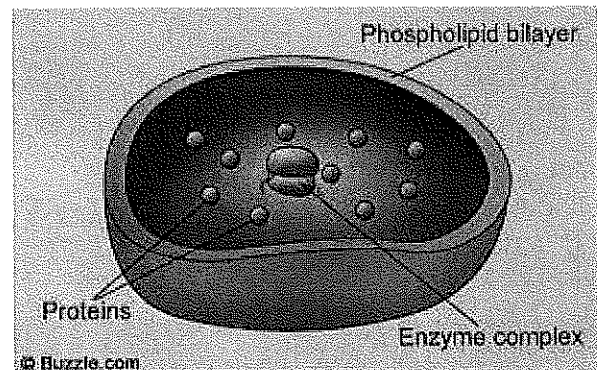
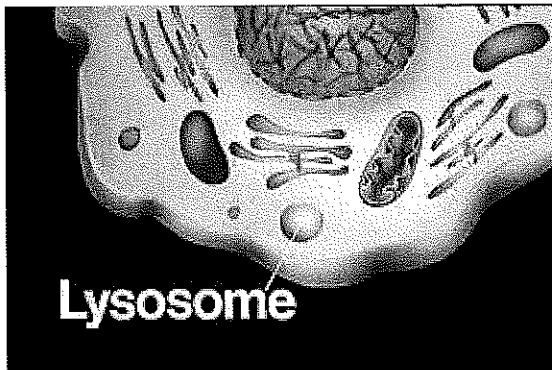
- A sac
- In plant cells the vacuole is much larger
- Some animal cells do not even have a vacuole

3. Function:

- They store food, enzymes, and other materials needed by the cell
- They also store waste products

Lysosomes

1. Diagram:



2. Structure:

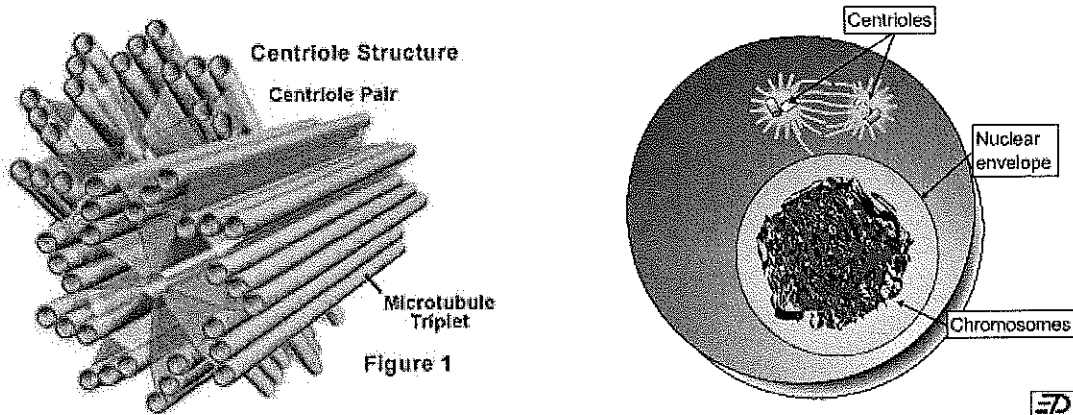
- Vesicle that contain enzymes
- They can also fuse with a vacuole

3. Function:

- They digest (with an enzyme) excess or worn out organelles, food particles, bacteria and viruses that have entered the cell
- When they fuse with vacuoles they to dispense with the enzymes to break down the waste inside

Centrioles

1. Diagrams:



2. Structure:

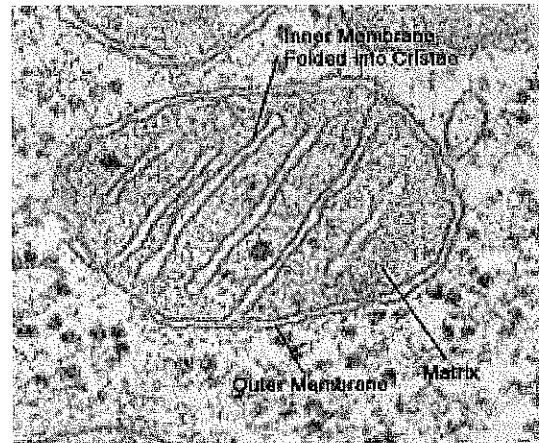
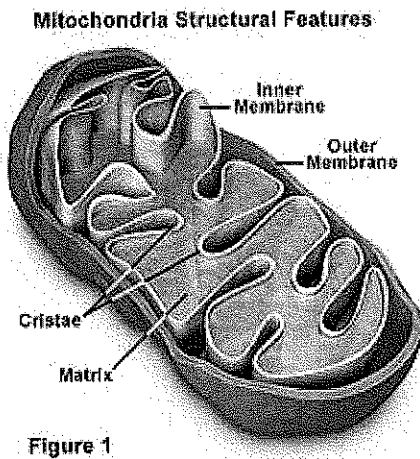
- Centrioles are made up of Microtubules
- They are only found in the cells of animals and protists

3. Function:

- They are used in the process of cell division

Mitochondria

1. Diagram:



2. Structure:

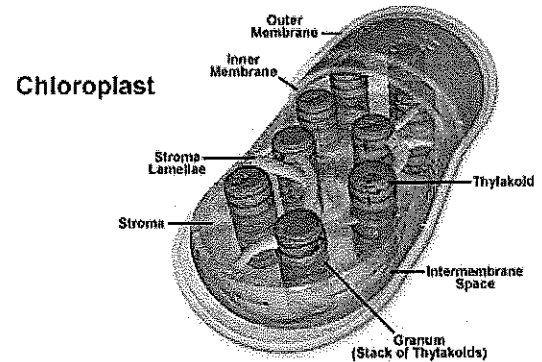
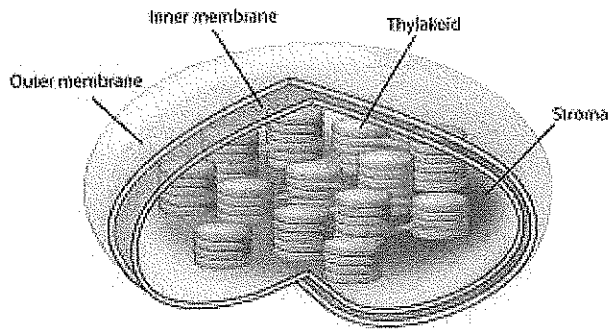
- Has a smooth outer membrane
- Highly folded (meaning lots of folds) inner membrane
 - Extra folds provide extra surface area

3. Function:

- Converts food particles (usually sugar) into usable energy for the cell
- The surface on the inner membrane has more surface area to provide area for the breaking of bonds in sugar molecules

Chloroplasts

1. Diagram:



2. Structure:

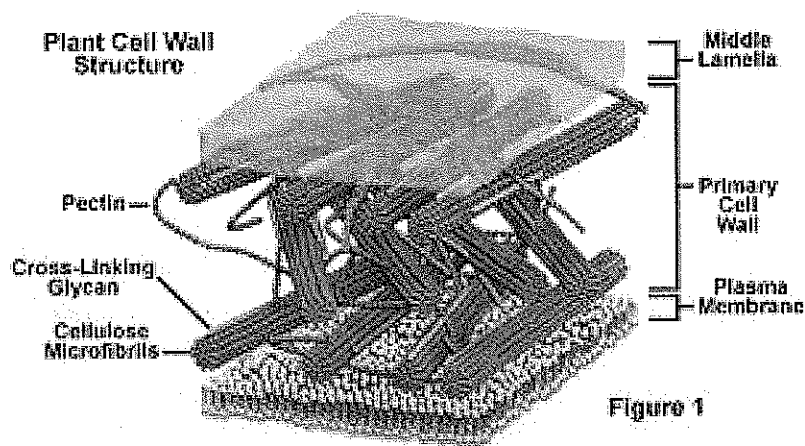
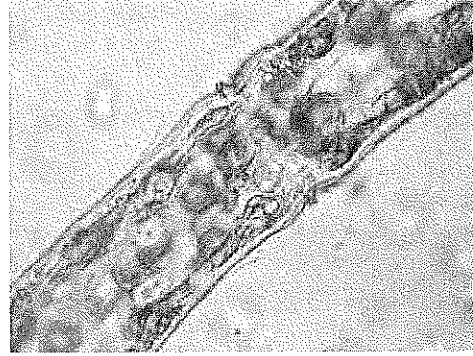
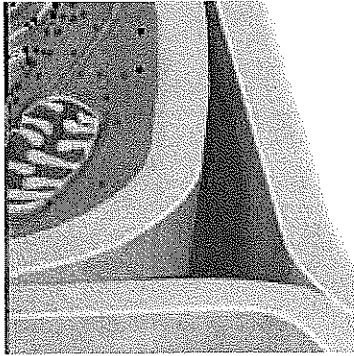
- Chloroplasts are only found in Plant and some Protist cells
- Inside the inner membrane are many small disk shaped compartments called Thylakoids
 - Inside the Thylakoid is where pigments called Chlorophyll are located

3. Function:

- Chloroplasts captures light energy and converts it to chemical energy through a process called photosynthesis.
- Are a type of organelle called a Plastid
 - Chlorophyll traps the energy from the sunlight
 - Chlorophyll give leaves their green color
 - Some store starch or lipids
 - Other plastids contain red, orange or yellow pigments
 - These other pigments also trap light and give color to plant structures

Cell Wall

1. Diagram:



2. Structure:

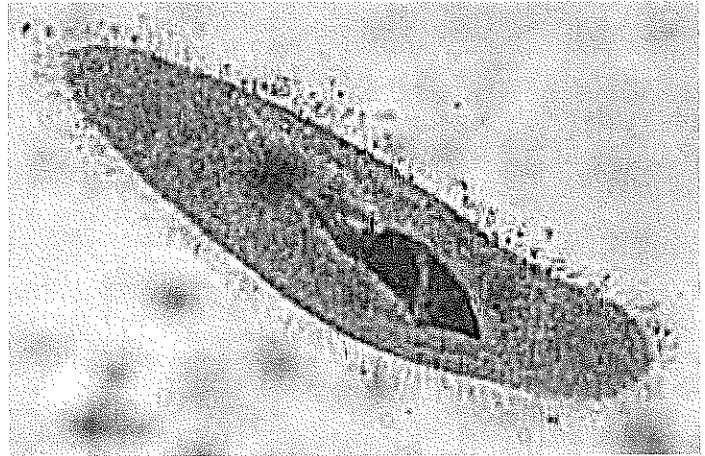
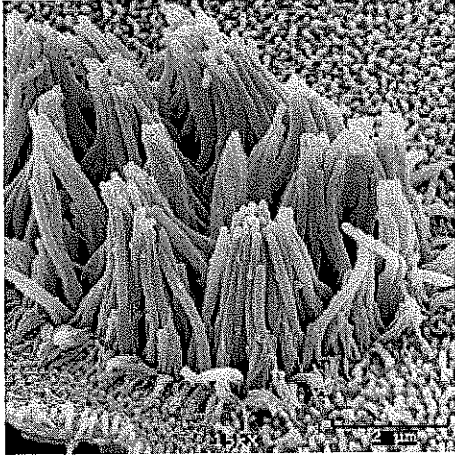
- A thick, rigid, mesh of fibers that surround the outside of the plasma membrane
- The cell walls of plants are made of carbohydrates and cellulose
- All Fungi have cell walls
- Some Protists and some Bacteria have cell walls

3. Function:

- Cell walls provide protections and support to the cell

Cilia

1. Diagram:



2. Structure:

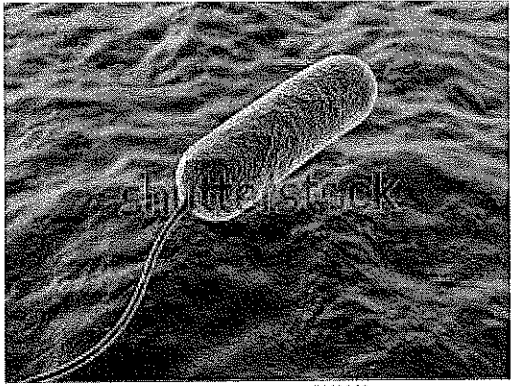
- Short, numerous projections of the cell membrane
- Look like hairs
- Composed of proteins

3. Function:

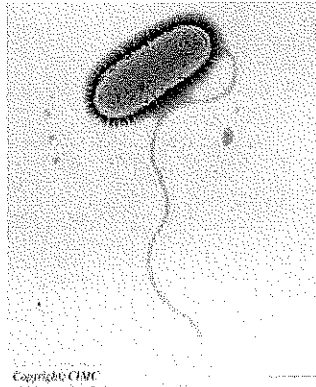
- Cilia aid the cell in motion
- The motion is similar to the oars in a rowboat

Flagella

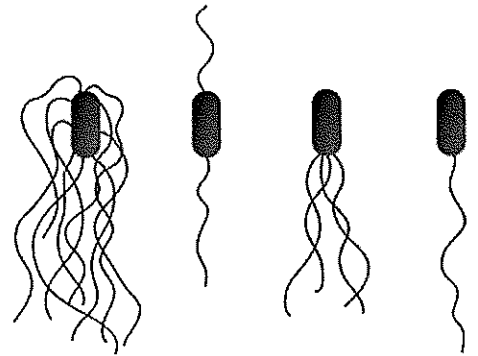
1. Diagram:



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2. Structure:

- Projection of the cell membrane
- The projections are longer and less numerous than cilia
- Composed of proteins

3. Function:

- Flagella aid in cell motion
- Movement of flagella is in a whip like fashion