Cell Structure , Function & Ultrastructure

Learning Objectives 2.1.2	**Cell Structure and Function**
Components of the cell as seen under the light microscope	1. Plant cells: cell wall, cytoplasm, nucleus, vacuole, and chloroplast. 2. Animal cells: cytoplasm and nucleus. •In both cases indicate the **position** and • **function** of the cell membrane.
and their **functions**.	

Learning Objectives 2.1.3	Cell Ultrastructure
Identification And	•the cell membrane, •Mitochondrion •Chloroplast •Nucleus •nuclear pores •Ribosome •DNA.
function of the following	

Higher Level Only

Existence and definition of

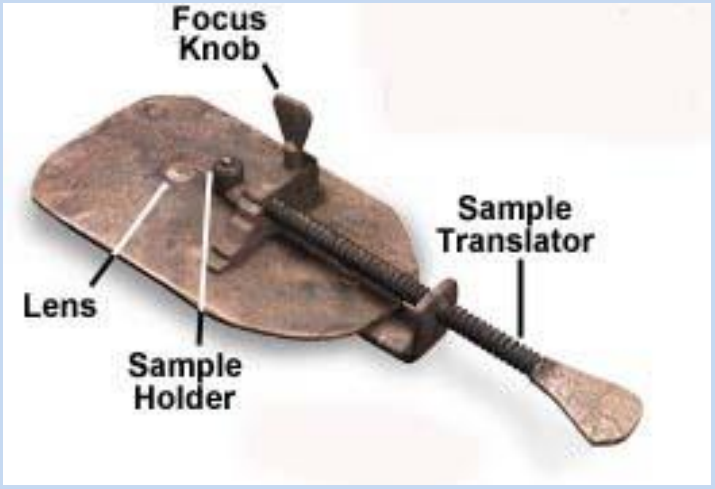
"prokaryotic“ and "eukaryotic" cells

The Cell

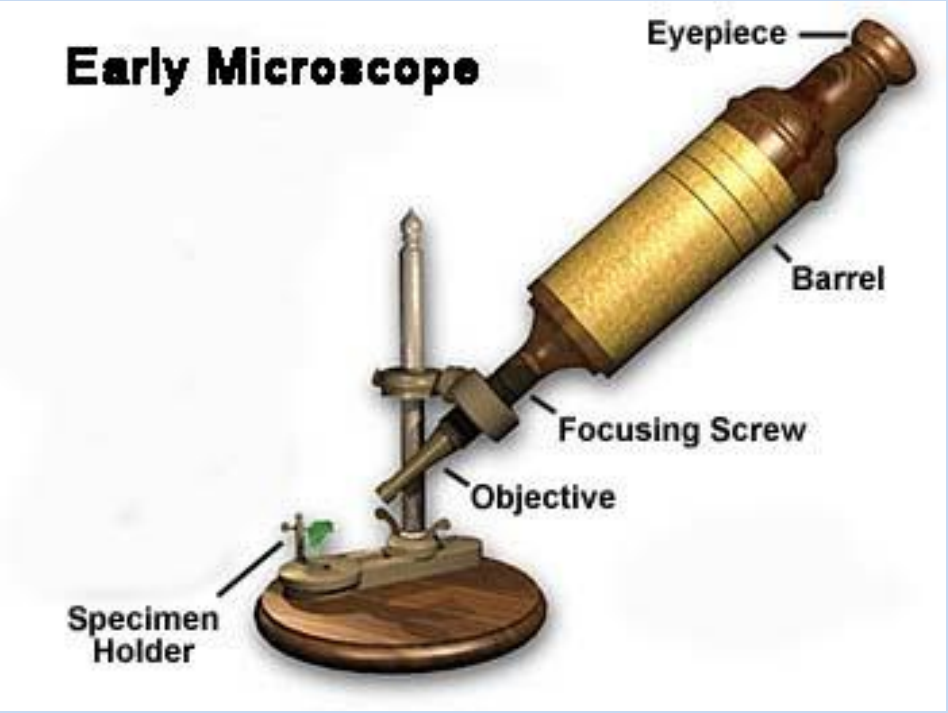
The CELL is the smallest unit of matter that can carry on all the PROCESSES OF LIFE.

Anton von Leeuwenhoek

Anton von Leeuwenhoek with his hand-held microscope, was the first person to observe and describe Living Cells in the early 17th century



Robert Hooke

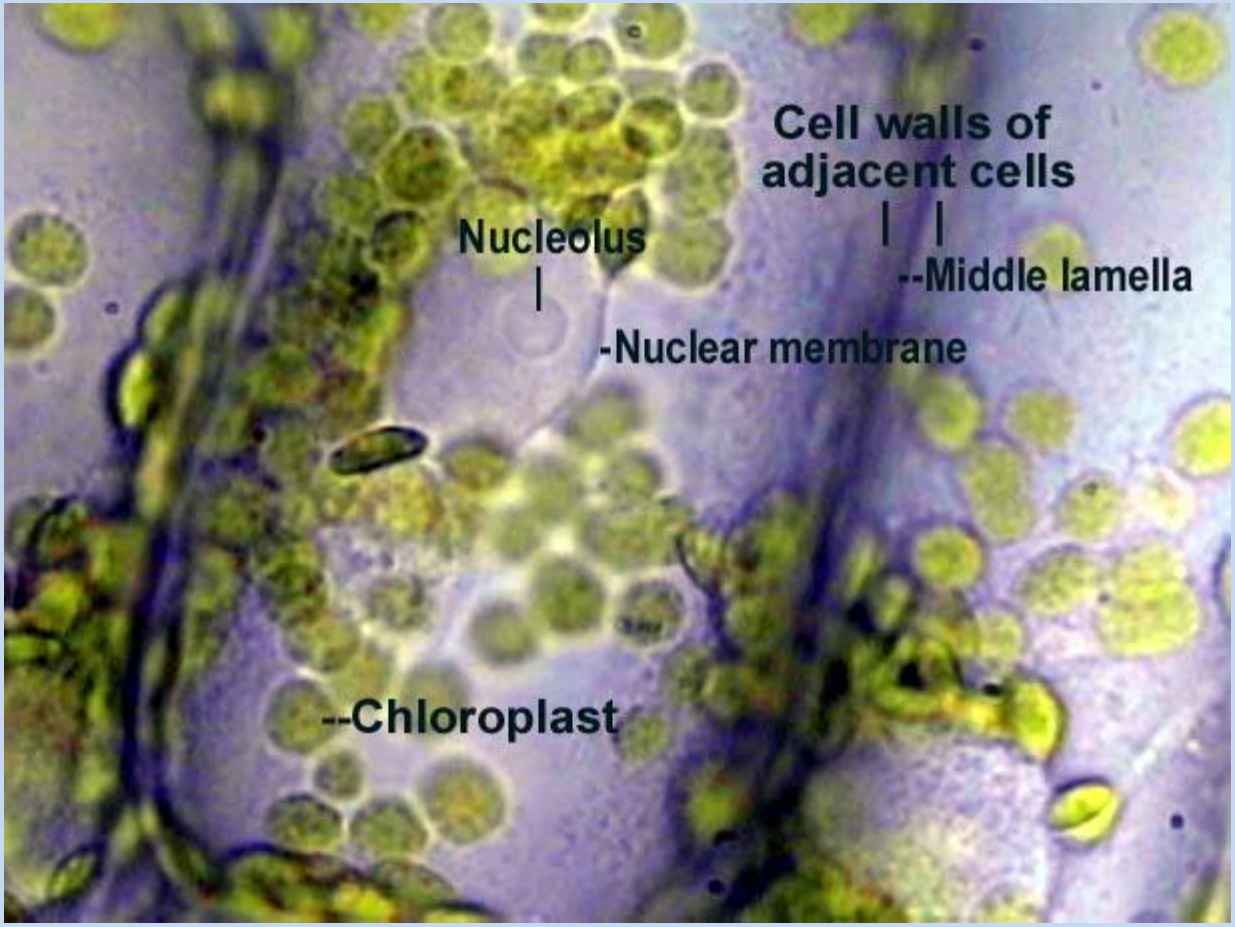


Robert Hooke looked a thin slices of cork under a microscope.

He thought the spaces he saw reminded him of Monks Cells

Hence the name cells

Plant Cell as seen under a light microscope



Cells

- **All living things are composed of one or more cells.**

- **Cells are the basic units of structure and function in an organism.**

- **Cells come only from reproduction of existing cells.**

Organelles

- Cells contain a variety of internal structures called **ORGANELLES**.

- An organelle is a cell component that PERFORMS SPECIFIC FUNCTIONS FOR THE CELL.

Organelles we need to know

- Cell membrane
- Nucleus
- Mitochondria
- Chloroplast
- Ribosomes
- DNA
- Cell Wall
- Vacuole

Learning Check

What are Cells?

What are organelles?

Can you name 8 organelles?

Animal Cells

Animal Cells contain the following structures

Cell Membranes

Mitochondria

Nucleus

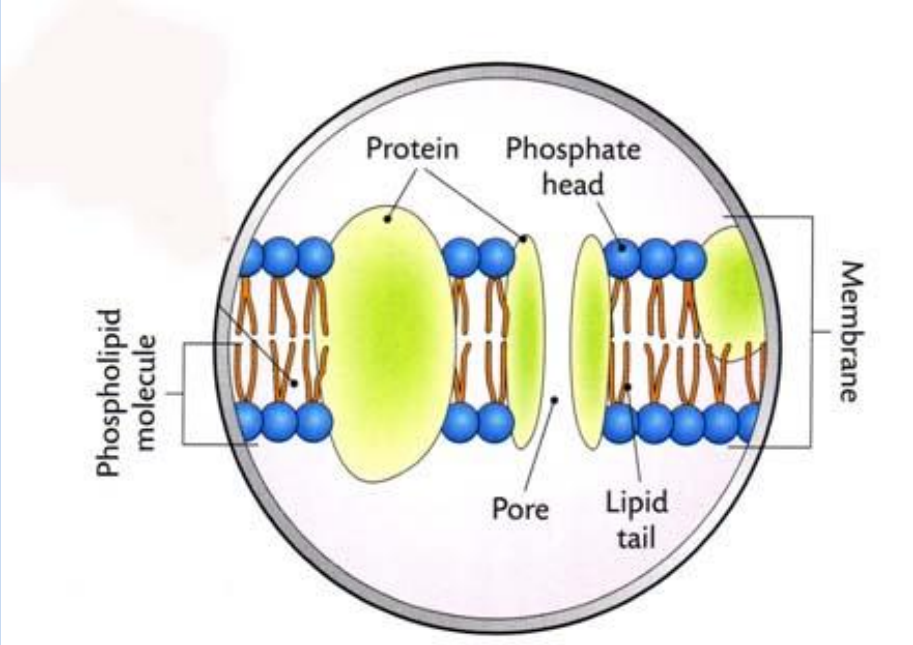
Cytoplasm

Only the cell membrane, the cytoplasm and the nucleus can be seen under the light microscope.

Cell Membrane

Cell Membranes are made up of

phospholipids and **proteins**



The phospholipids and proteins are in constant motion.

Membranes are said to be fluid

Functions of Cell Membranes

- Separate the cell organelles and cytoplasm from the outside
- Semi permeable - allows some molecules freely into and out and others to enter
- Membranes give some support to the cell
- Membranes recognise molecules that touch them

Learning Check

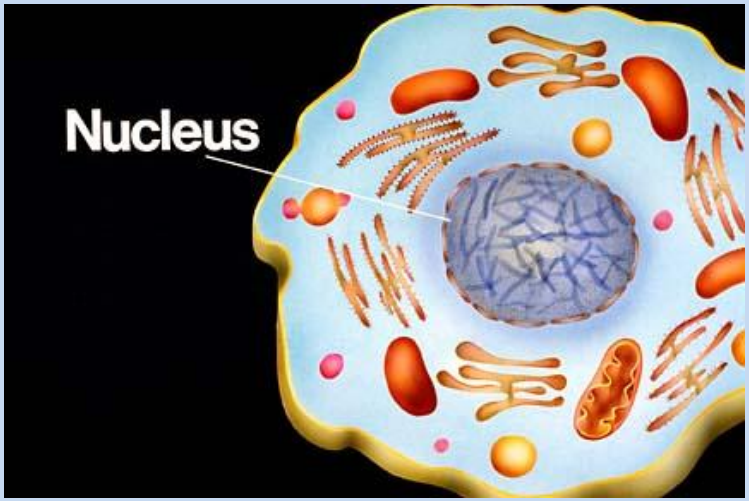
All cells have a cell membrane.

What are its 3 functions?

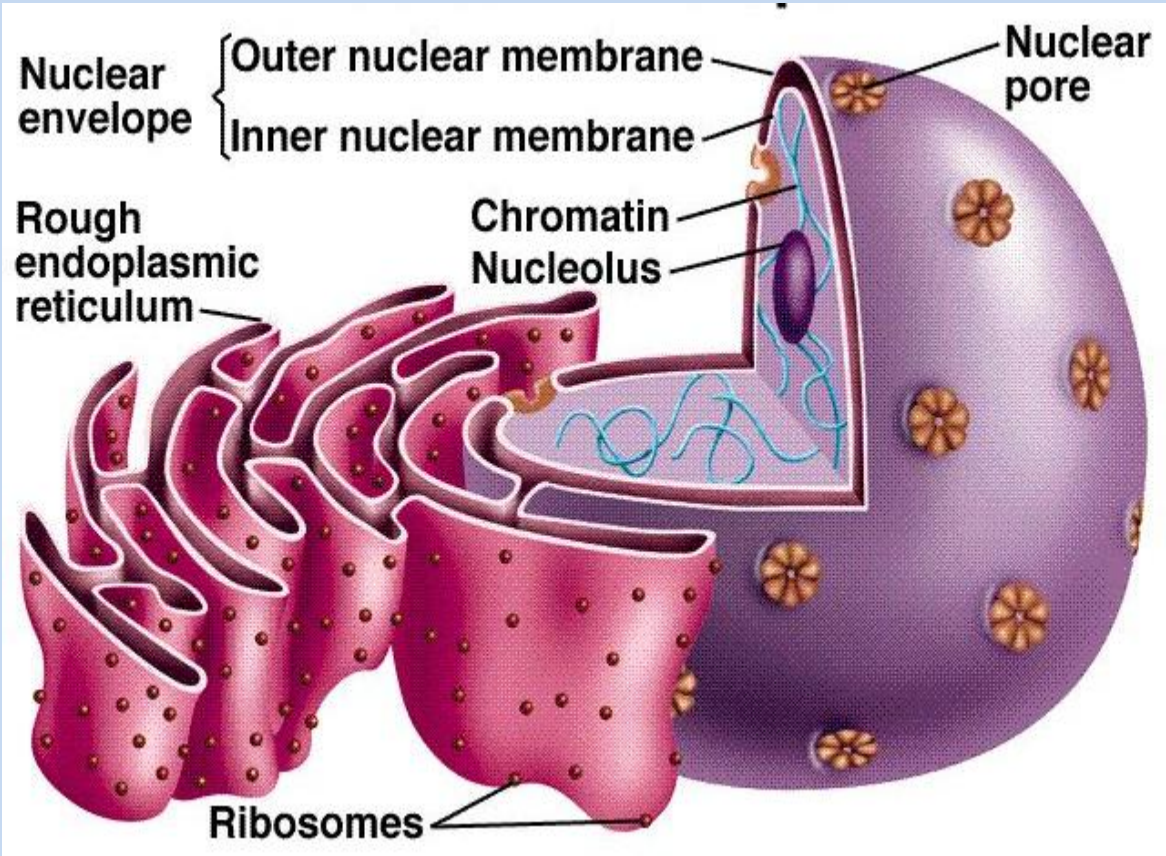
- _____
- _____
- _____

Nucleus

- A large organelle near the center of the cell is the **NUCLEUS**.
- It contains the cell's genetic information
- It controls the activities of the cell.



Ultra Structure of The Nucleus



What's in a nucleus

The nucleus is made up of a double membrane with numerous nuclear pores.

These control the movement of substances into and out of the nucleus

A nucleolus which contains RNA, DNA, and Proteins and it makes Ribosomes

Chromatin which contains DNA that is arranged into chromosomes which stores our genes

Fill in the blanks

The control center of the cell is called the _____.

It is enclosed by a double membrane called the _____ _____.

Openings in the nuclear envelope called _____ allow for movement of substances in and out of the nucleus

Structures inside the nucleus that contain DNA and proteins are called _____.

Since DNA cannot leave the nucleus, genetic information is copied into molecules of _____ and sent out into the cytoplasm. This information is used to manufacture _____.