
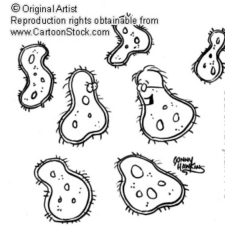


Cells!

What is a cell?

- A cell is the basic unit of life
- All living things have cells whether it is one or many

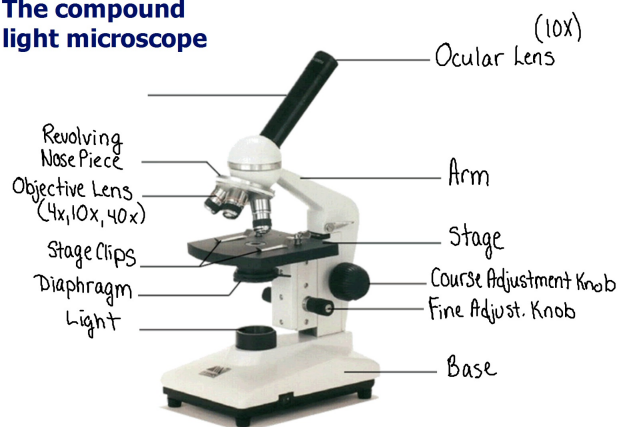
 Introduction to Cells



"C'mon, Baby - we'll make beautiful mucous together!"

How do we see cells?

The compound light microscope



Parts of the microscope:

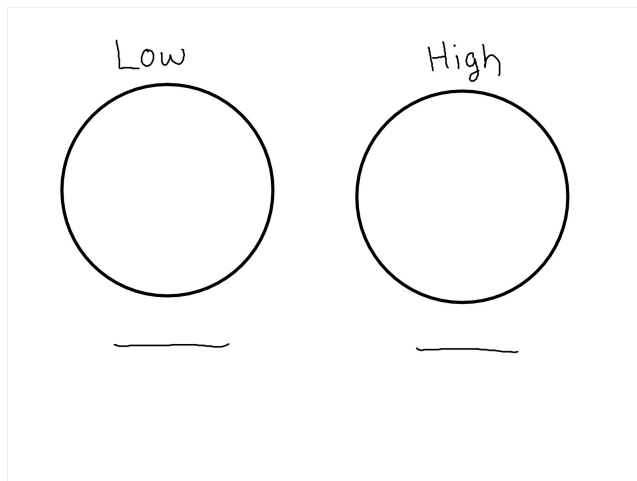
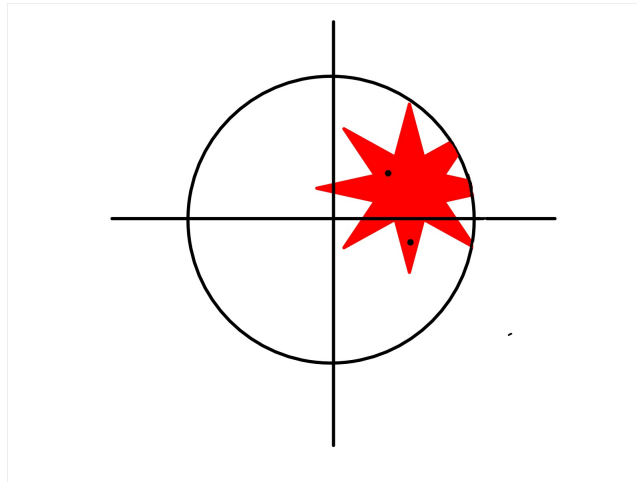
Ocular lens: lens in the eyepiece (you look through it)

Course adjustment: Used to move the stage and first focusing

Fine adjustment: Used to focus on higher objective lenses

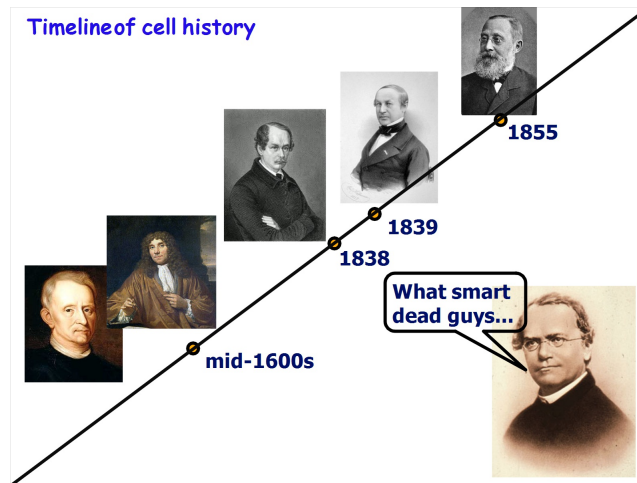
Diaphragm: changes the amount of light that comes through the stage

Total magnification=ocular mag. x objective mag



Cell Scientists

Von Leewenhoek	First to see bacteria and protists (mid-1600s)
Hooke	Looked at thin slices of cork under microscope thought little boxes (cell walls) looked like the rooms they lived in, in the monastery, so named them "cells" (mid-1600s).
Schleiden	German scientist who concluded that all plants are made of cells (1838)
Schwann	German scientist who concluded that all animals are made of cells (1839)
Virchow	Proposed that all cells come from pre-existing cells (1855)

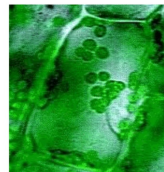
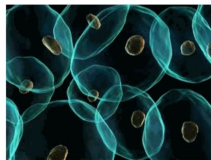


So, the dead guys' work led to:

The 3 parts of Cell Theory:

1. All living things are made of cells
2. Cells are the basic unit of life
3. All cells come from pre-existing cells

Cell Theory Song



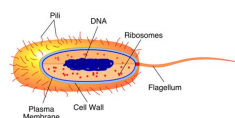
PROKARYOTES

- SINGLE-CELLED!!
- found in most environments
- simplest of organisms

Characteristics:

- no nuclear membrane
- DNA is loose in the cytoplasm
- No "membrane bound" organelles
- Does have cell membrane, ribosomes, DNA, and cytoplasm

Ex's: *E. coli*, staphylococcus (MRSA), streptococcus (strep throat)

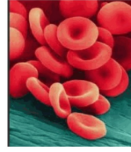
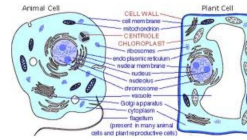


EUKARYOTES

- more complex than prokaryotes
- can be unicellular or multicellular

Characteristics:

- nuclear membrane surrounding nucleus
- LOTS of "membrane-bound" organelles
- Ex: mitochondria, chloroplast, nucleus, etc.
- Ex's: algae, yeast, flowers, humans

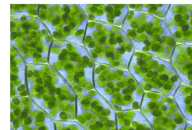
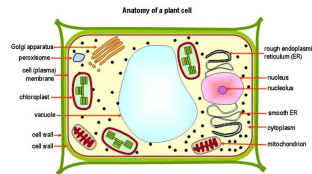


Plant Cells-living things that belong to the Kingdom Plantae are called **PLANTS**.

Characteristics

- Box shaped and green
- multicellular
- eukaryotic
- **AUTOTROPHS**
(photosynthesis, chloroplasts)
- cell walls made of cellulose
- large vacuole

ex: moss, trees, ferns, daisies

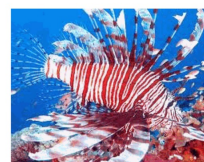
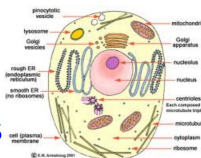


Animal Cells-living things that belong to the Kingdom Animalia are called **ANIMALS**.

Characteristics

- multicellular
- eukaryotic
- **HETEROTROPHS**
- no cell wall
- small vacuole
- round
- Have centrioles

ex: really cute kittens, fish, YOU!



Cell Organelles

Organelle - a small part of a cell that has a specific job w/in the cell. Means "tiny organ".

Cell Organelles

● **Mitochondria**- create energy (ATP) for the cell; the "powerhouse" of the cell. Folded inner membrane to increase surface area.



● **Nucleus**- Helps control cell activities and contains **DNA**. The "brain" of the cell. Surrounded by a membrane.



● **Ribosomes**- synthesizes proteins for the cell. Made of two small sub units.



● **Centrioles**- help separate the chromosomes during cell division



● **cell wall** - rigid structure used to support plant cells; made of cellulose



● **Cell membrane** - lipid bilayer that surrounds the cell and controls what enters and leaves (maintains homeostasis).



● **Vacuole**-membrane-bound sac that stores food, water, and waste; very large in plants



● **Chloroplast**-produce food (glucose) for the plant through photosynthesis.



● **cytoplasm**- jelly-like substance that fills the cell



Plant Cell Drawing

Create a plant cell drawing. You will need to include and label the following:

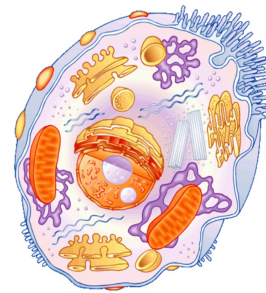
- cell wall
- cell membrane
- large central vacuole
- chloroplasts
- mitochondria
- ribosomes
- nucleus



Animal Cell Drawing

Create a drawing of an animal cell. You will need to include and label the following:

- Cell membrane
- nucleus
- mitochondria
- centriole
- vacuole
- ribosome



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