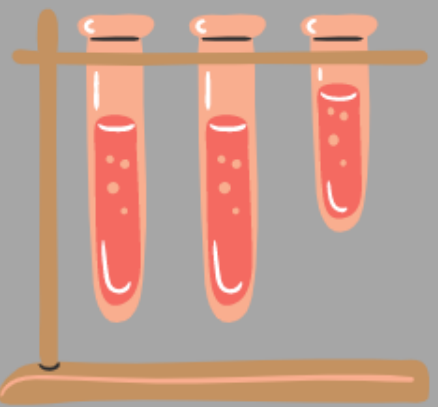
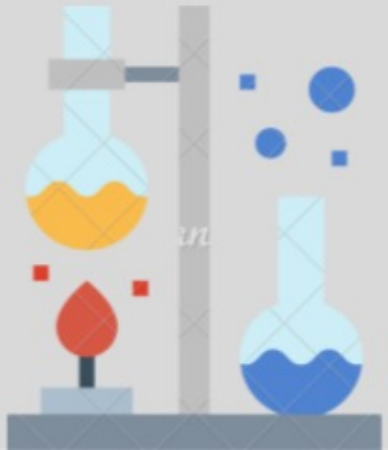
CELL STRUCTURE



PRESENTED BY: ZOHA FATIMA

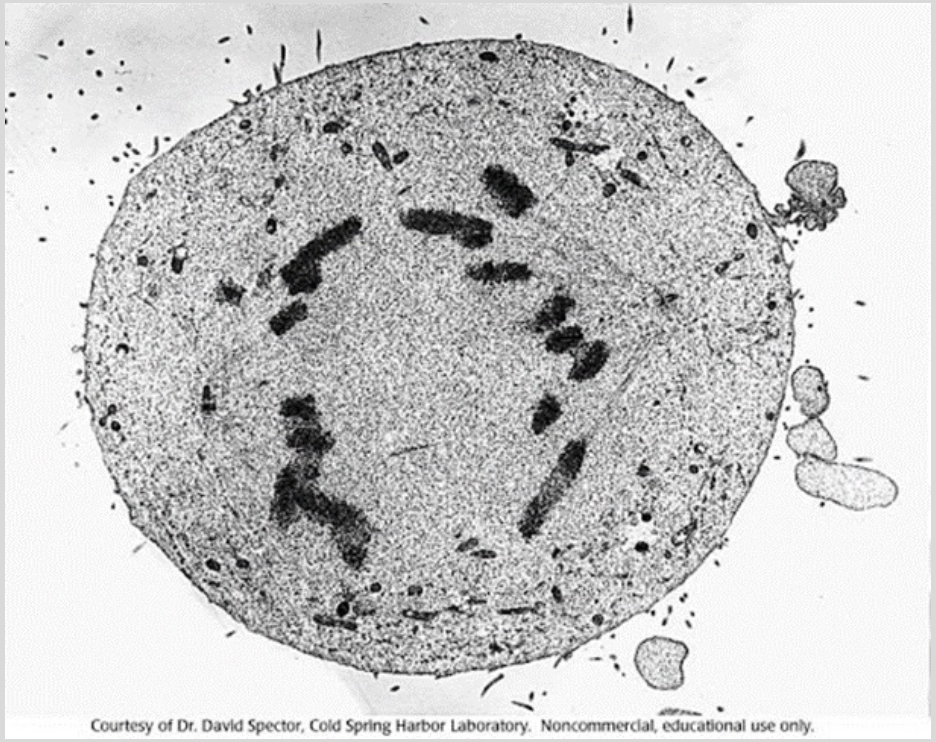
MICROSCOPES

- MICROSCOPES HELP US SEE CLEARLY WHAT A NAKED EYE CANNOT SEE AND EXAMINE, SUCH AS CELLS, BECTIRIA OR EVEN FIBERS.
- THE MICROSCOPE WE USE AT SCHOOL IS CALLED A LIGHT MICROSCOPE, BECAUSE IT SHINES LIGHT THROUGH THE OBJECT.

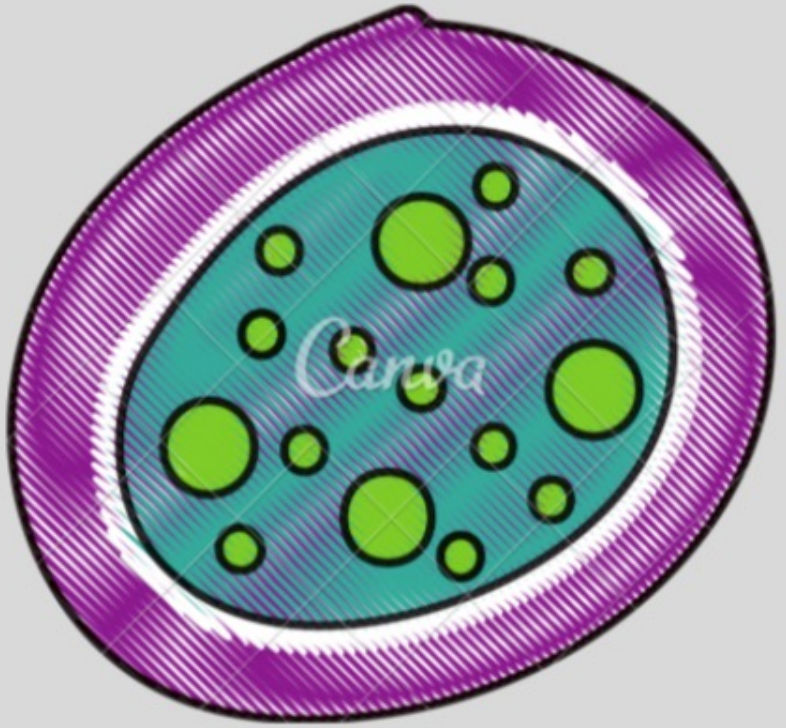


PHOTOMICROGRAPHS

A **PHOTOMICROGRAPH** IS A PICTURE MADE USING A LIGHT MICROSCOPE TO SHOW THE OBJECT SLIGHTLY MORE MAGNIFIED.



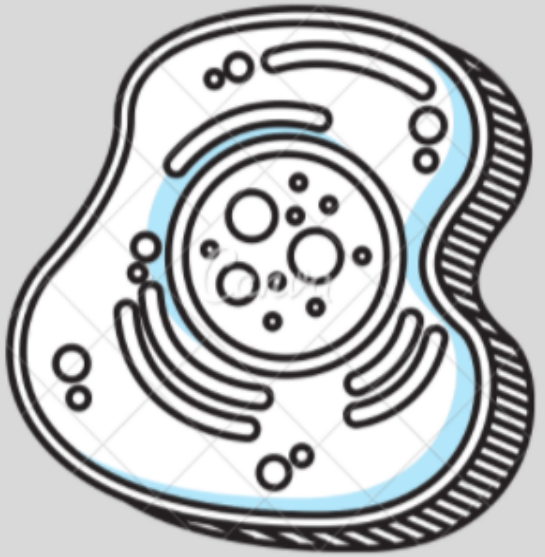
Courtesy of Dr. David Spector, Cold Spring Harbor Laboratory. Noncommercial, educational use only.



ELECTRON MICROSCOPE

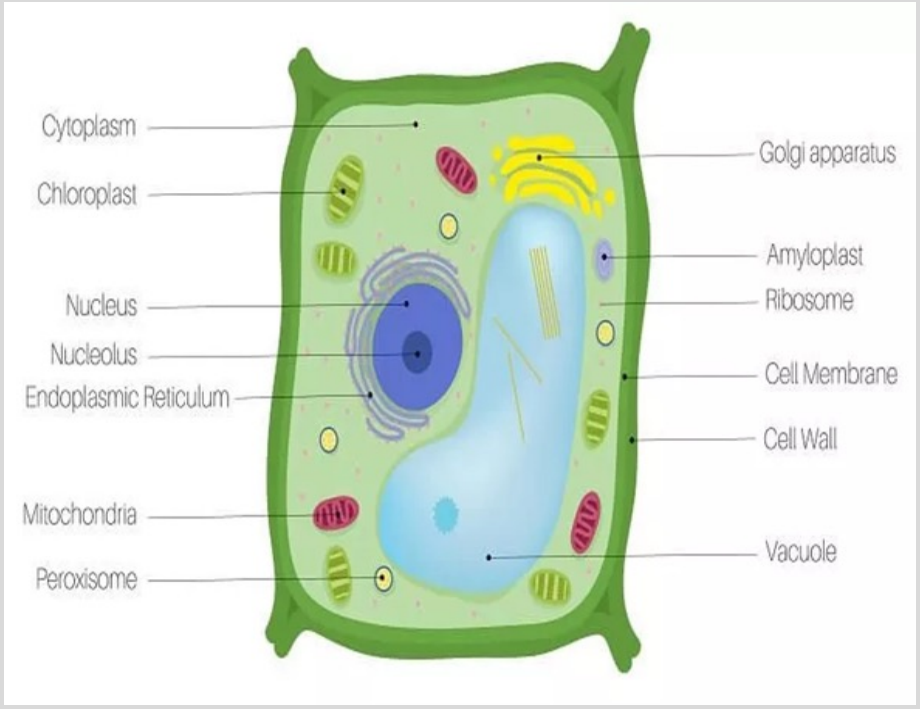
- AN ELECTRON MICROSCOPE IS USED TO SEE EVEN SMALLER THINGS INSIDE A CELL. INSTEAD OF LIGHT, THIS MICROSCOPE USES A BEAM OF ELECTRONS AND CAN MAGNIFY UP TO 500 000 TIMES MORE.
- THE MAIN PURPOSE OF THIS SPECIFIC MICROSCOPE IS FOR US TO SEE MORE DETAIL IN SMALL STRUCTURES.

CELL MEMBRANE



WHAT IS A CELL MEMBRANE?

THE CELL MEMBRANE IS A BIOLOGICAL MEMBRANE THAT SEPARATES THE INTERIOR OF ALL CELLS FROM THE OUTSIDE ENVIRONMENT WHICH PROTECTS THE CELL FROM ITS ENVIRONMENT.

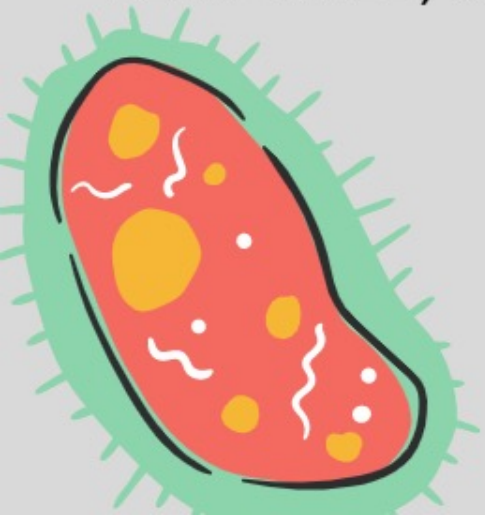


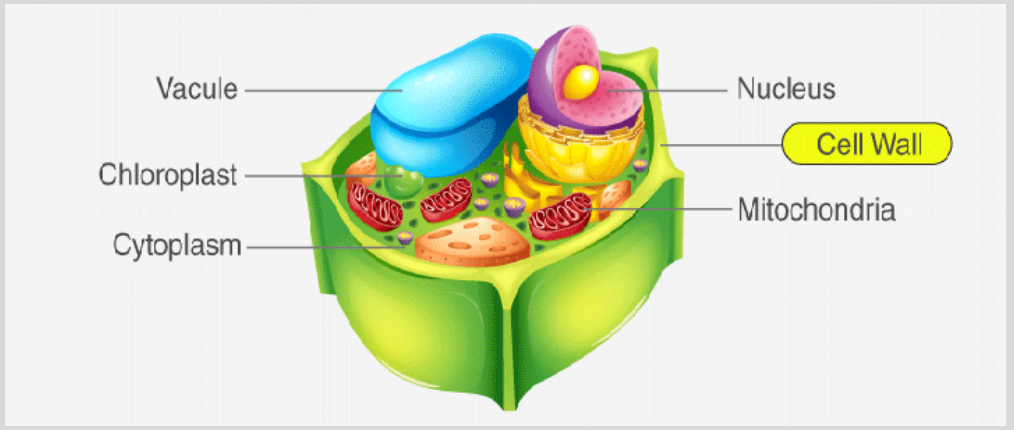
EVERY CELL HAS A CELL MEMBRANE AROUND THE OUTSIDE. INSIDE THE CELL MEMBRANE IS A JELLY-LIKE SUBSTANCE CALLED A CYTOPLASM, WHICH IS FOUND IN SMALL STRUCTURES CALLED ORGANELLES, AND IN ORGANELLES THERE IS A NUCLEUS.

THE CELL MEMBRANE IS A VERY THIN LAYER OF PROTEIN AND FAT.THIS LAYER IS IMPORTANT FOR THE CELL SINCE IT CONTROLS WHAT GOES IN AND OUT OF THE CELL. SCIENTISTS SAY THAT IT IS PARTIALLY PERMEABLE, WHICH MEANS THAT IT PICKS WHAT SUBSTANCES COME IN AND OUT.

CELL WALL

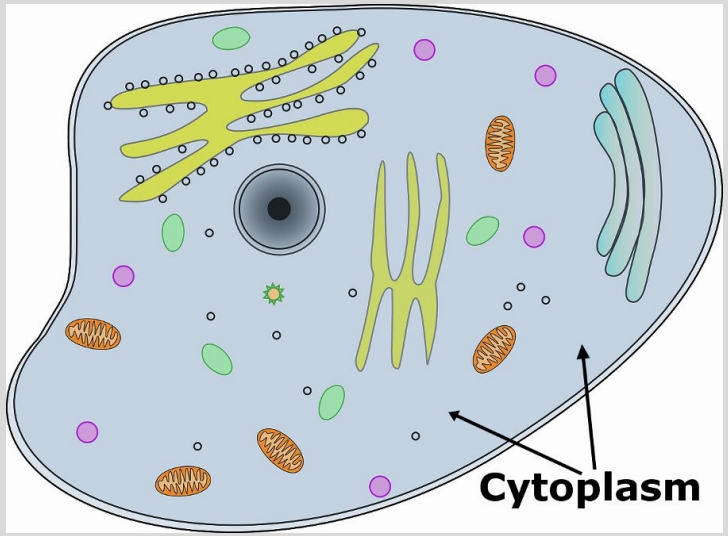
- PLANT CELLS ARE SURROUNDED BY A CELL WALL WALL MAINLY OF **CELLULOSE**. ANOTHER EXAMPLE IS PAPER, WHICH IS MADE UP OF CELL WALLS AND CELLULOSE.
- CELLULOSE MAINLY BELONGS TO A GROUP OF SUBSTANCES CALLED **POLYSACCHARIDES**.
- CELLULOSE FORMS FIBERS WHICH CRISS-CROSS OVER ONE ANOTHER TO FORM A STRONG COVERING FOR THE CELL, WHICH PROTECTS AND SUPPORT THE CELL.
- IF THE CELL ABSORBS MANY WATER THE CELL WILL SWELL, BUT WILL NOT BURST BECAUSE THE CELL WALL WILL PREVENT THAT.
- THE SPACES BETWEEN FIBRES ALLOW LARGE MOLECULES ENTER THE CELLULOSE CELL WALL, SAID TO BE **FULLY PERMEABLE**.

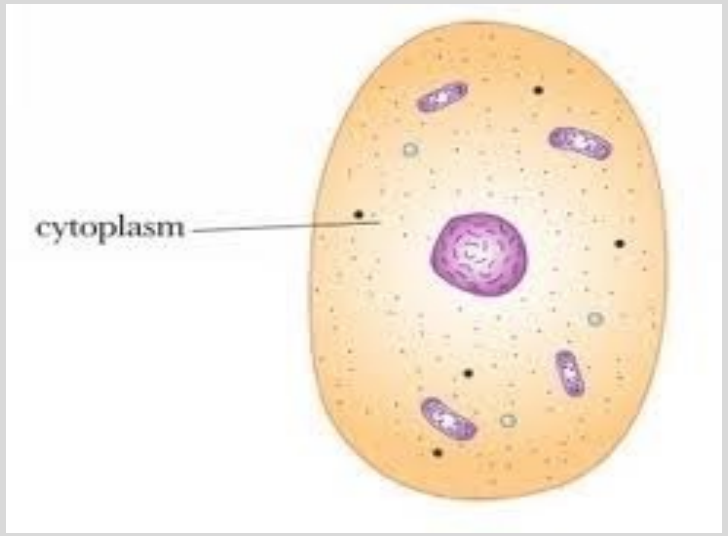




CYTOPLASM

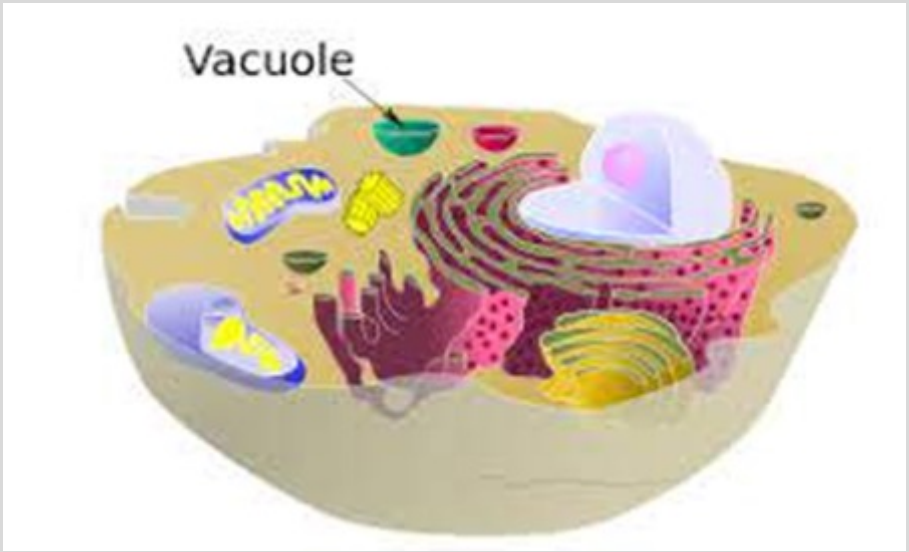
- THE CYTOPLASM IS A CLEAR JELLY-LIKE SUBSTANCE FOUND IN CELLS.
- IT CONTAINS DIFFERENT SUBSTANCES BUT IS NEARLY ALL JUST WATER.
- MANY DIFFERENT METABOLIC REACTIONS OCCUR IN THE CYTOPLASM.





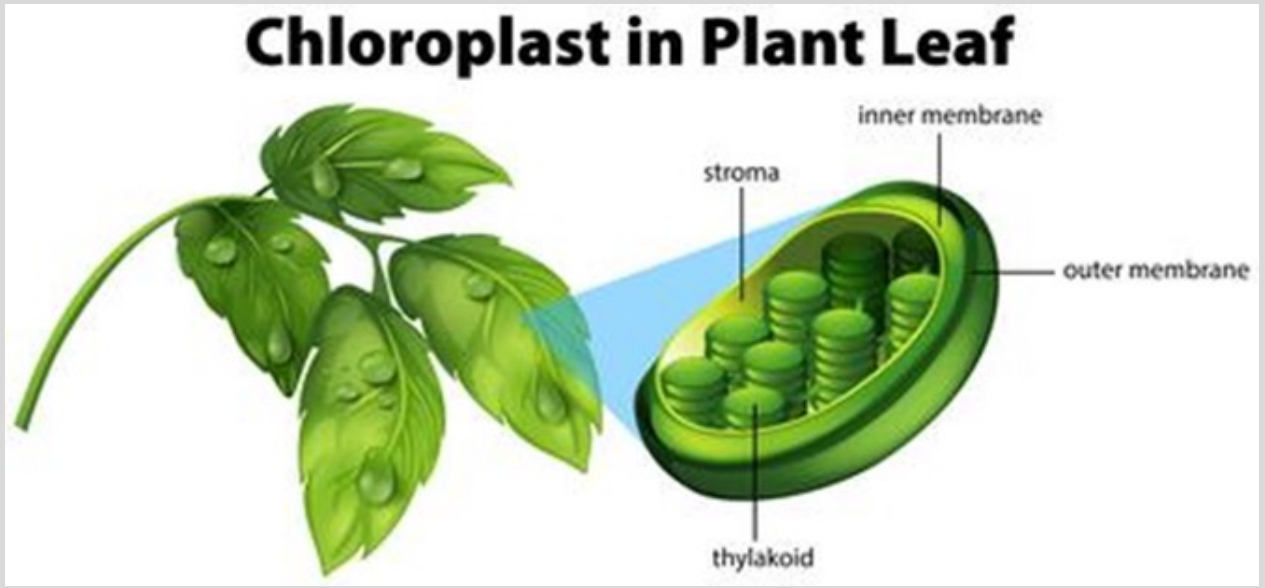
VACUOLES

- A VACUOLE IS A SPACE IN A CELL THAT IS SURROUNDED BY A MEMBRANE AND CONTAINS A SOLUTION.
- A FULL VACUOLE HELPS KEEP THE SHAPE OF THE CELL BY PRESSING OUTWARDS.
- PLANT CELLS HAVE LARGE VACUOLES THAT CONTAIN A SOLUTION OF SUGARS AND OTHER SUBSTANCES, CALLED CELL SAP.
- ANIMAL CELLS HAVE A SMALLER MEMBRANE-BOUND SPACE, WHICH MAY CONTAIN FOOD OR WATER, THIS IS CALLED VESICLES.



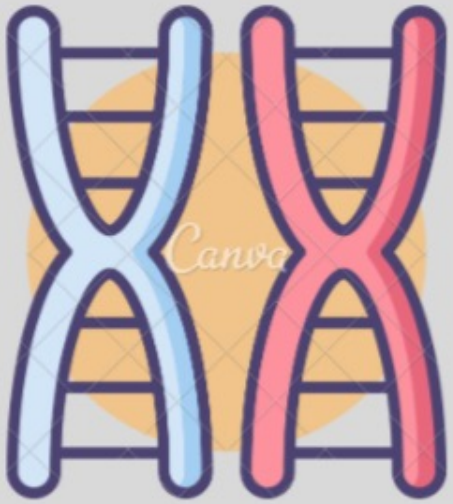
CHLOROPLAST

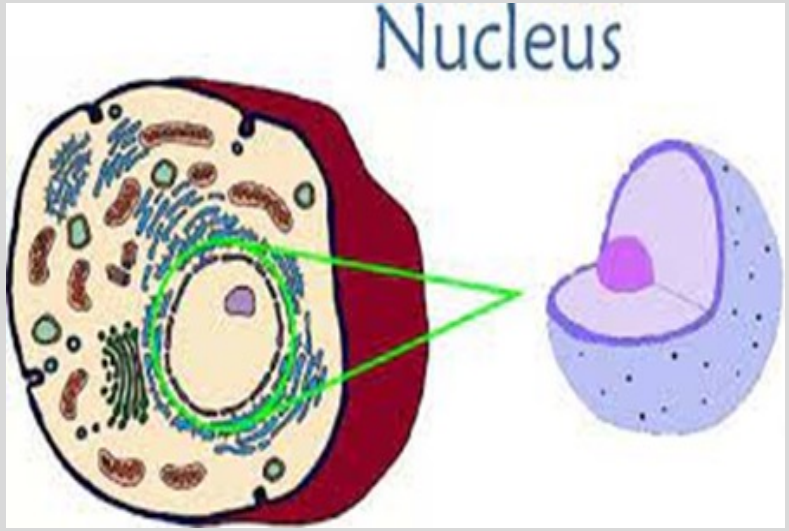
- A CHLOROPLAST IS NEVER FOUND IN AN ANIMAL CELL BUT MOST PANTS HAVE THEM. THE REASON FOR THIS IS BECAUSE A CHLOROPLAST CONTAINS A GREEN PIGMENT CALLED CHLOROPHYLL.
- CHLOROPHYLL ABSORBS ENERGY FROM THE SUN, THE ENERGY IS USED TO MAKE FOOD. THIS PROCESS IS CALLED PHOTOSYNTHESIS.

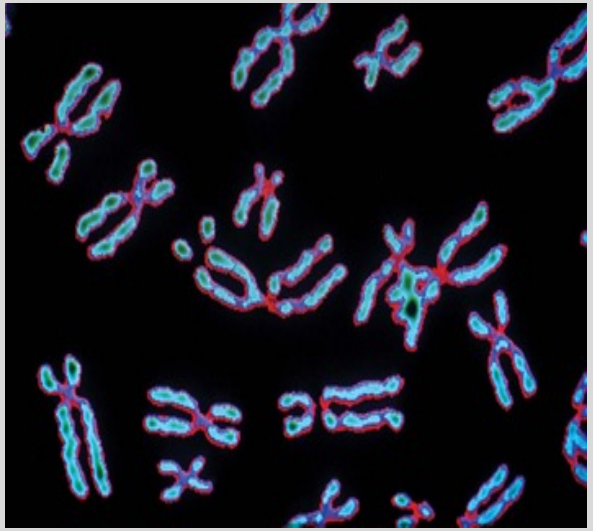


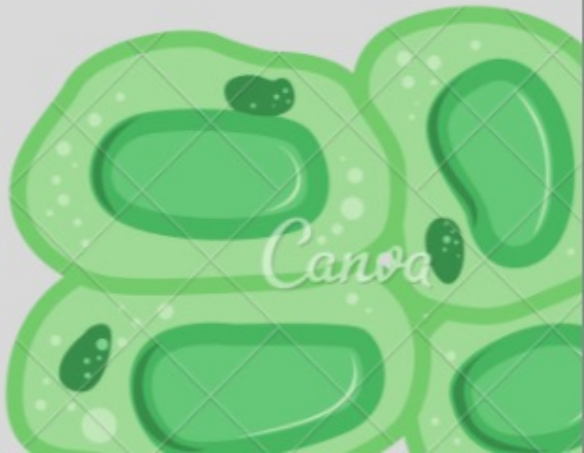
NUCLEUS

- THE NUCLEUS IS WHERE INFORMATION IS STORED, WHICH HELPS THE CELL FIND THE RIGHT SORT OF PROTEINS.
- THE INFORMATION IS HELD AT THE CHROMOSOMES, WHICH ARE INHERITED FROM THE PARENTS OF THE ORGANISM. THE CHROMOSOMES ARE MADE OF DNA.
- CHROMOSOMES ARE LONG BUT EXTREMELY THIN, SO THIN THAT IT IS UNCLEAR UNDER AN ELECTRON MICROSCOPE. HOWEVER, WHEN THE CELL DIVIDES IT BECOMES SHORT AND THICK.









PLANT CELL DIAGRAM

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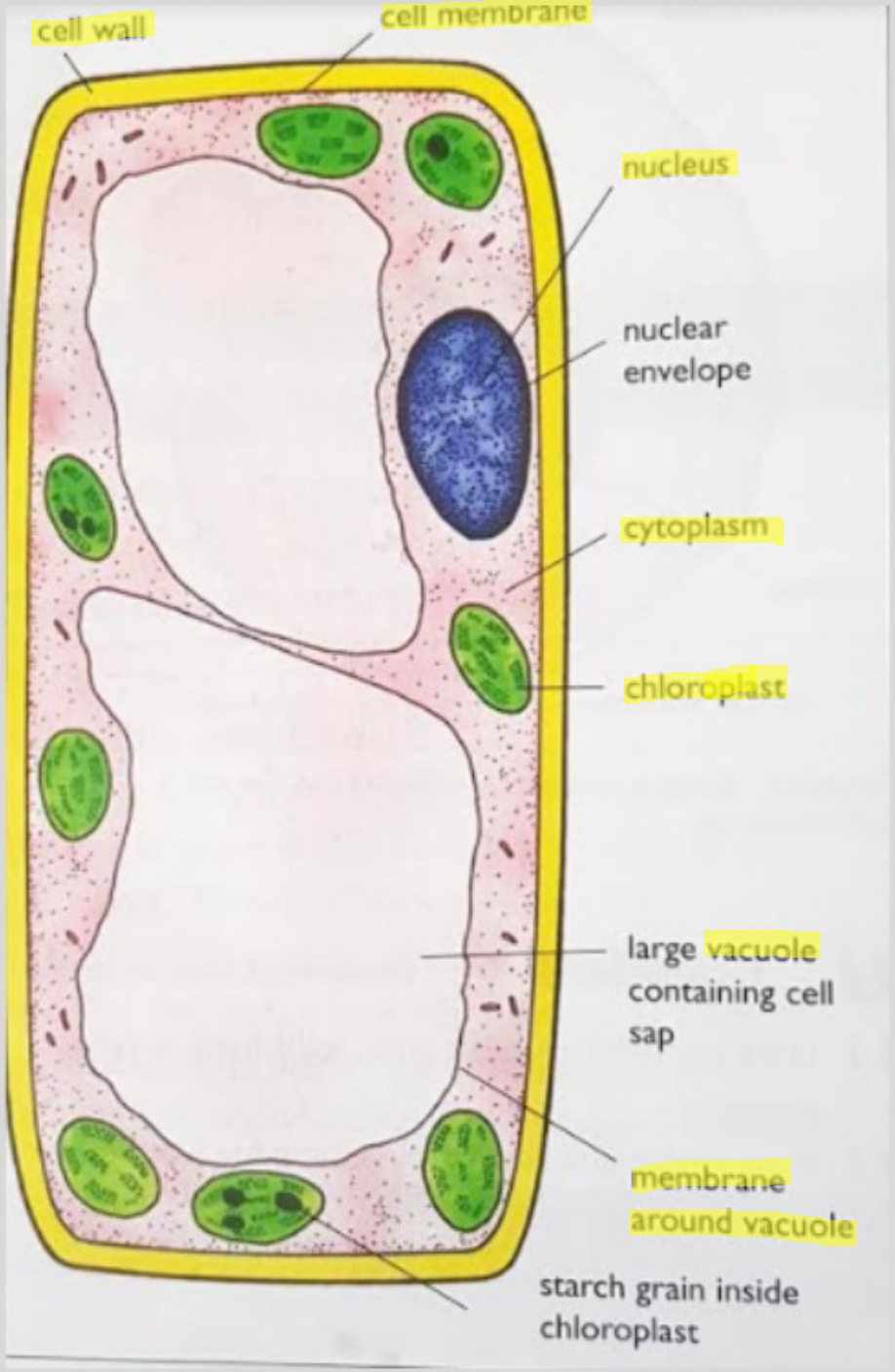

COMPARING PLANT CELL AND ANIMAL CELL

Plant cell	Animal cell
Have a cellulose cell wall outside the cell membrane.	Have no cell wall.
Have a cell membrane.	Have a cell membrane.
Have cytoplasm.	Have a cytoplasm.
Have a nucleus.	Have a nucleus.
Often have chloroplasts containing chlorophyll.	Have no chloroplast.
Often have large vacuoles containing cell sap.	Have only small vacuoles.
Often have starch grains.	Never have starch grains; sometimes have glycogen granules.
Often regular in shape.	Often irregular in shape.


THANK YOU, HOPE
YOU
UNDERSTOOD