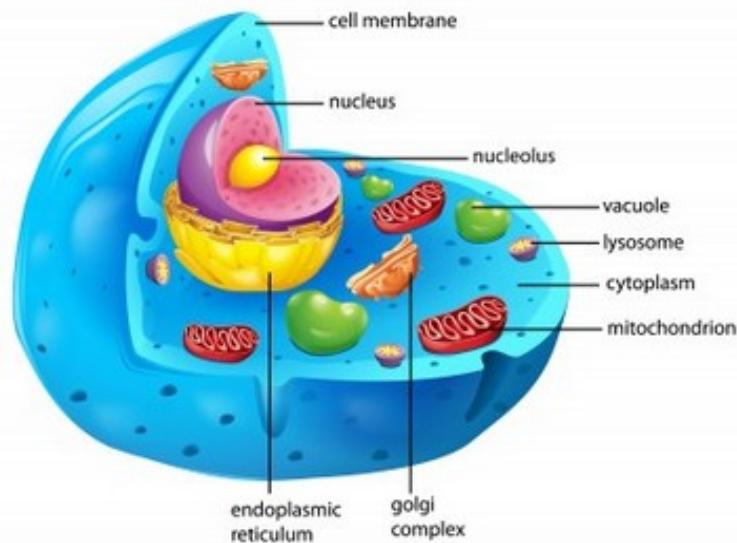


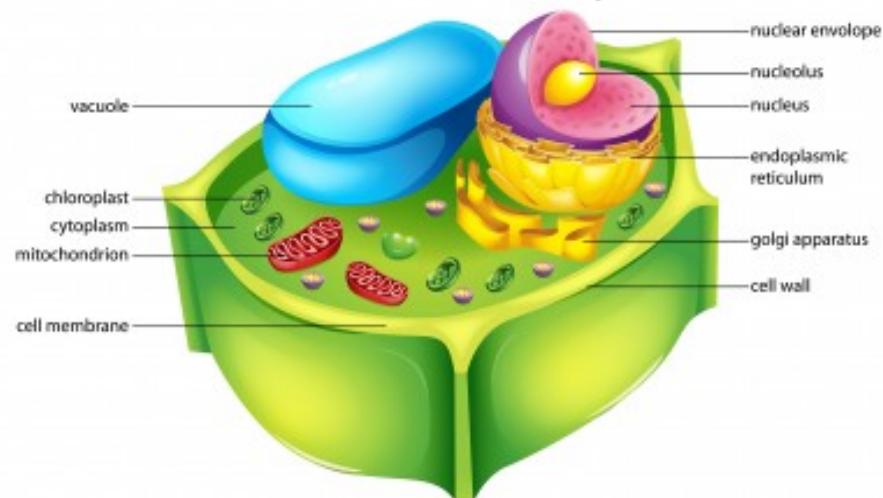
Structures of the Cell

(all images from biology.tutorvista.com)

Anatomy of an Animal Cell



Plant Cell Anatomy



As an aside ... *Ascaris lumbricoides*

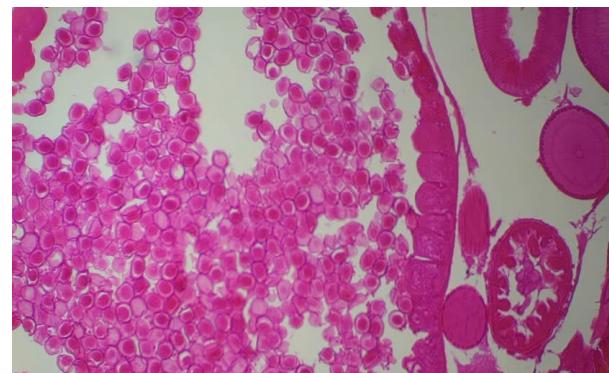
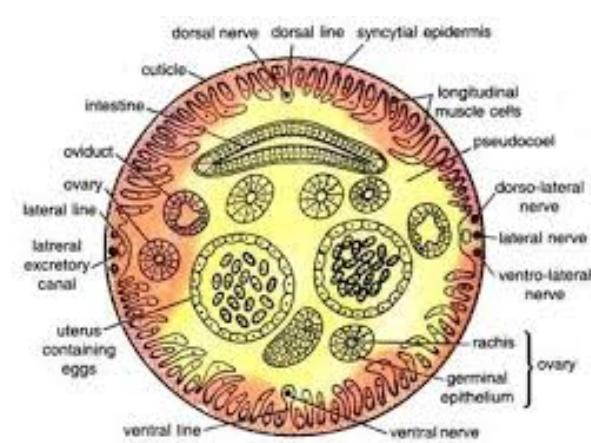
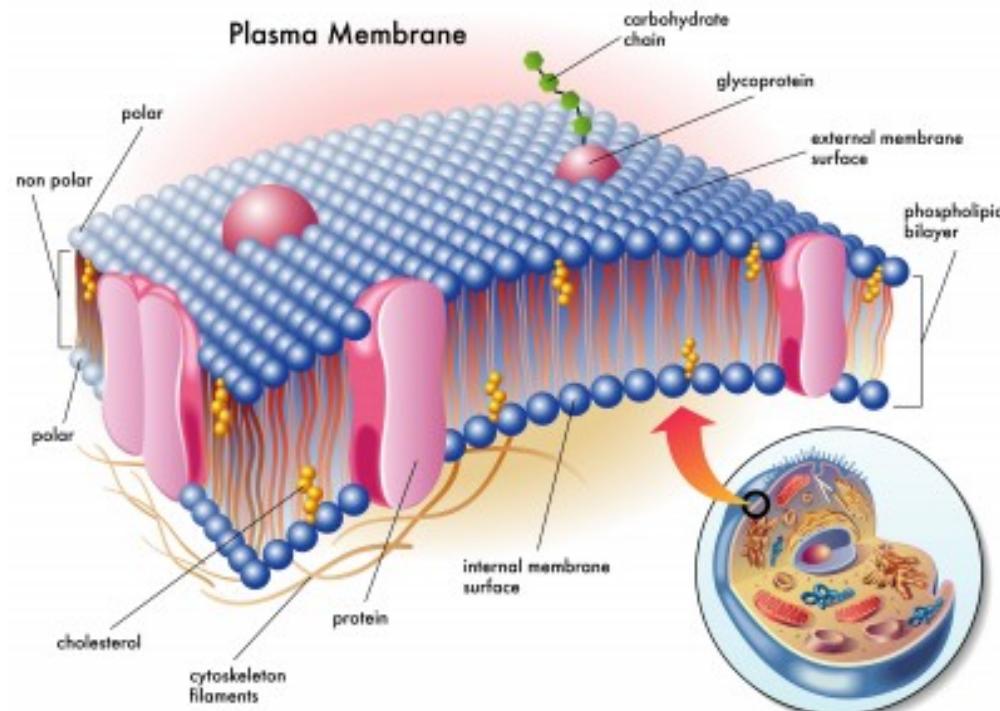


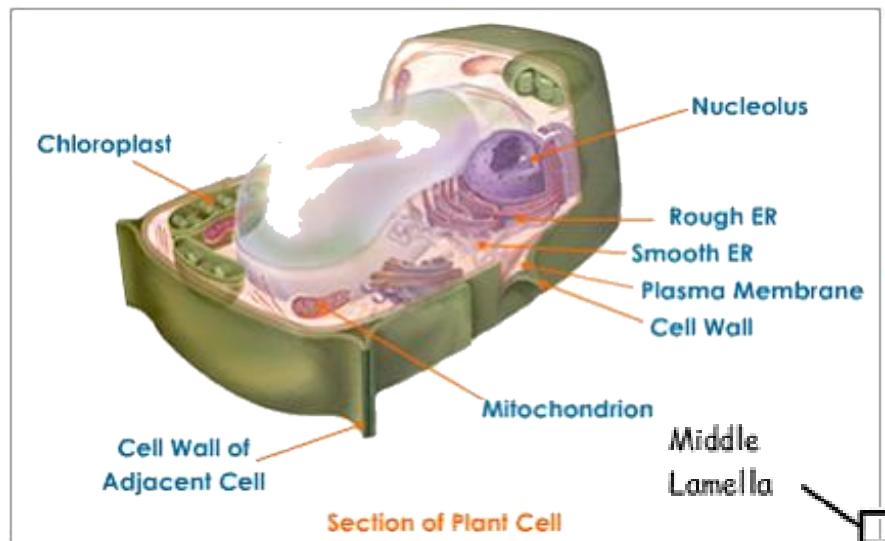
Fig. 46.14. *Ascaris lumbricoides*. T.S. of a mature female.

Cell Membrane

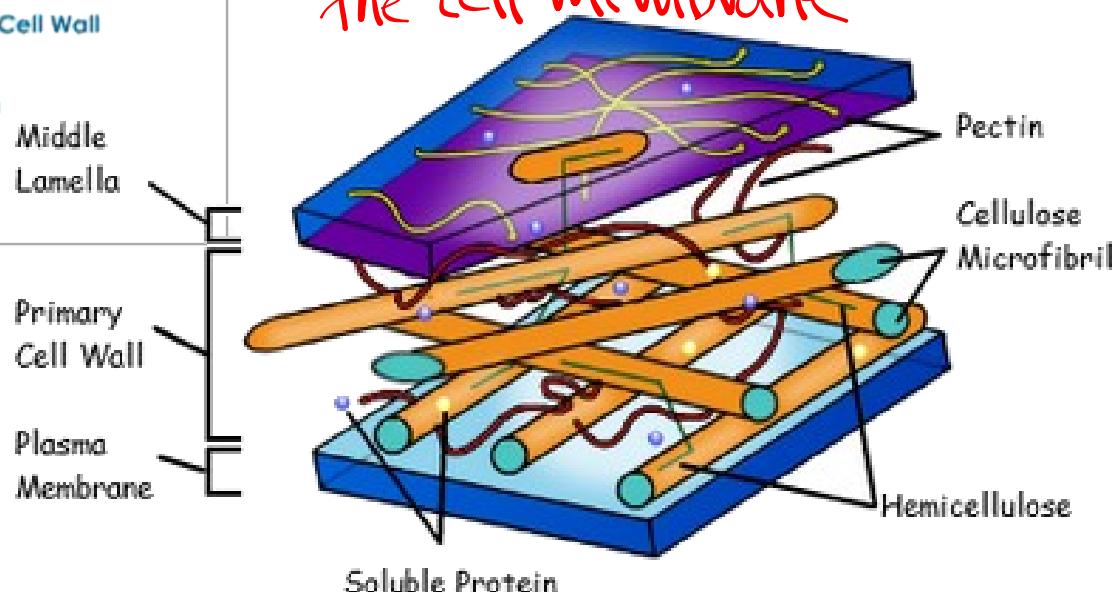


Keep insides & outsides separate

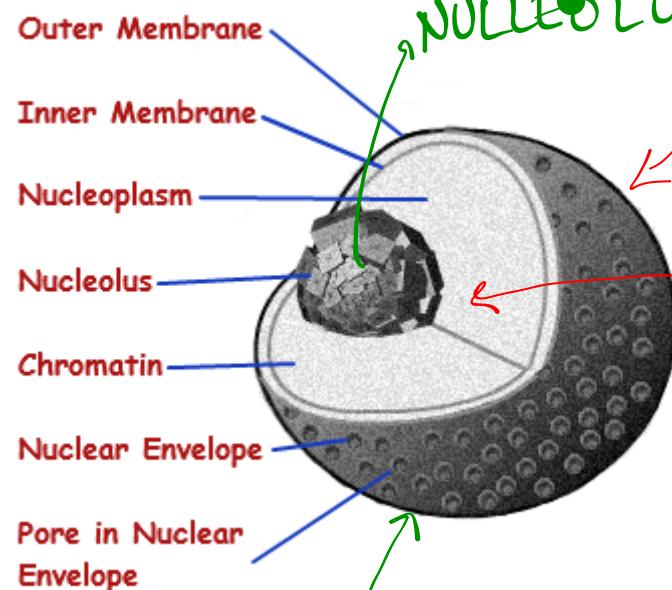
Cell Wall



- Only in plants
- Acts as a structural barrier in addition to the cell membrane



Nucleus, Nuclear Envelope, Nucleolus, Chromosomes

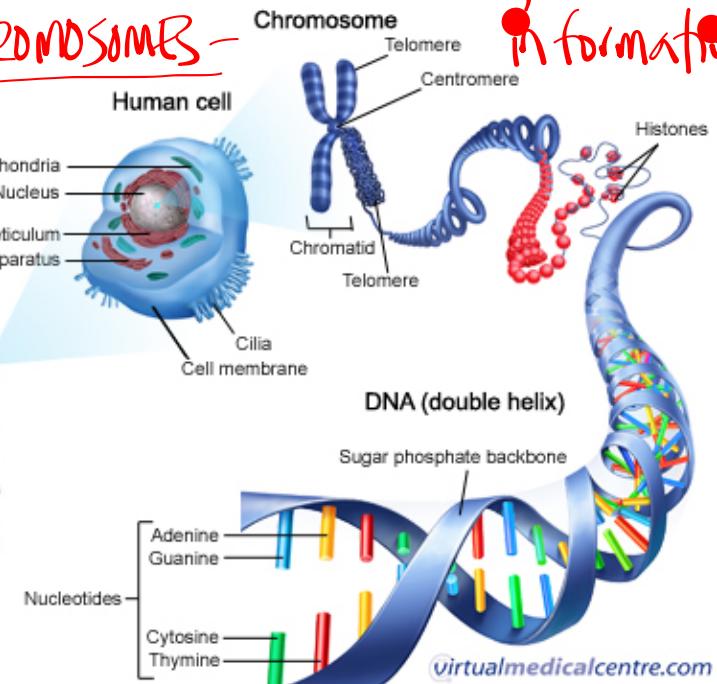
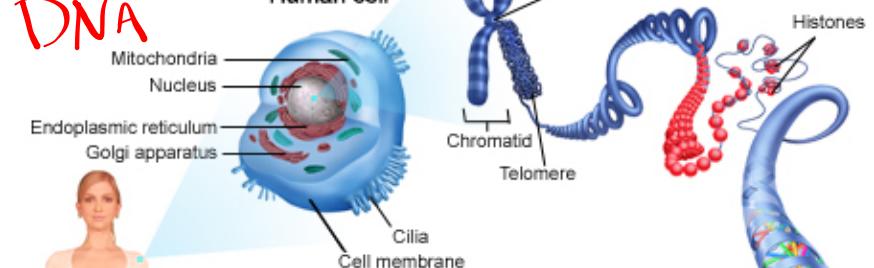


NUCLEAR ENVELOPE:
Membrane that surrounds nucleus

NUCLEOLUS • a blob in the nucleus where ribosomes are made

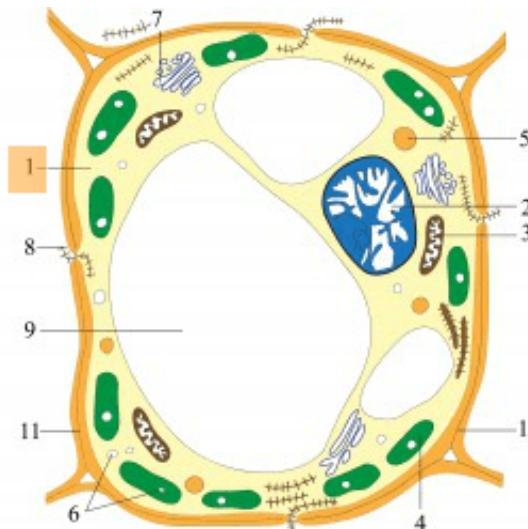
NUCLEUS — a blob in the cell that holds genetic information

CHROMOSOMES — DNA



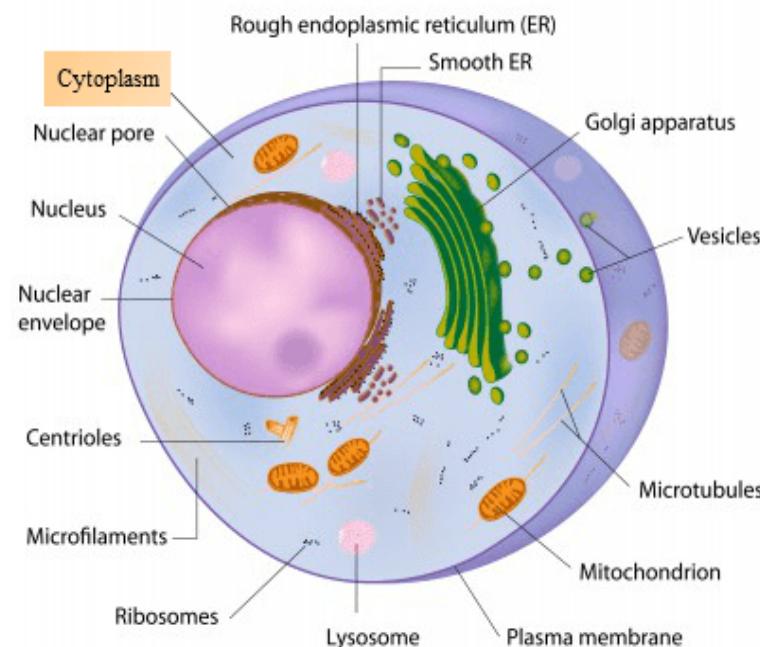
Cytoplasm

- 1 - cytoplasm;
- 2 - nucleus with chromatin;
- 3 - mitochondria;
- 4 - chloroplasts;
- 5 - chromoplast;
- 6 - starch grains;
- 7 - Golgi apparatus;
- 8 - endoplasmic reticulum;
- 9 - vacuoles with inclusions;
- 10 - cell wall;
- 11 - median plate.

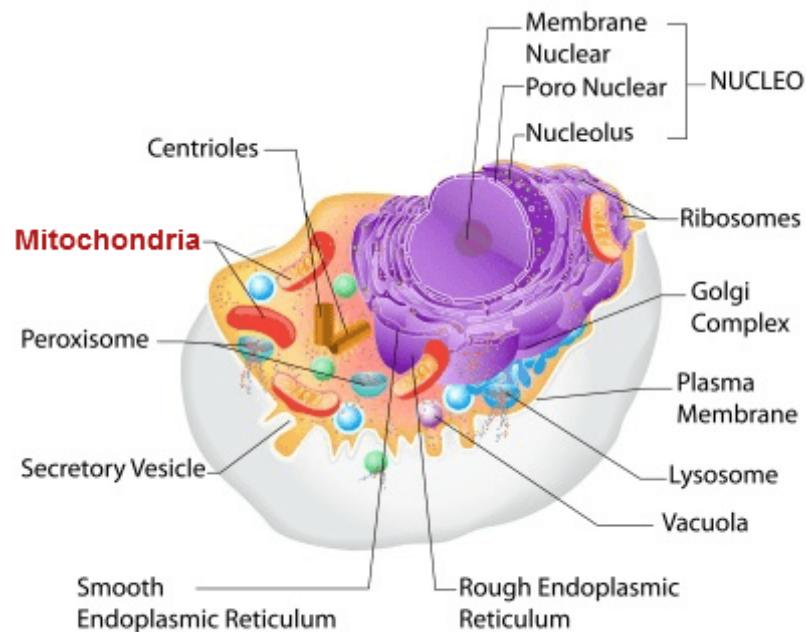


• Fluid within a cell
• Fills & supports cell structures

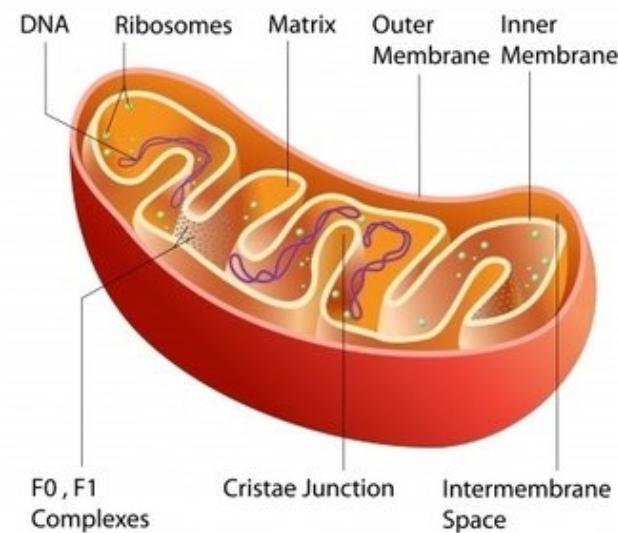
Structure of a Typical Animal Cell



Mitochondria

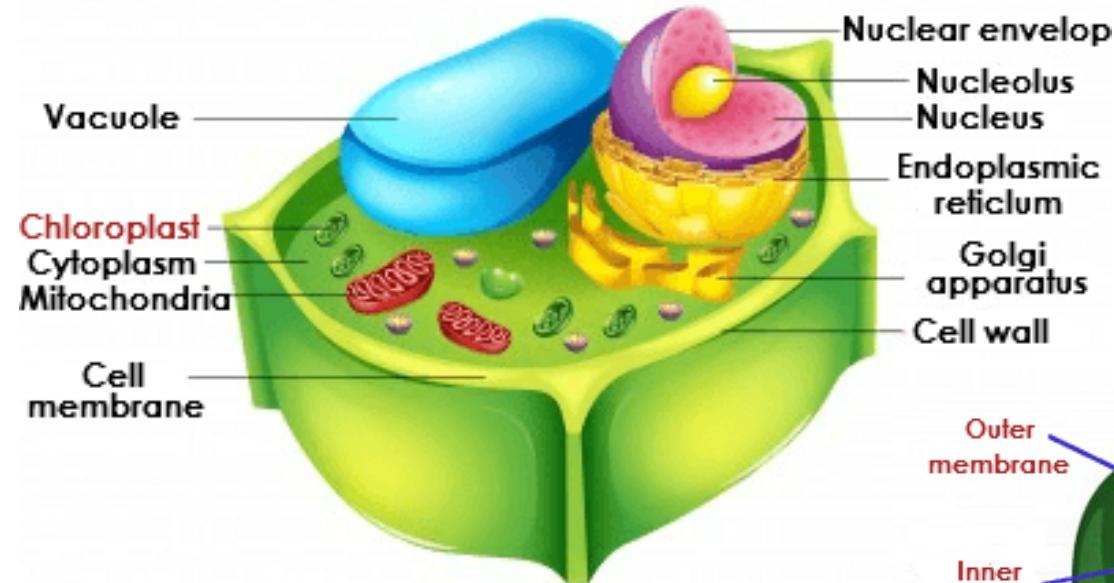


Produce the main energy molecule (ATP)

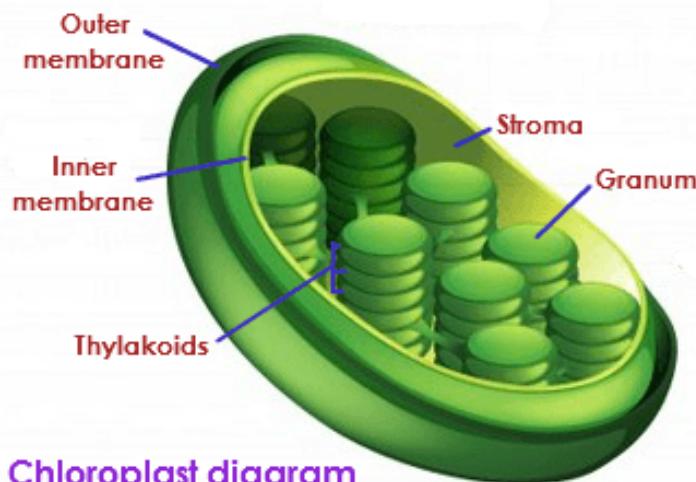


Chloroplasts

Plant Cell

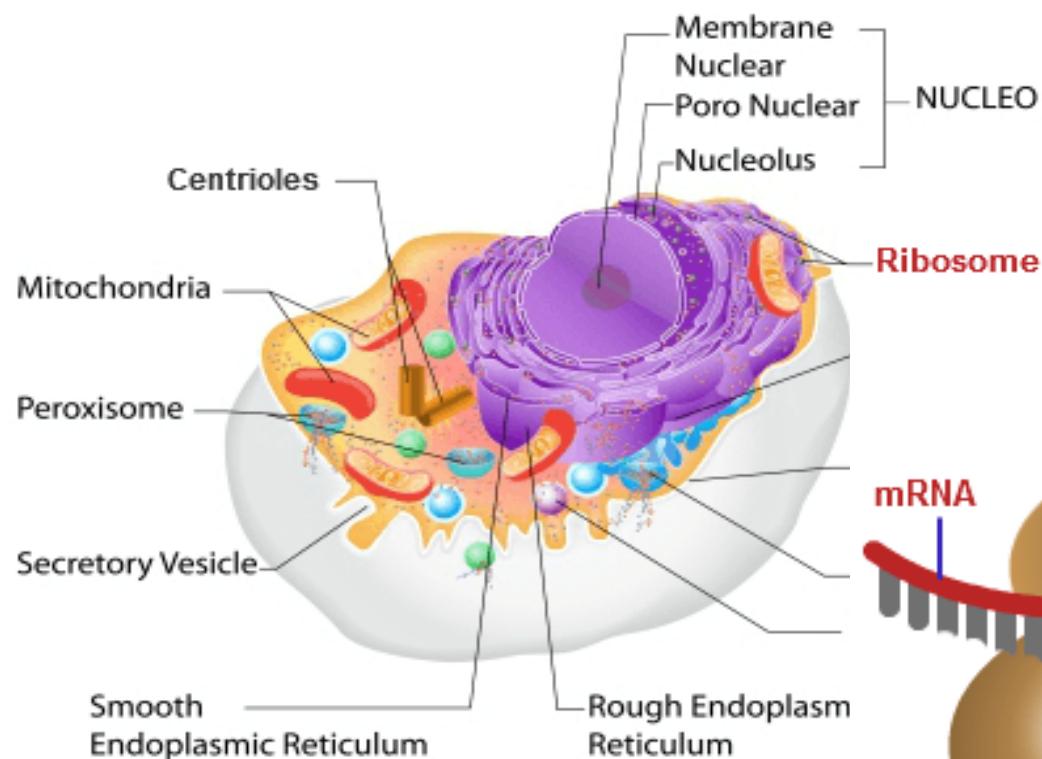


- A type of "plastid"
- Use sunlight to make sugars

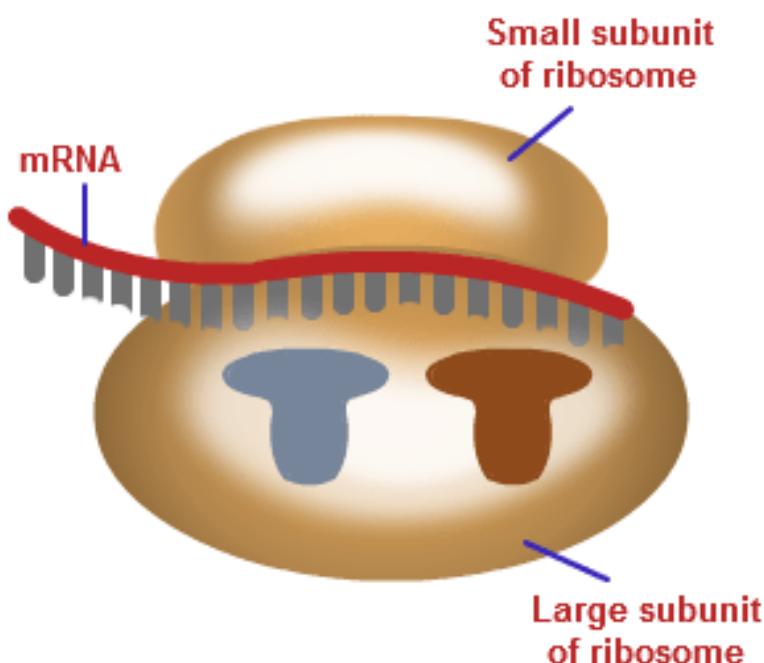


Chloroplast diagram

Ribosomes

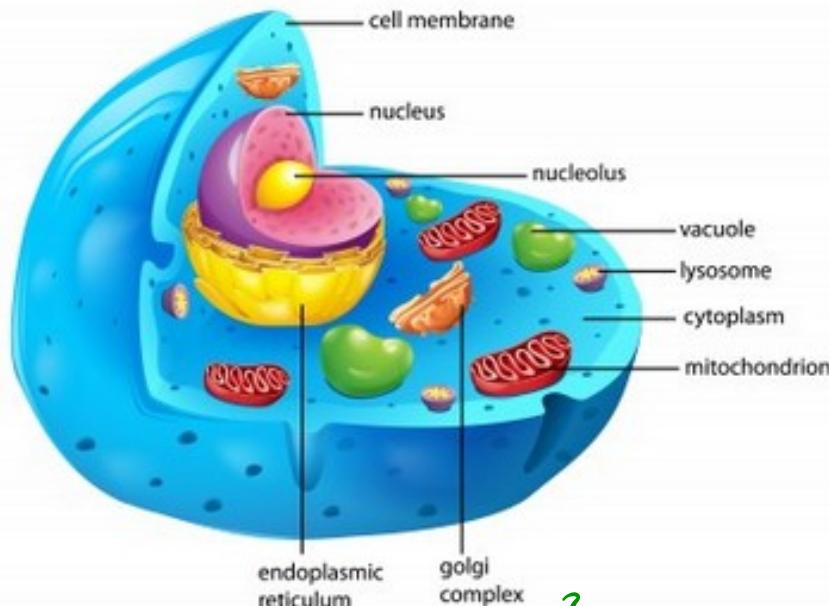


• Structures that assemble proteins from amino acids



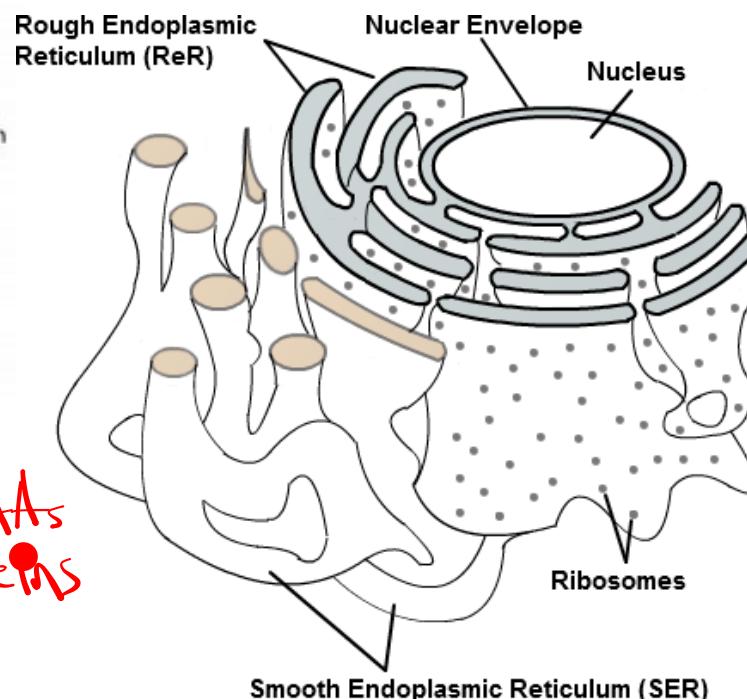
Endoplasmic Reticulum

Anatomy of an Animal Cell

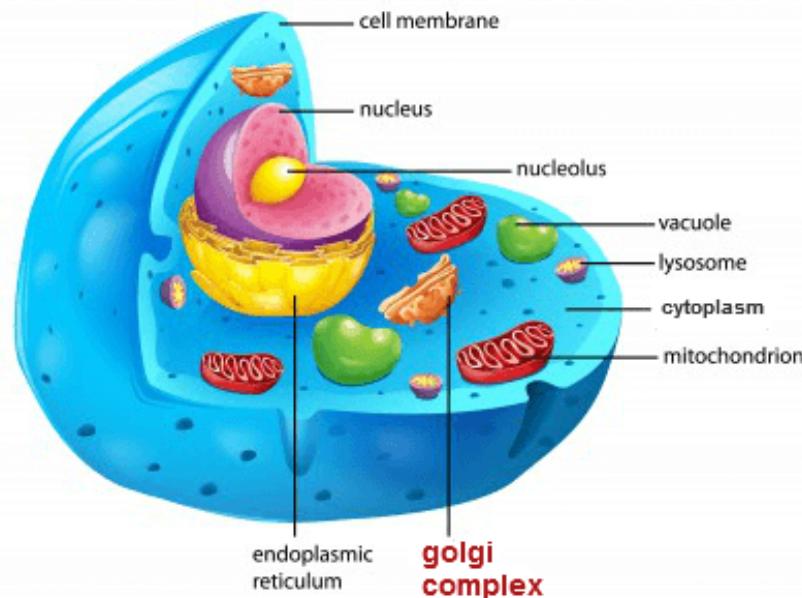


full of amino acids
ribosome assemble AAs into proteins

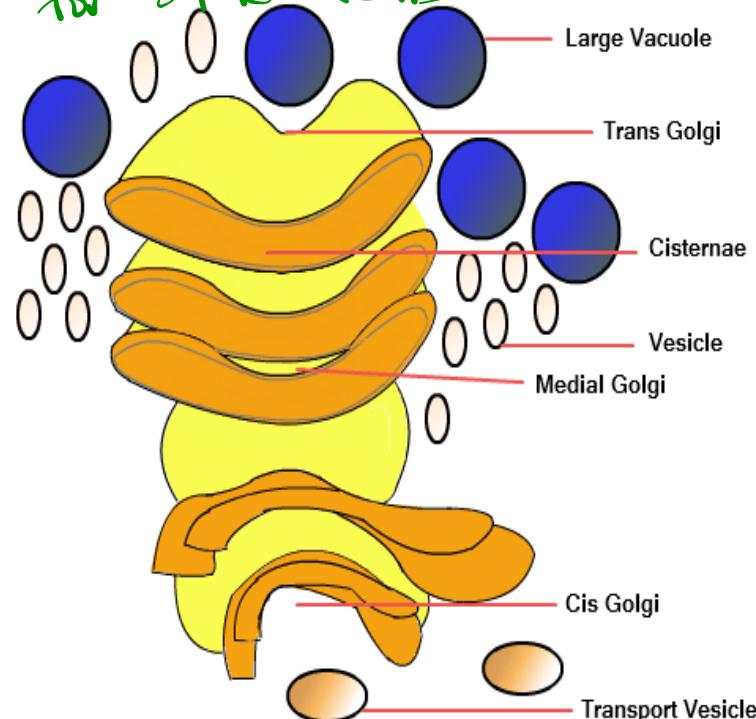
- Membrane attached to the nuclear envelope
- Rough ER has ribosomes on it that make proteins



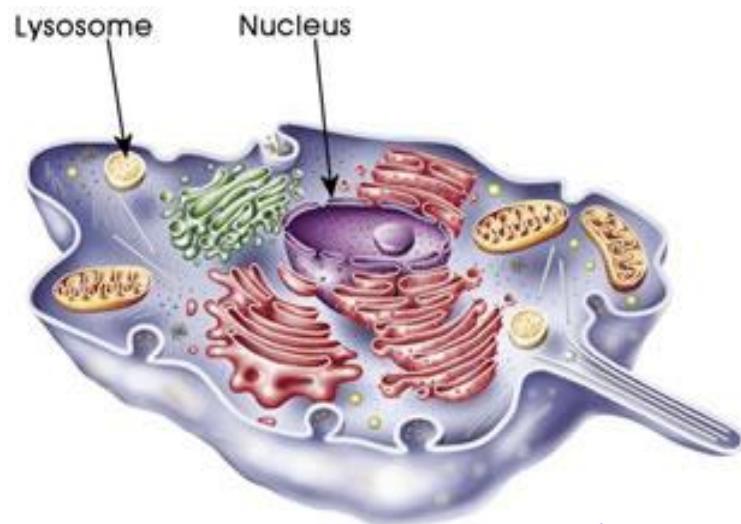
Golgi Apparatus



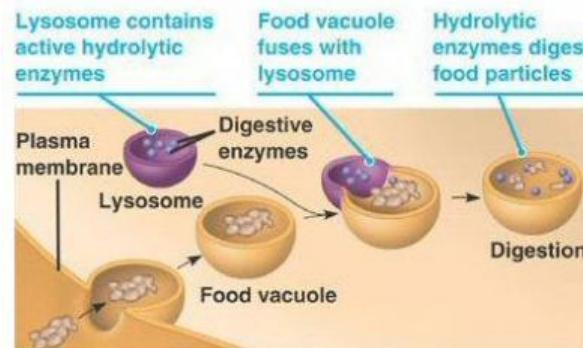
- Packages molecules (proteins, lipids, etc.) for other areas in the cell or for other cells



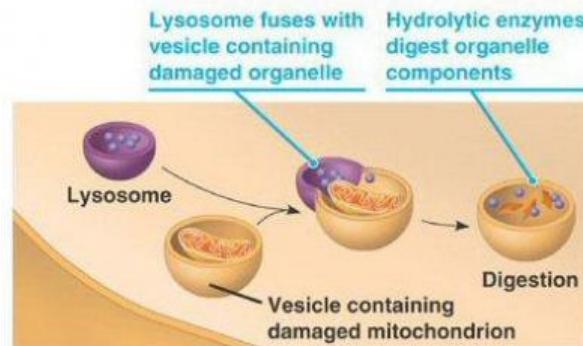
Lysosomes



Break down waste products

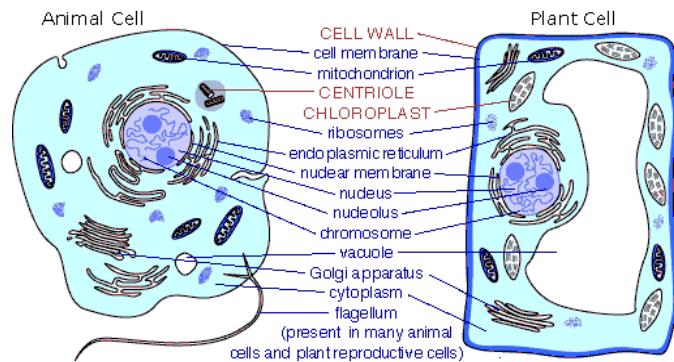


(a) Phagocytosis: lysosome digesting food

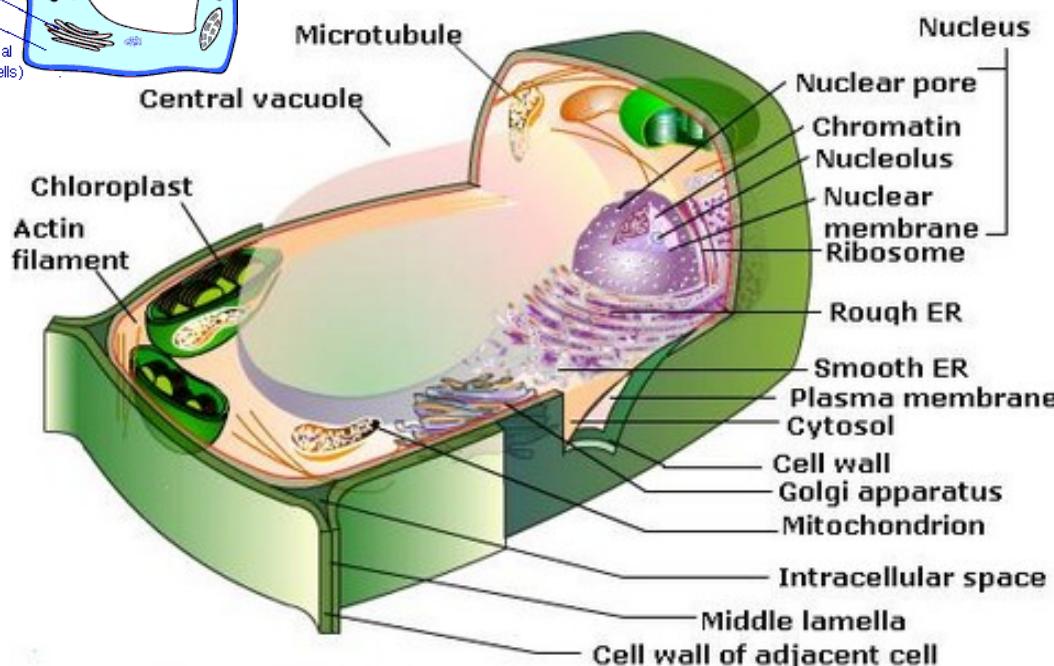


(b) Autophagy: lysosome breaking down damaged organelle

Vacuole

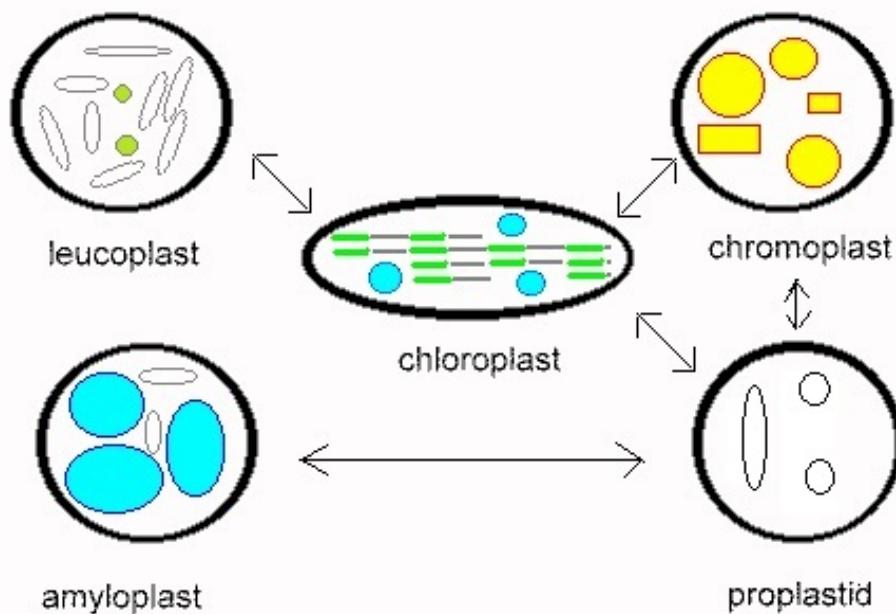


- Storage
- Structure (in plants)



Section of plant cell as seen under the electron microscope

Plastids



- Found only in plants
- Specialty structures
 - Storage/ manufacture of special substances
 - associated with pigments
 - chloroplast is one type