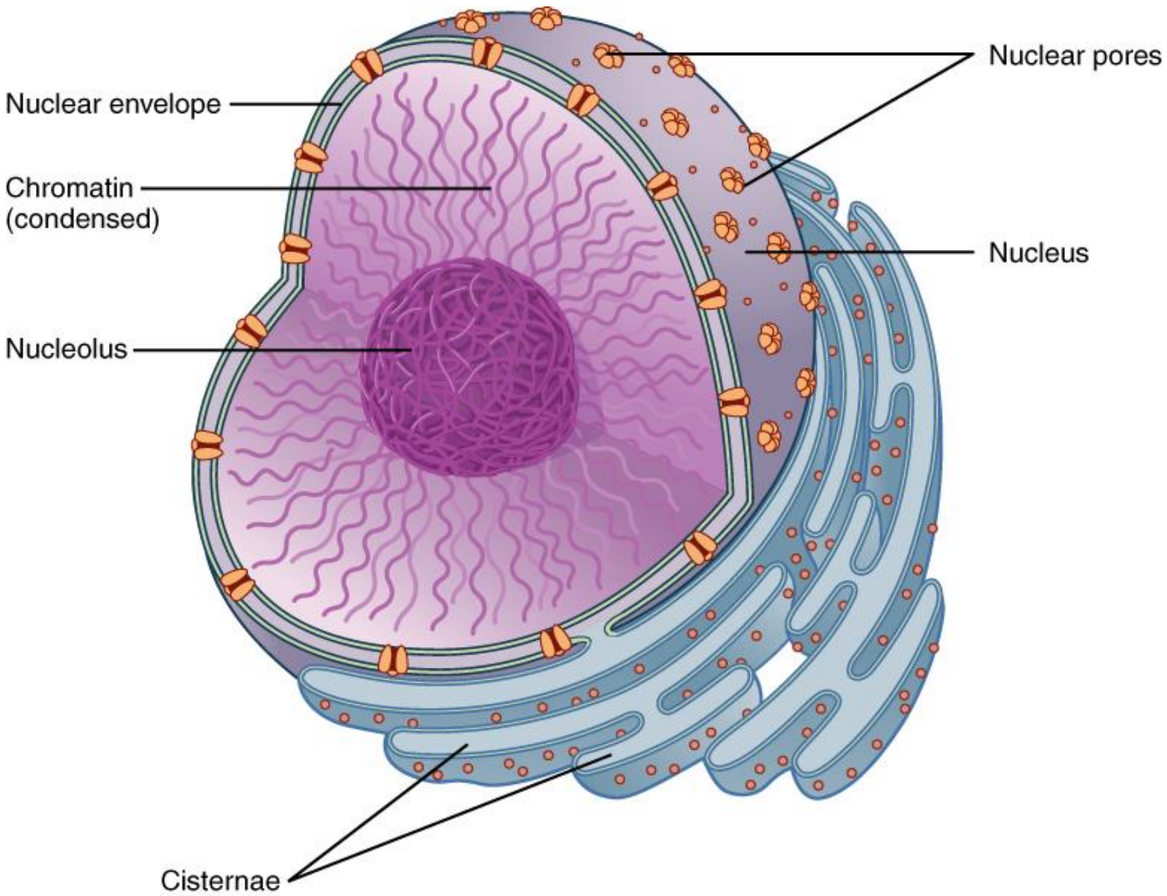
CELLY WONKA: THE CHOCOLATE CELL FACTORY

Nucleus

(Office)

- **Nucleus works as "head office" of the factory. In a cell, it controls all cell activities as well as holds the cell DNA and the chromosomes.**

- **In Wonka's office, everything (including signed contracts) related to work is stored. Which is similar to how nucleus stores all the important information in order for the cell to function properly.**

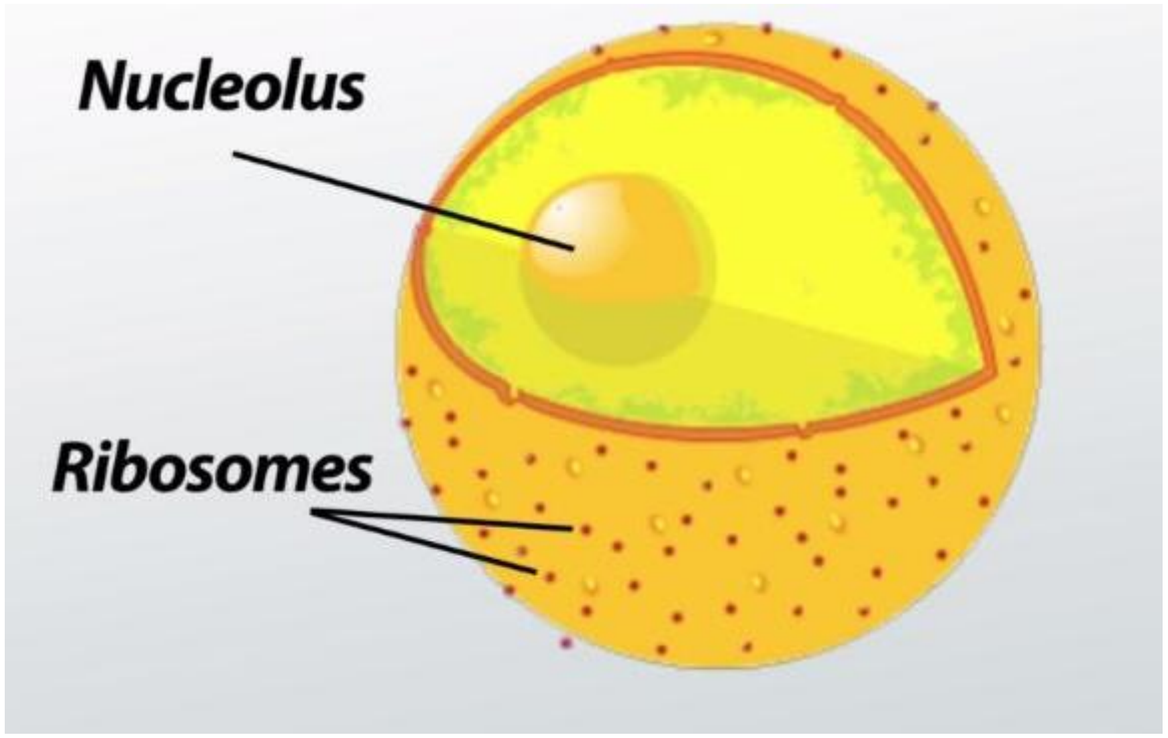


Nucleolus

(Nut Room)

- **Nucleolus produces ribosomes which is crucial to the cell as it produces proteins needed in order for cell to function. It is located inside of nucleus and takes up 25% of nucleus.**

- **In nut room, there are squirrels who gets nut out of the shell which gets put into chocolate. We thought that squirrels are being borned to work was very similar to nucleolus producing ribosomes that works for cell.**

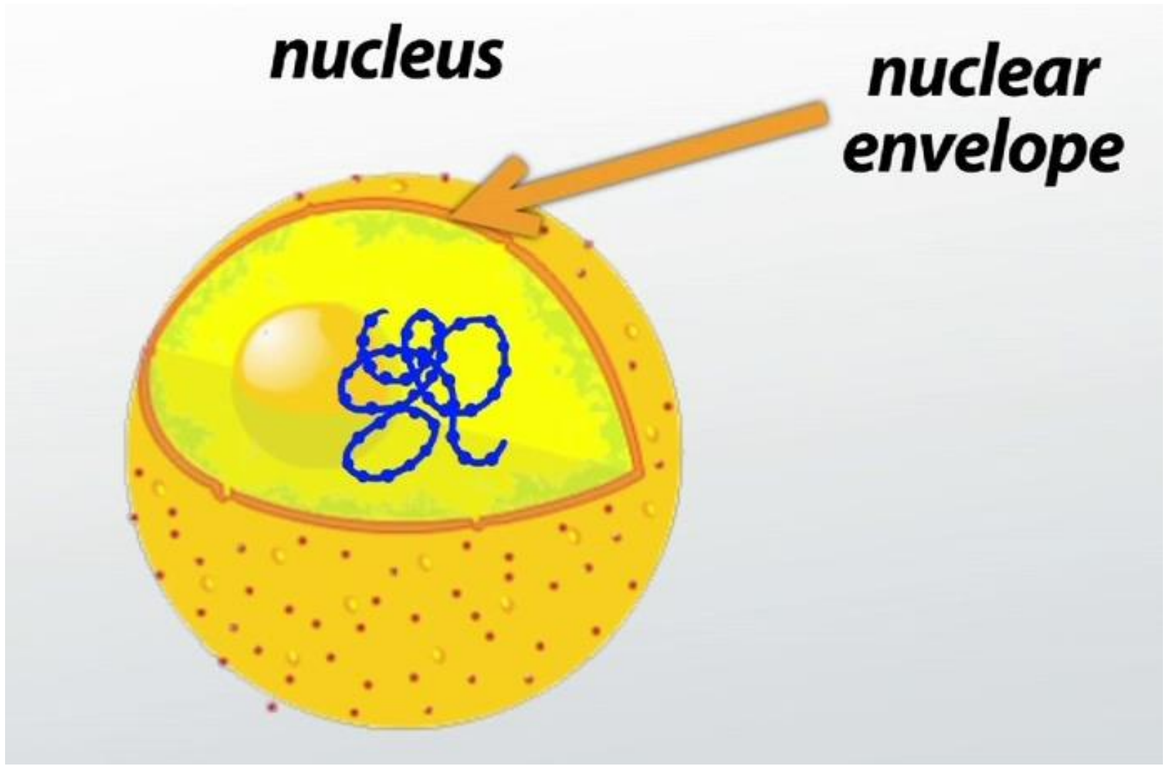


+ the "first generation squirrels were trained by Wonka but since squirrels can't live forever, we assumed the "future gen" were being born in the room from their parents.

Nuclear Membrane
(Security Guard)

- **It encloses the nucleus as double membrane. Separates chromosomes from the rest of the cell as well as it has holes which allows passage of specific materials to pass between nucleus and cytoplasm.**

- **They are similar to security guard since they let certain needed materials to go through/exit and they "guard" the main office from the rest of the factory.**

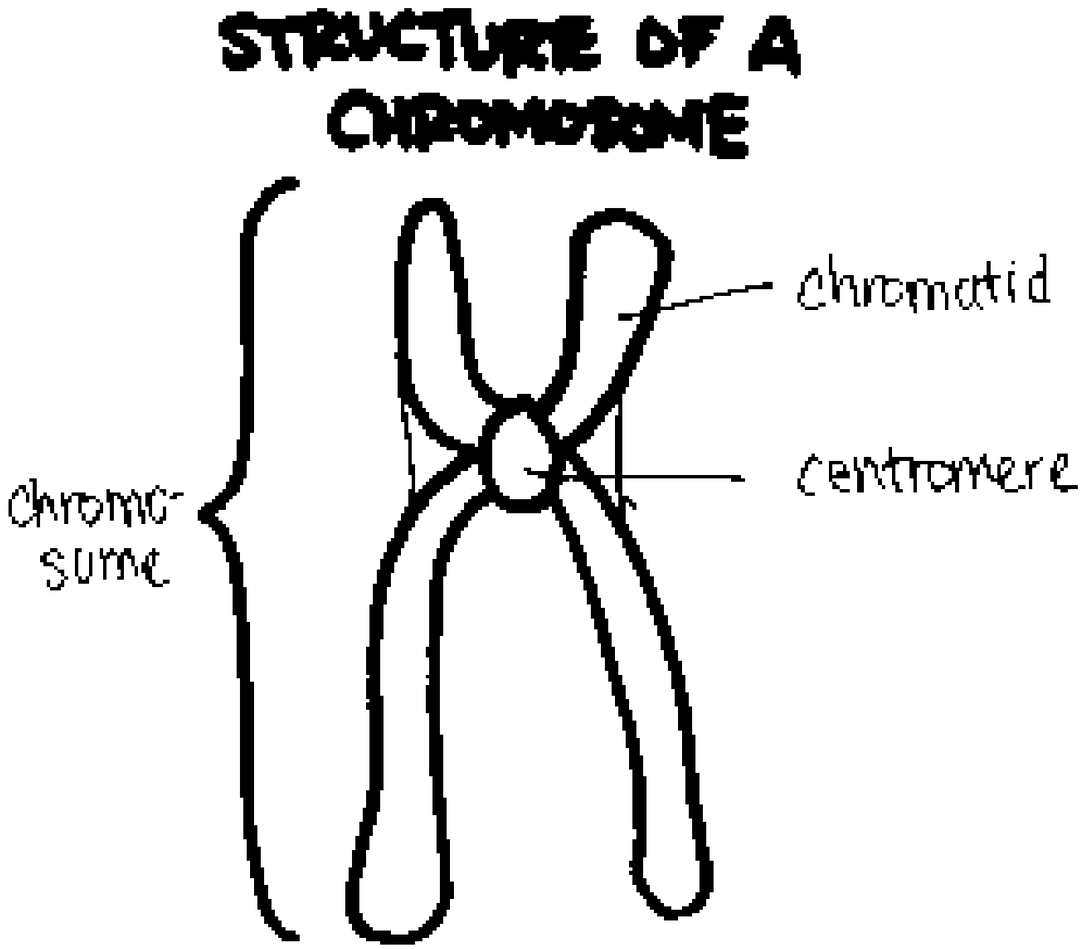


Chromosome

(Computer)

- **Chromosomes are DNA containing bodies found in nuclei. They carry chemical "recipe" for reproduction of the cell. Each species of plant/animal will contain specific amounts of chromosomes (for humans its 46)**

- **It functions as computer since they both contain all generic information of factory/cell and is very important when reproducing a cell or a product.**

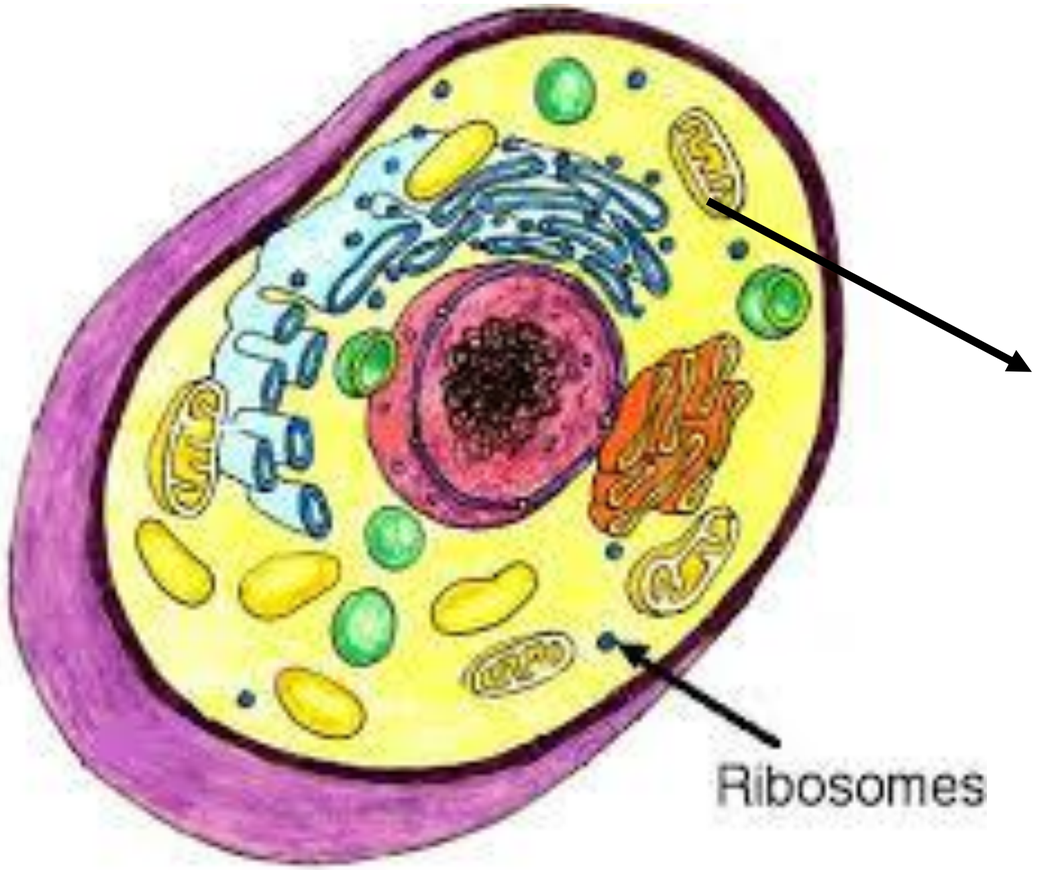


+ There weren't any computer in the Willy Wonka factory so we used the typewriter for the picture

Ribosomes

(Oompa Loompas)

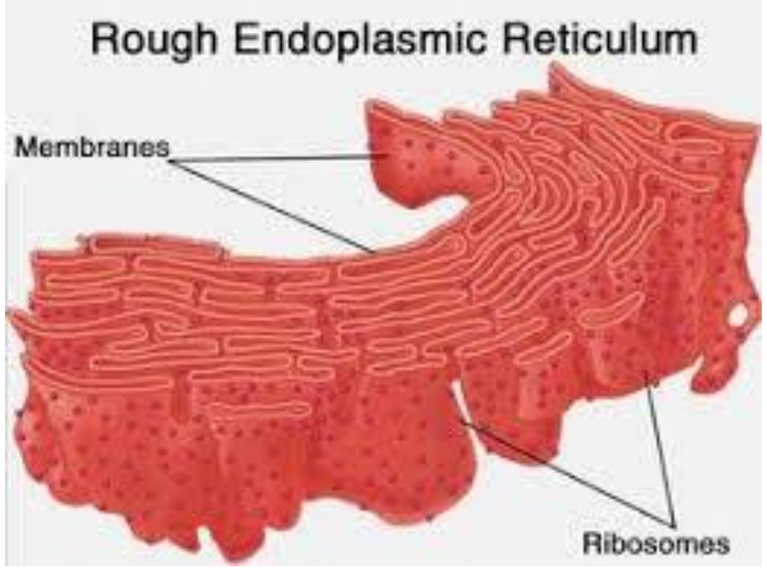
- **Ribosomes are like the workers in a cell. They read instructions from RNA and follow them to produce essential proteins. Some will float in cytoplasm and some will be attached to the rough ER. It is non membrane-bound organelle.**
- **Oompa Loompas represent ribosomes in our cell/chocolate factory, since they both act as workers that follow instructions to make a product (chocolate and proteins, respectively.)**

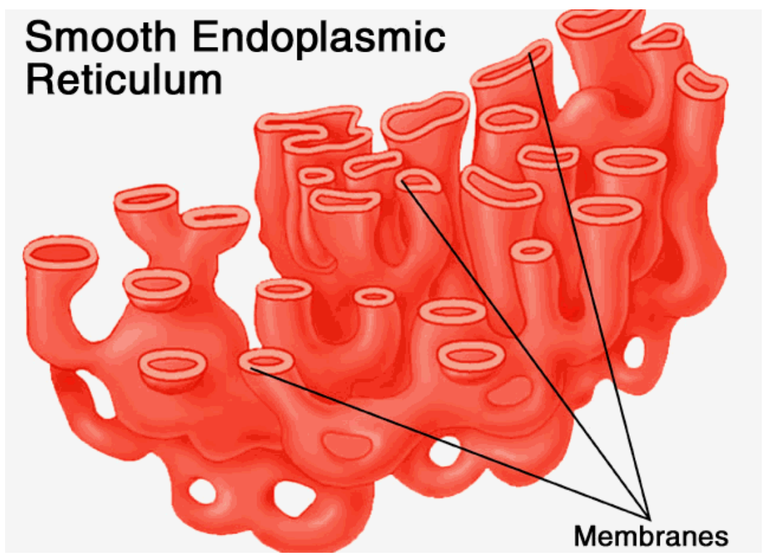


Endoplasmic Reticulum (ER)

(The Chocolate River)

- **The rough endoplasmic reticulum houses ribosomes. These ribosomes produce proteins there, and these proteins are told whether to stay and be stored in the ER or to go off to the Golgi apparatus.**
- **The smooth endoplasmic reticulum has no ribosomes and works mainly with lipids. For our purposes, it is mostly focused on aiding in the transport of proteins.**
- **The rough ER would be best represented by the Chocolate River area. This is a primary workplace for the Oompa Loompas, just as the rough ER is the workplace for ribosomes. Not only that, but a lot of chocolate is stored in the chocolate river just as proteins can be stored in rough ER.**

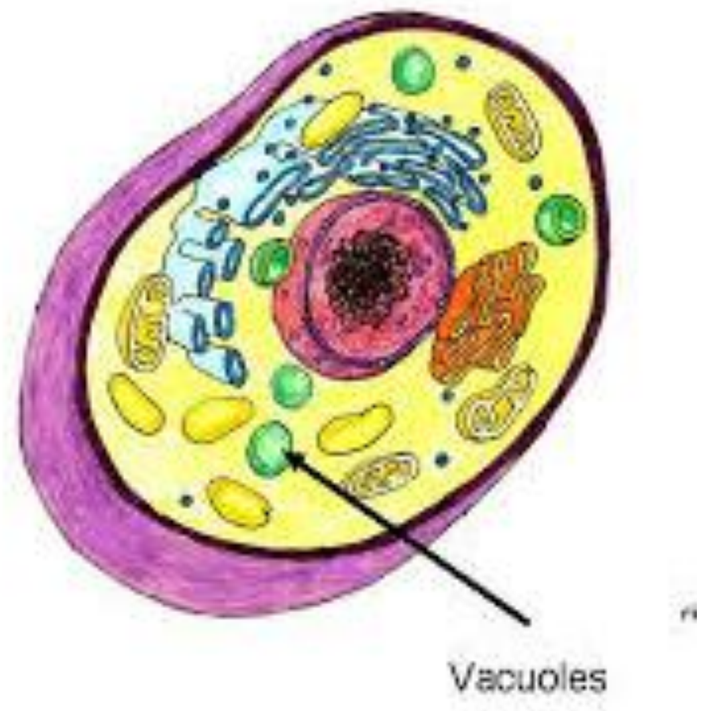




Vacuole(s)

(Storage Unit)

- **Vacuoles are like storage spaces for things like water and vesicles. There is only one large vacuole in a plant cell, but there are many small ones in an animal cell.**
- **These are best represented by the storerooms the factory, since both vacuoles and storerooms are used to store various materials within the cell/factory.**



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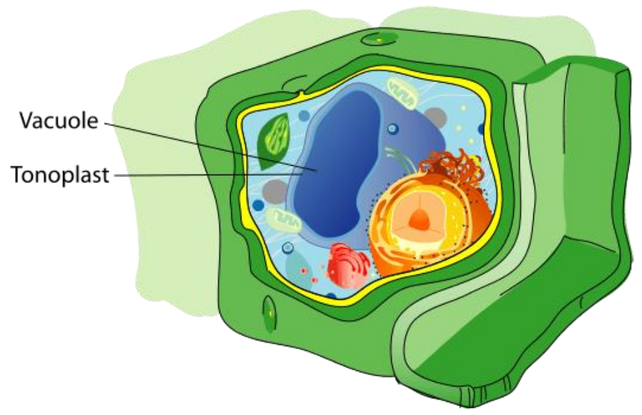
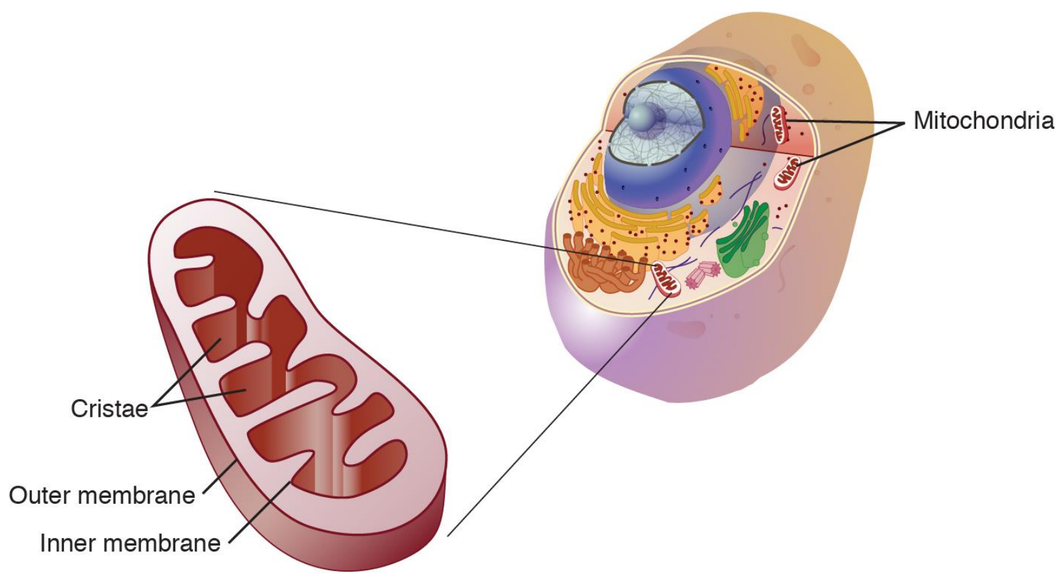


Mitochondria

(Electricity generators)

- **The mitochondria's purpose is to convert incoming glucose and other potential sources of energy into ATP energy, which is usable by the cell.**
- **The mitochondria is best represented by a fuel-based electricity generator. Just as glucose is converted to usable ATP energy in a cell, Coal is converted into usable Electrical energy for use in a factory.**

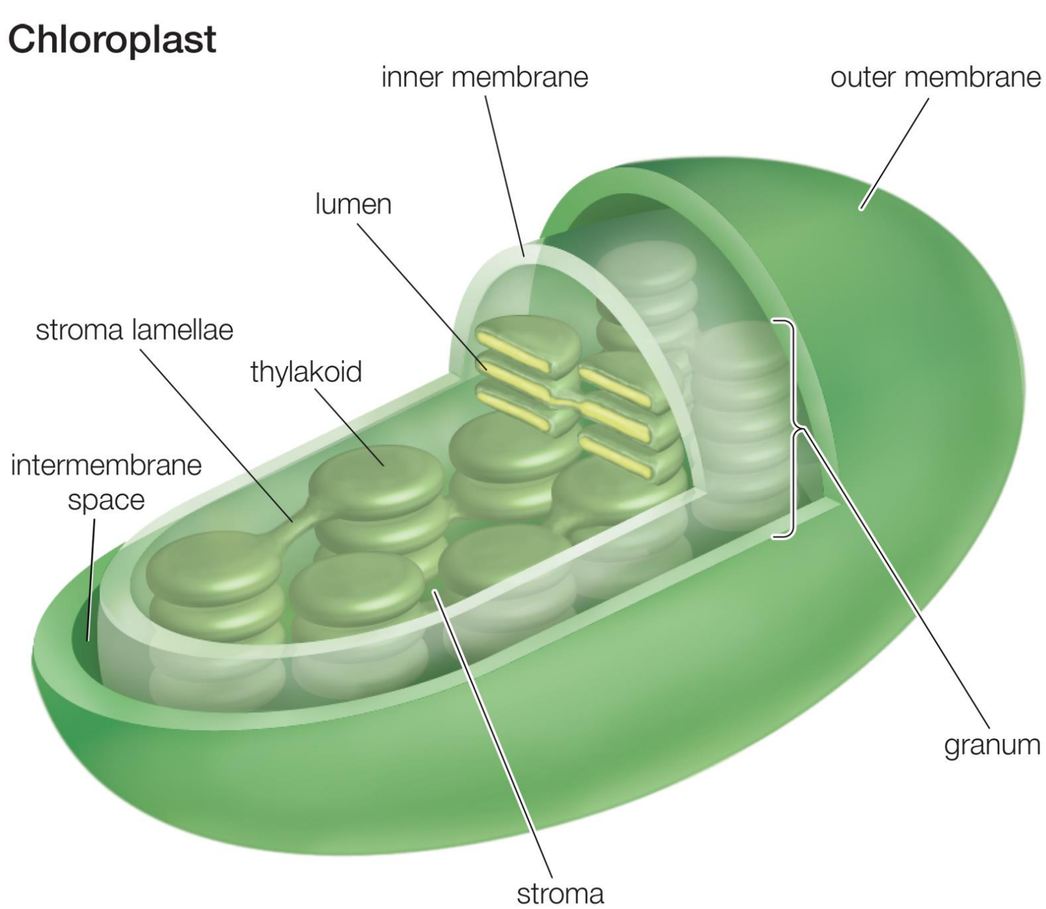


Chloroplast

(Solar Panel)

- **Chloroplasts are the “solar panels” of the cell. They are small organelles inside plant cells. They trap sun's energy to make glucose through photosynthesis which then gets broken down and converted to ATP by mitochondria.**

- **They’re like solar panels of a factory because they absorb sunlight to convert to “energy”, A.K.A glucose.**



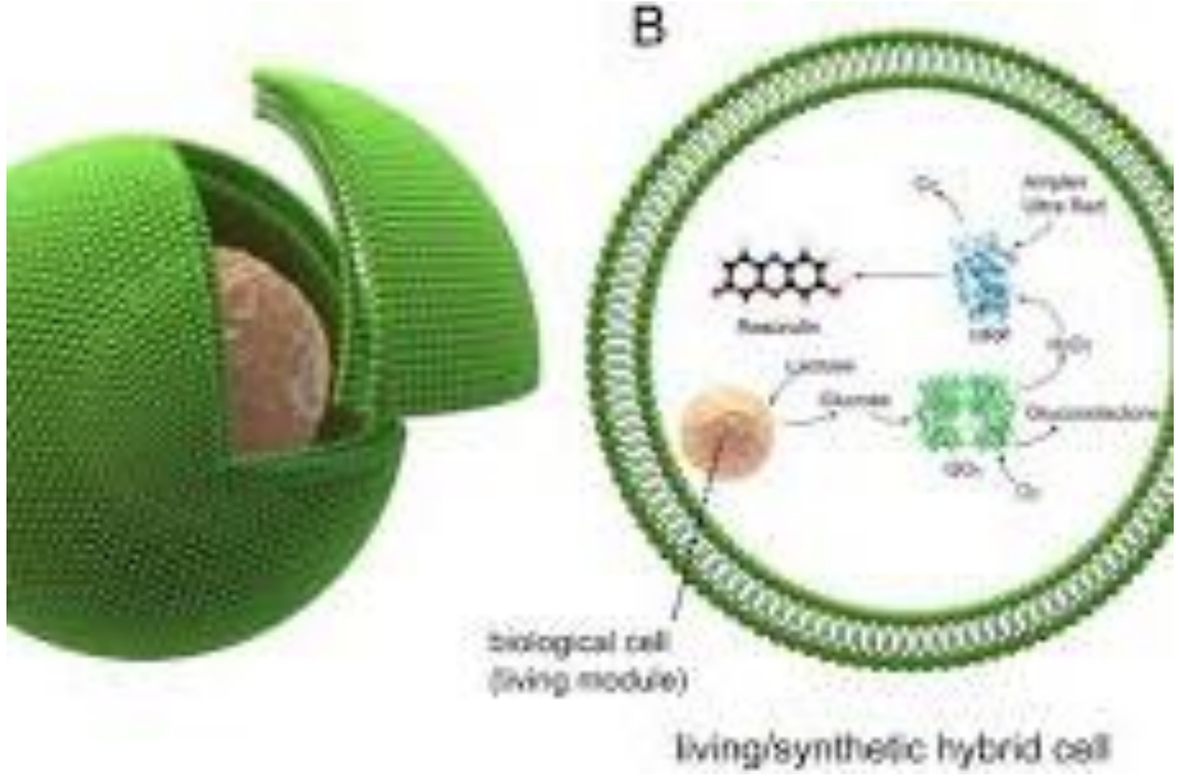
PLANT CELL ONLY!!

Vesicle

(Wrappers)

- **The vesicle is the "Wonka Bar wrappers" in the factory. A vesicle is a tiny membraned-covered sac that transport material within or outside the cell. They will function as transportation/storage for material inside a cell's cytoplasm.**

- **The Wonka Bar wrappers store chocolate bars or glucose (sugar). They transport the nutrients in and out of the cell.**

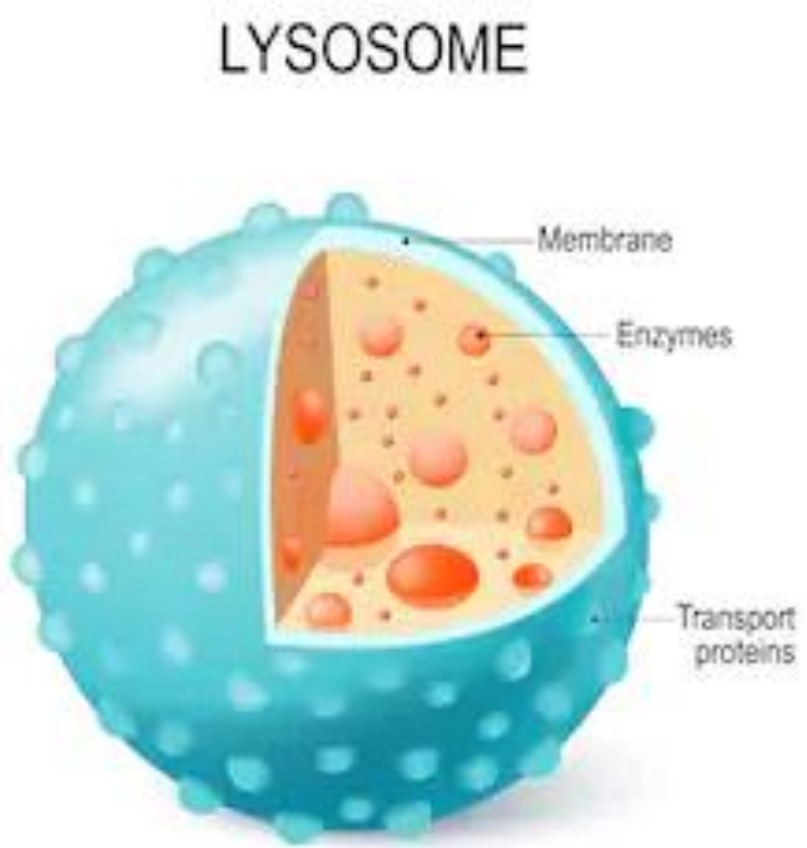


Lysosome
(Custodians)

- **The lysosomes are like the “custodians” of the factory.**

A lysosome is a membrane-bound cell organelle that contains digestive enzymes. They break down excess or worn-out cell parts. They may be used to destroy invading viruses and bacteria.

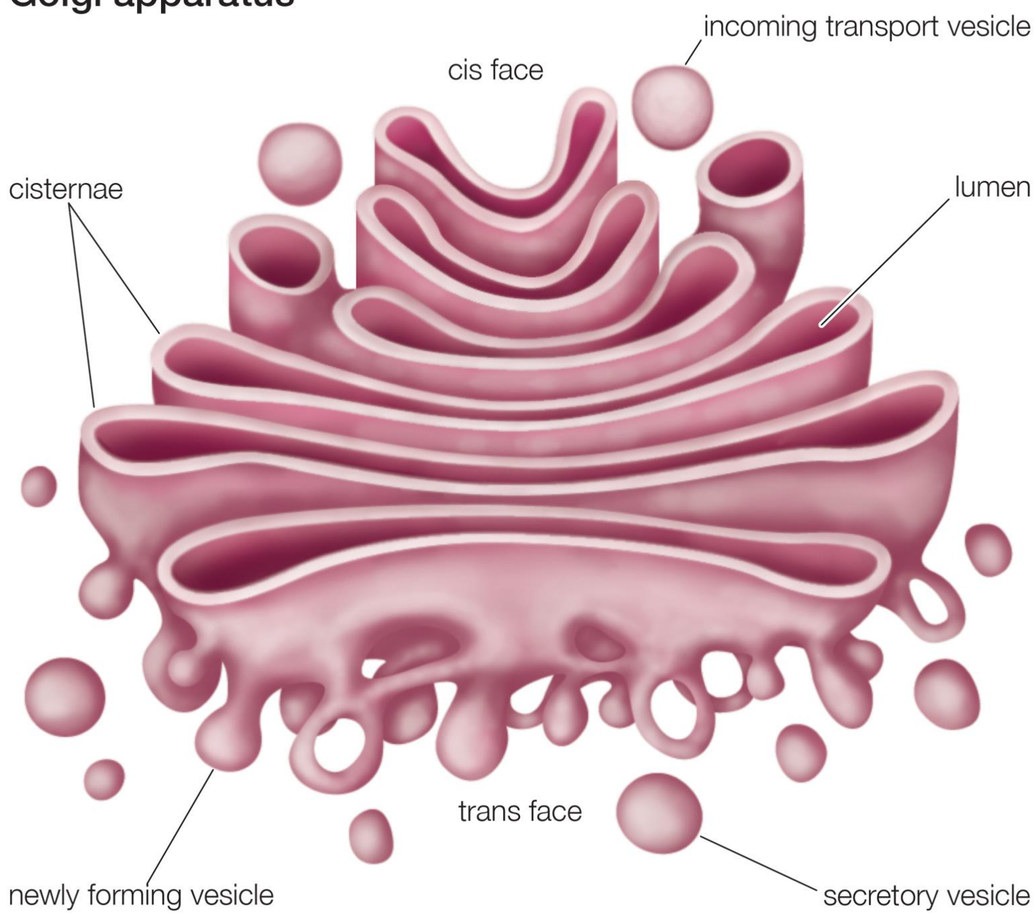
- **They are always “picking up after” the cell. They are like custodians/janitors. They “clean up” A.K.A break down extra cell parts (“garbage”).**



Golgi Body

(Packing Station)

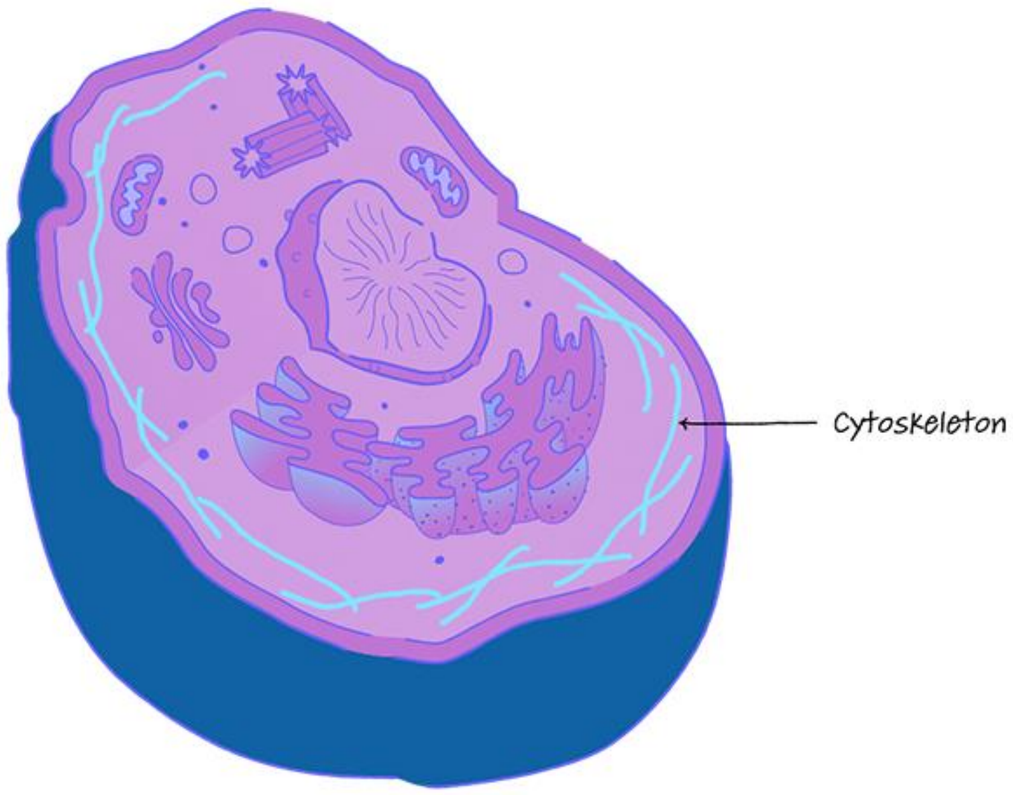
- **Sorts & packages proteins and other molecules to transport out the cell. They pack sorted proteins in vesicles inside the cell before they're sent to their destination**
- **The Golgi body are very similar to packing station since they sort all proteins and pack them in the vesicle for them to be shipped out.**



Cytoskeleton

(Building)

- **Provides framework and structure to help cells maintain their shape, structure, and internal organization**
- **Helps assist with transport**
- **Provides tracks where vesicles and organelles can carry out essential functions like division and movement**
- **In Willy Wonka this would be the building itself. Because the building provides a structure for all the different rooms and functions happening inside.**

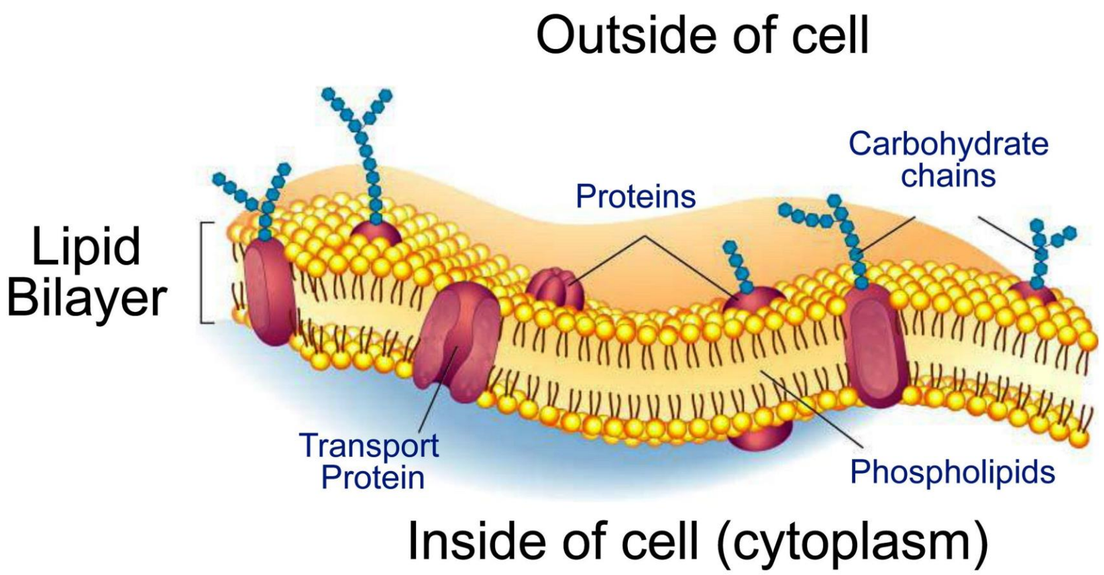


Cell Membrane

(main entrance)

- **Provides protection for the cells**
- **The Cell Membrane has two functions:**
  - **One is to transport nutrients into the cell**
  - **Another is to transport toxics out of the cell**
- **In Willy Wonka, the cell membrane would be the gates because they let people, Oom-pah Loompas, etc. to come in and get out.**

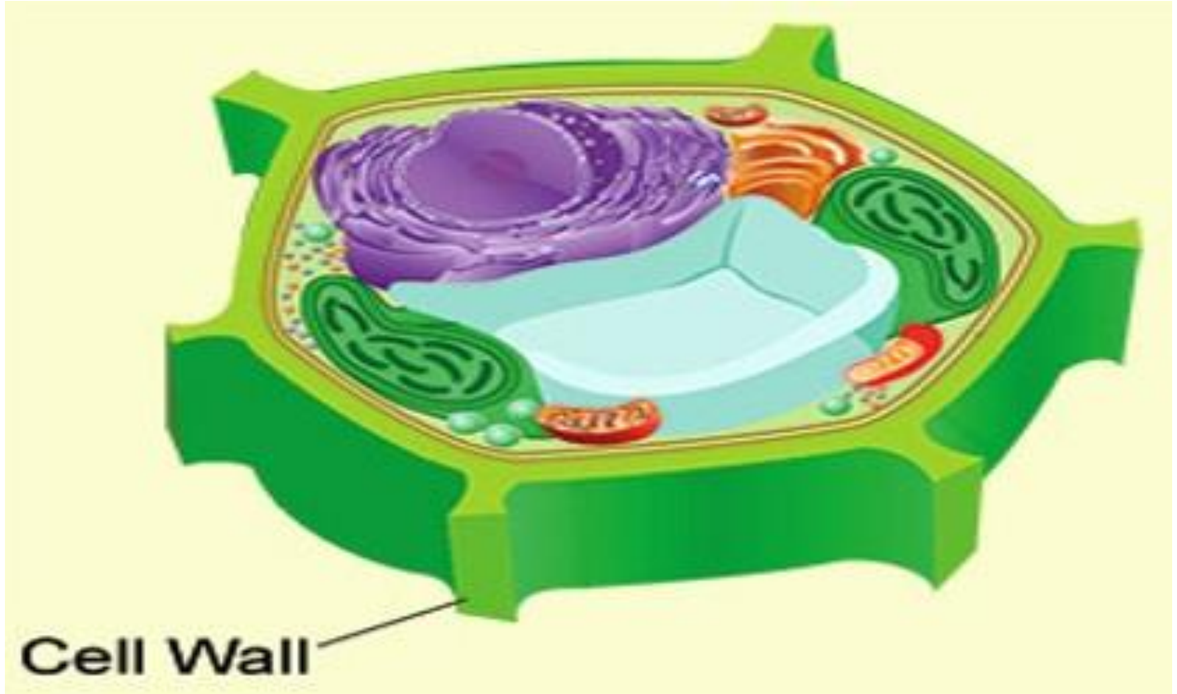
Structure of the Cell Membrane



Cell Wall

(walls of the factory)

- **A structural layering surrounding plant cells, just outside the cell membrane.**
- **Provides the cell with both structural support and protection.**
- **Also acts as a filtering mechanism.**
- **The cell walls would be the walls of the chocolate factory, because it protects the factory and its workers, and helps maintain the buildings structure.**



PLANT CELL ONLY!!

-The End-