

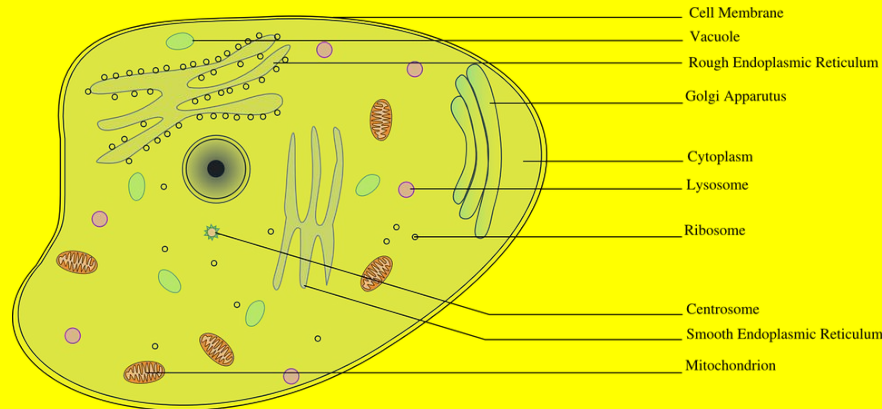
Science Night

Saline Middle Science Olympiad

What is a cell?

A cell is the smallest structural and functional unit of an organism. Cells are the basic structures of all living things.

- What are examples of cells?
- Are there single cell organisms?
- Which do you think is more likely to be able to live by itself - an amoeba or a neuron?



Cross Section of an Animal Cell

Different kinds of cells

Prokaryote

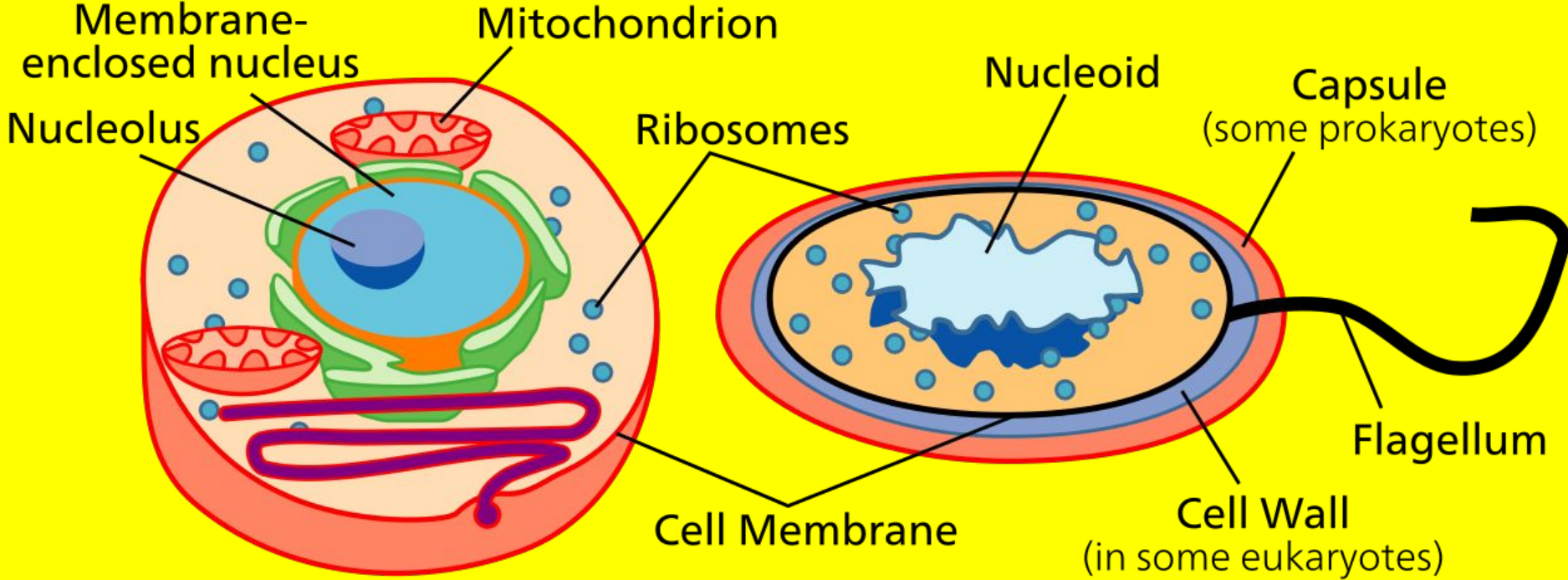
- Simple cells, no nucleus or other membrane bound structures
- What is an example of a prokaryote?

Eukaryote

- More complex cells, must have a nucleus, have specific structures that have jobs (organelles).
- What is an example of a eukaryote?

Eukaryote

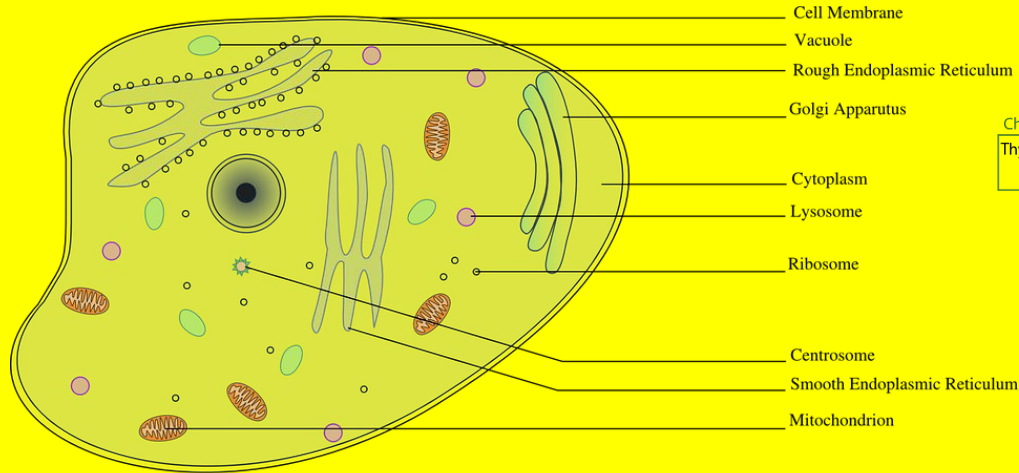
Prokaryote



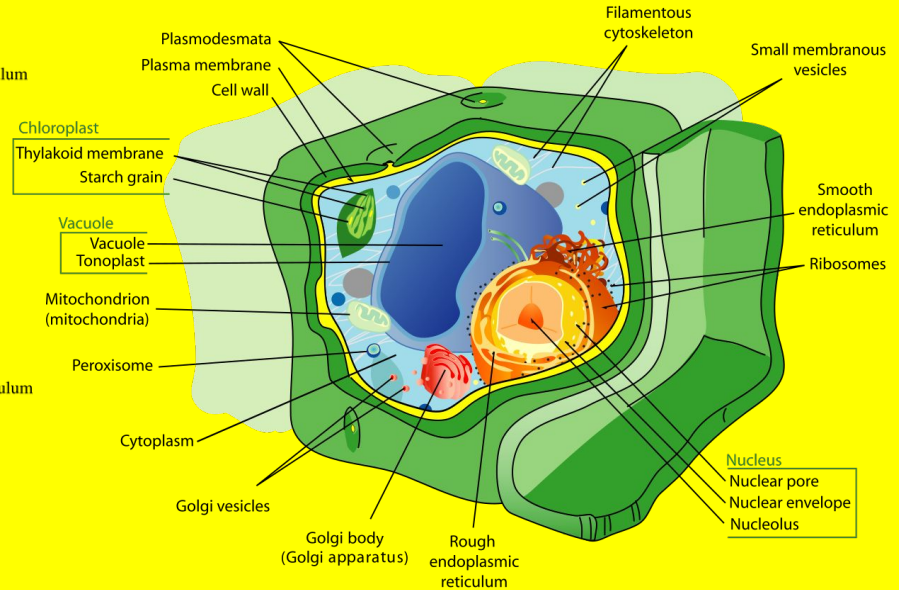
Eukaryotic cells

Animal cell

Plant cell



Cross Section of an Animal Cell



Cytoplasm

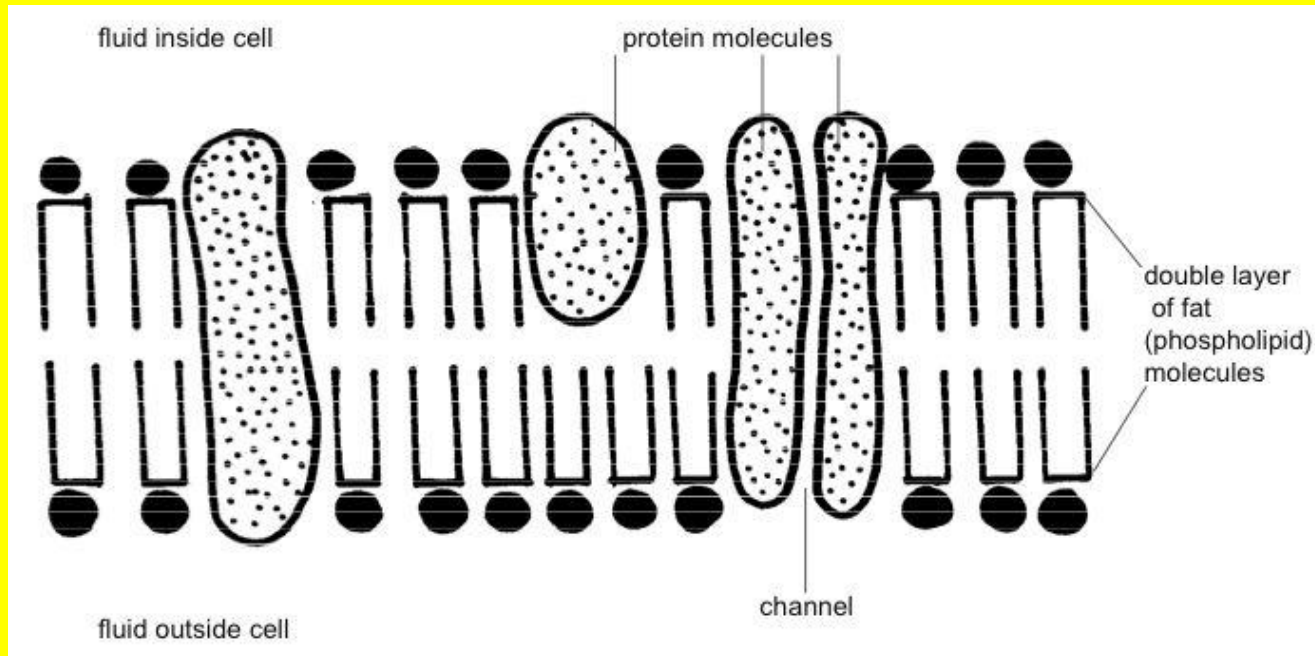
Thick fluid that fills a cell, located between the cell membrane and outside the nucleus.

Cytosol is the solution that makes up the cytoplasm, contains proteins, enzymes, ribosomes and other things.

It does have a structure.

Cell membrane

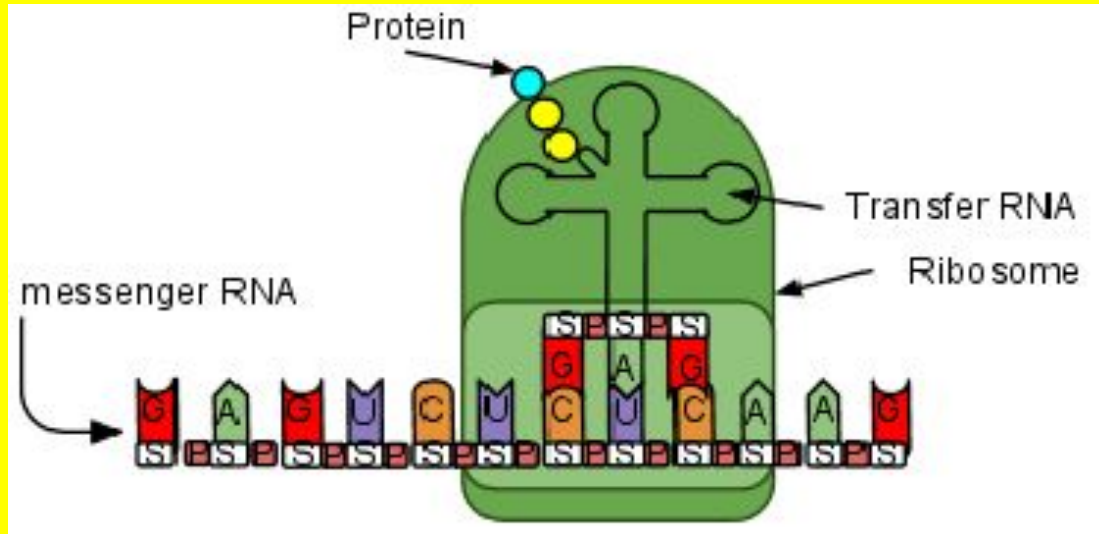
Lipid bilayer made of fats and proteins.



Ribosomes

Nucleus sends out copies of the DNA to make a protein called mRNA.

Floating ribosomes make proteins for within the cell, in the ER they make proteins for packaging.

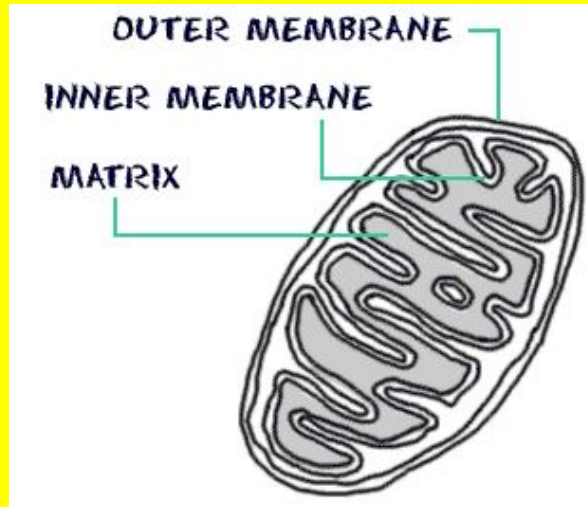


Mitochondria

The powerhouse of the cell!

Has its own DNA

Uses nutrients to produce energy through cellular respiration.

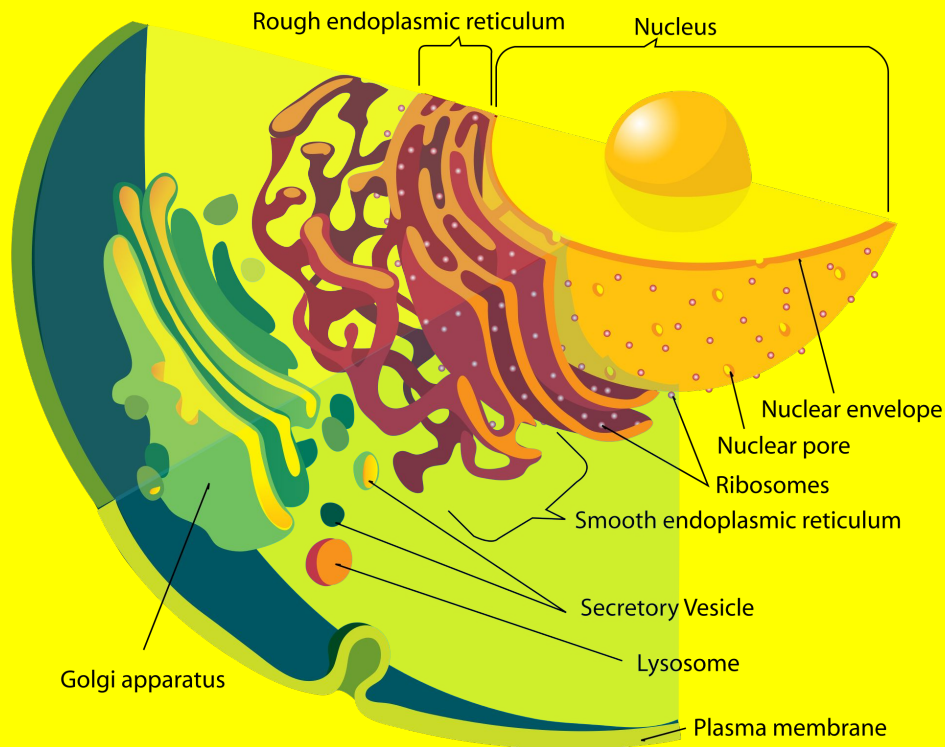


Endoplasmic reticulum

Two kinds, smooth and rough

Smooth - involved with lipid metabolism and stores steroids

Rough - located near the nucleus, and contains ribosomes. Makes and packages proteins as they are translated.

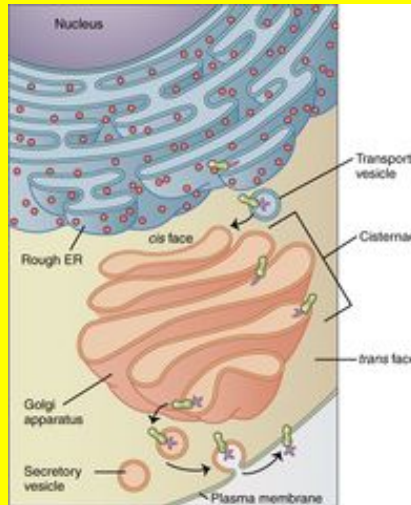


Golgi bodies

Series of flattened sacs that go from the endoplasmic reticulum to the cytoplasm.

Makes complex molecules from simple molecules.

Packages these molecules for delivery to other parts of the cell or storage.

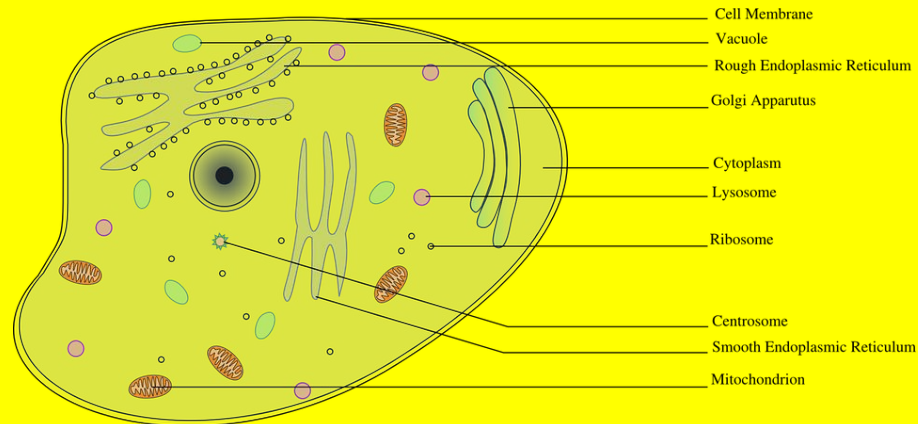


Nucleus

The brains of the cell - it directs activities within the cell.

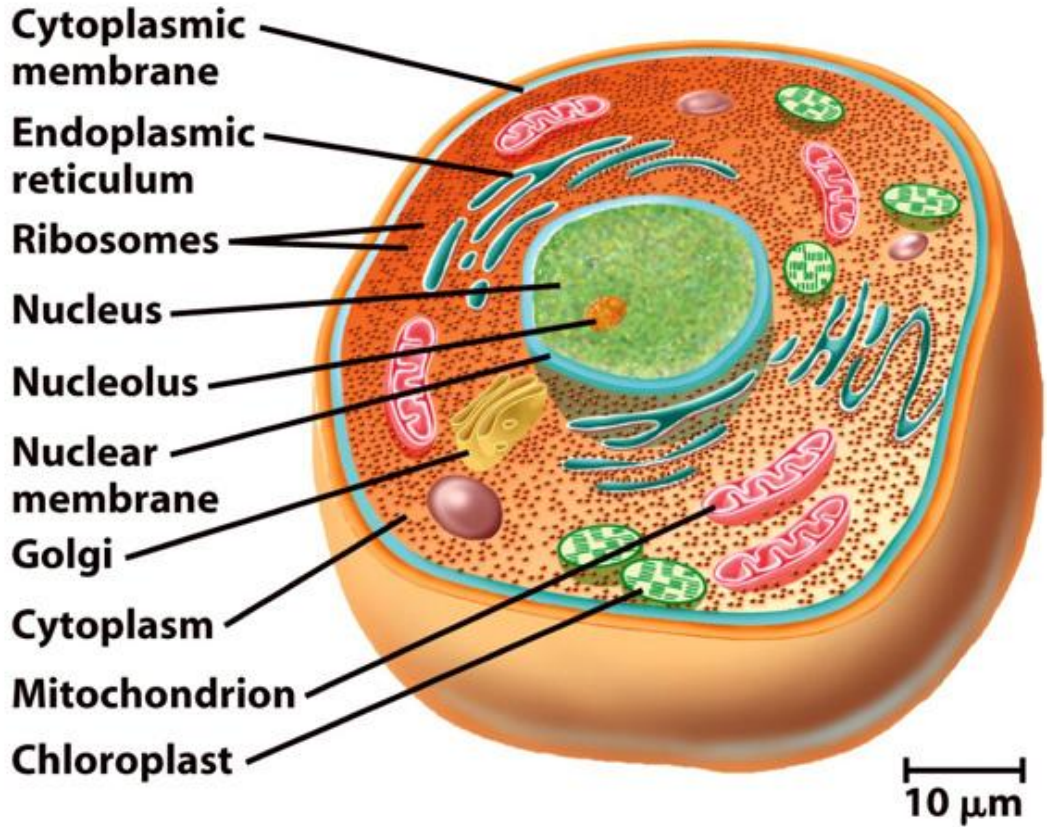
Contains DNA, which stores all of the information for the cell.

mRNA makes short copies of part of the DNA sequence that leave the nucleus to be made into proteins.



Cross Section of an Animal Cell

Eukaryotic cell



Cytoplasm-Frosting

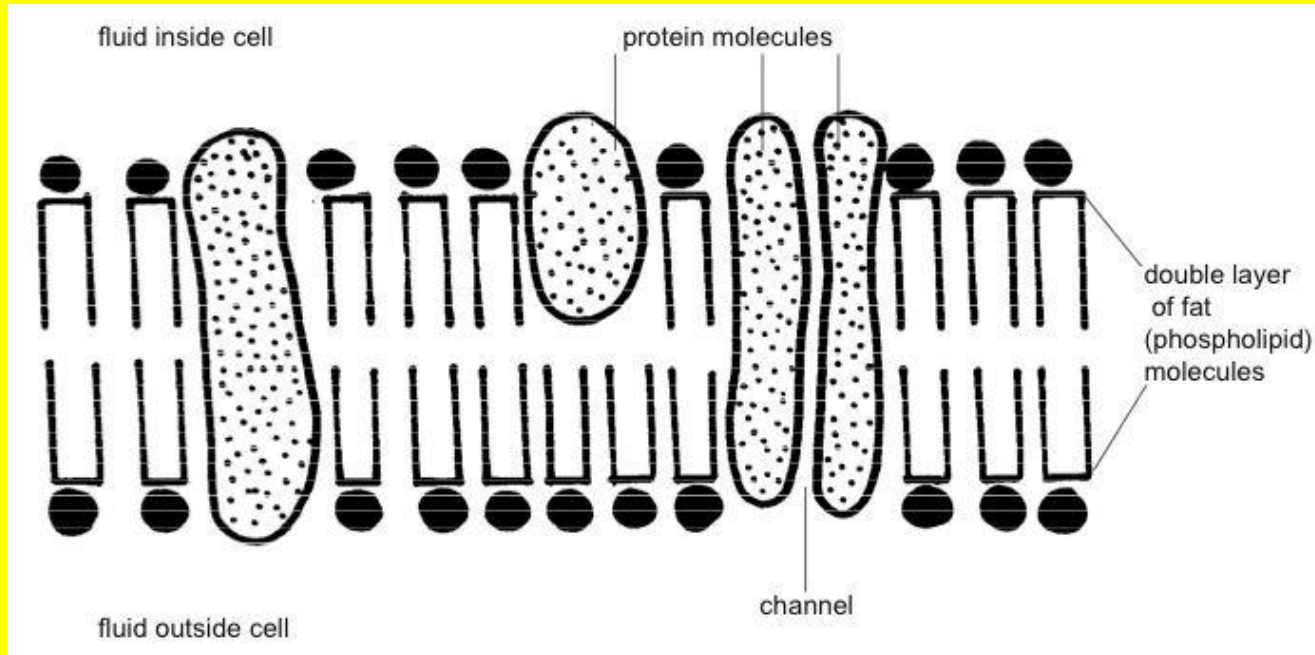
Thick fluid that fills a cell, located between the cell membrane and outside the nucleus.

Cytosol is the solution that makes up the cytoplasm, contains proteins, enzymes, ribosomes and other things.

It does have a structure.

Cell membrane-Licorice

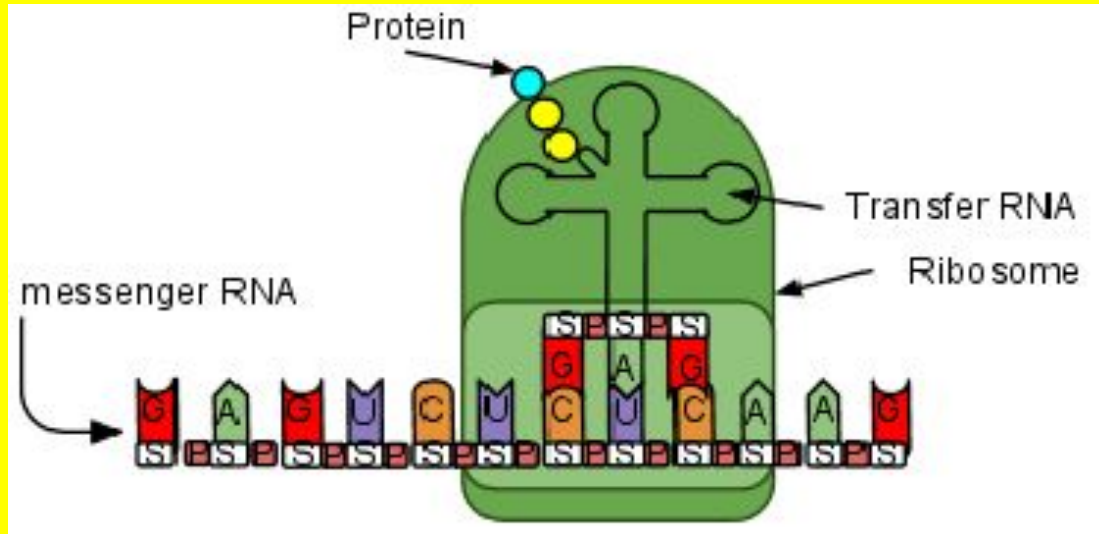
Lipid bilayer made of fats and proteins.



Ribosomes-Sprinkles

Nucleus sends out copies of the DNA to make a protein called mRNA.

Floating ribosomes make proteins for within the cell, in the ER they make proteins for packaging.

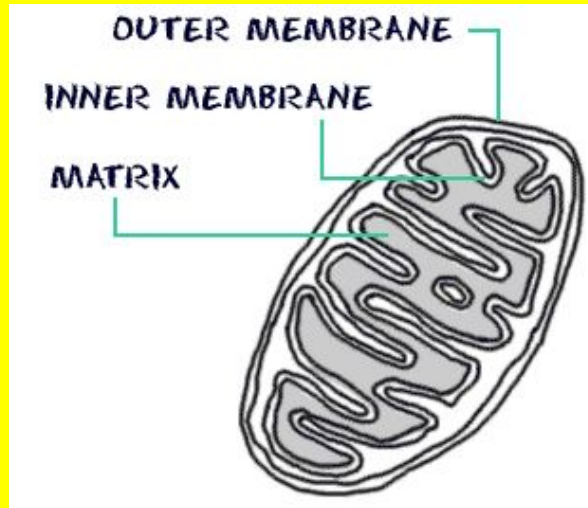


Mitochondria-Chocolate chips

The powerhouse of the cell!

Has its own DNA

Uses nutrients to produce energy through cellular respiration.

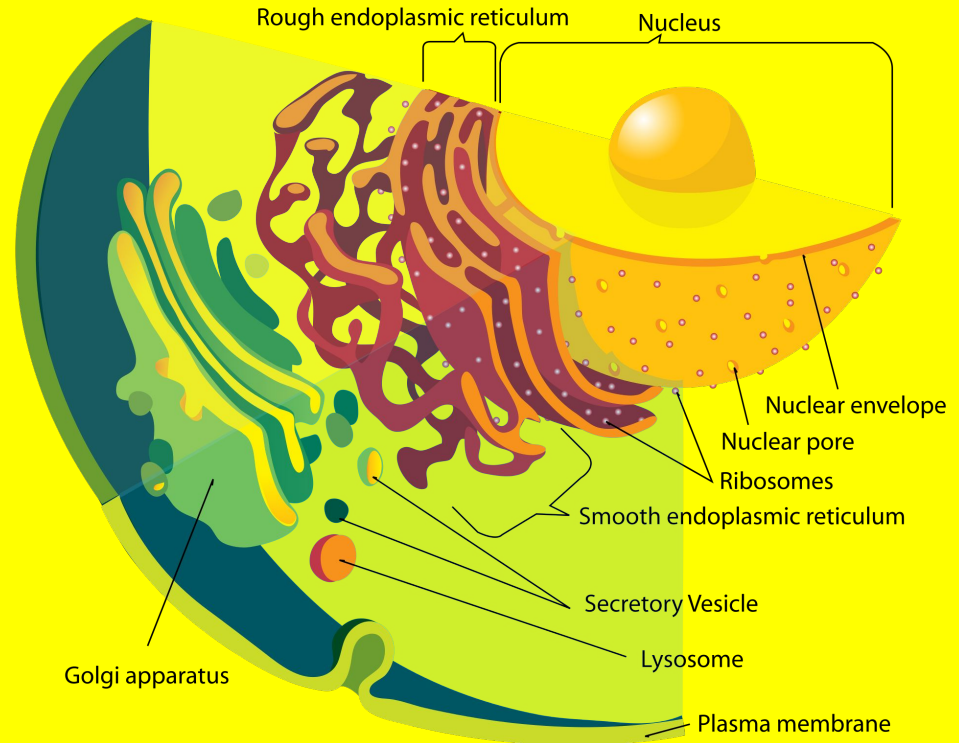


Endoplasmic reticulum-Fruit rolls

Two kinds, smooth and rough

Smooth - involved with lipid metabolism and stores steroids

Rough - located near the nucleus, and contains ribosomes. Makes and packages proteins as they are translated.

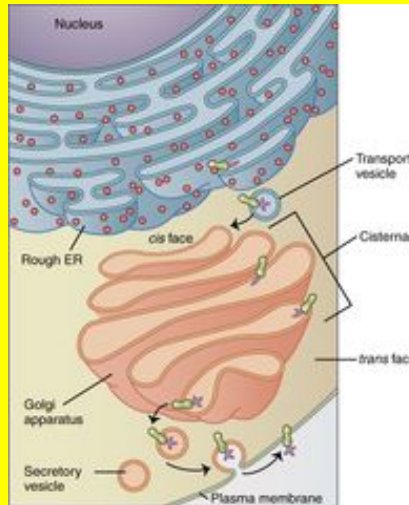


Golgi bodies-Jelly beans

Series of flattened sacs that go from the endoplasmic reticulum to the cytoplasm.

Makes complex molecules from simple molecules.

Packages these molecules for delivery to other parts of the cell or storage.

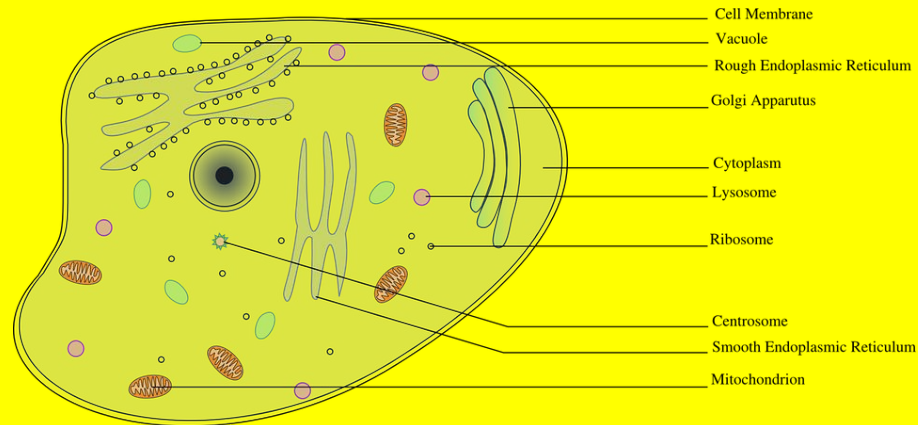


Nucleus-Mint candy

The brains of the cell - it directs activities within the cell.

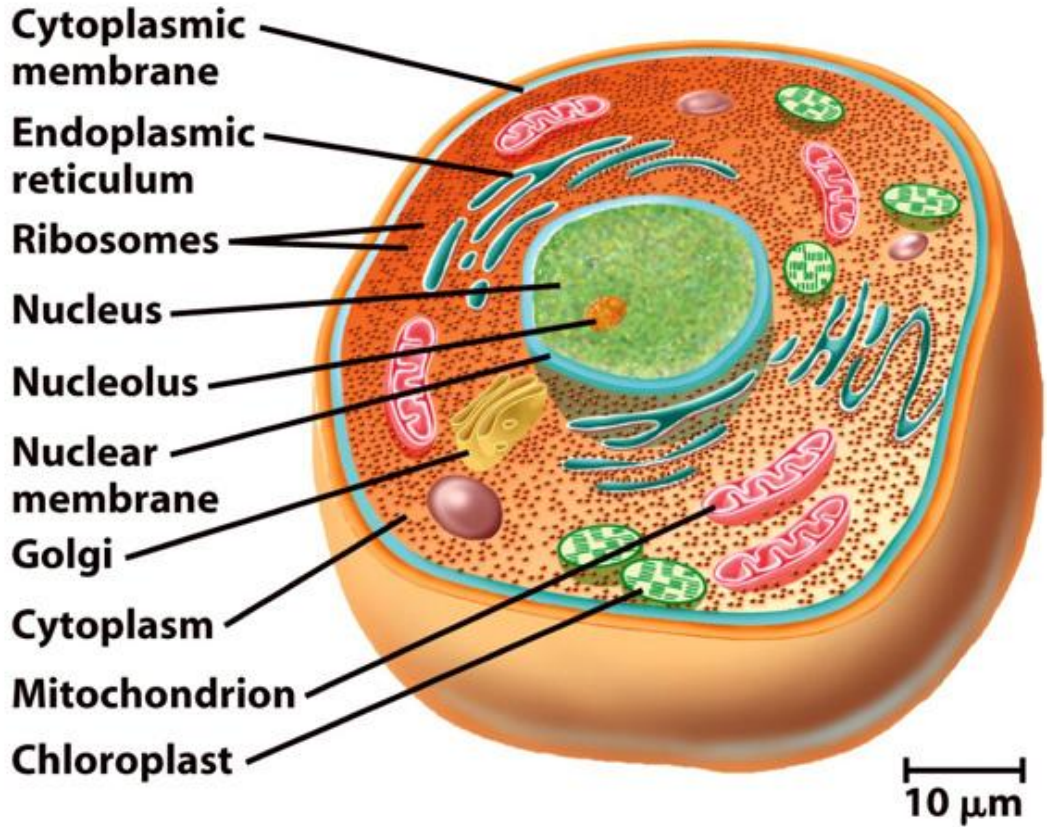
Contains DNA, which stores all of the information for the cell.

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Cross Section of an Animal Cell

Eukaryotic cell



Other important cell terms to know

Cell wall

Vacuole

Lysosome

Vesicle

Nucleolus

Helpful information sites

<https://www.nature.com/scitable/definition/cytoplasm-280>

http://www.biology4kids.com/files/cell_cytoplasm.html

<https://biologydictionary.net>

<https://www.yourgenome.org/facts/what-is-a-cell>

<https://www.khanacademy.org/science/biology/bacteria-archaea/prokaryote-metabolism-ecology/a/prokaryote-classification-and-diversi>
[tv](https://www.khanacademy.org/science/biology/bacteria-archaea/prokaryote-metabolism-ecology/a/prokaryote-classification-and-diversi)