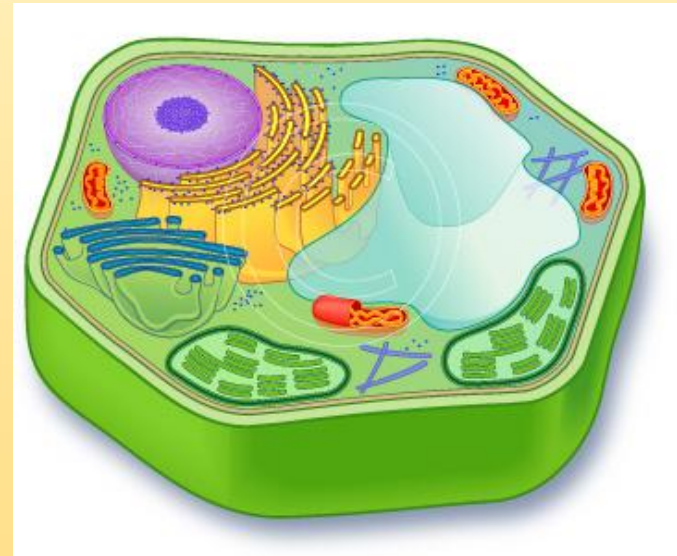
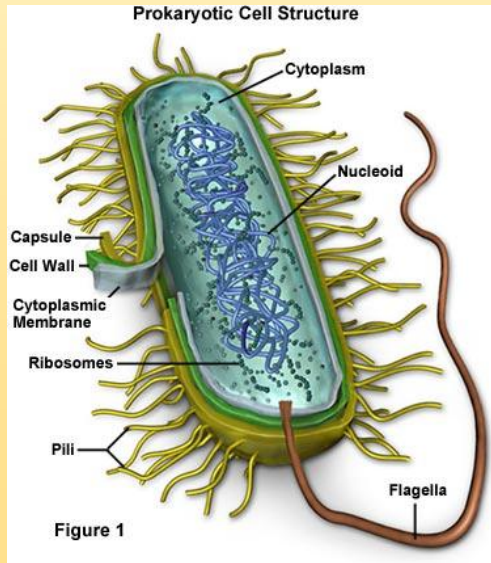
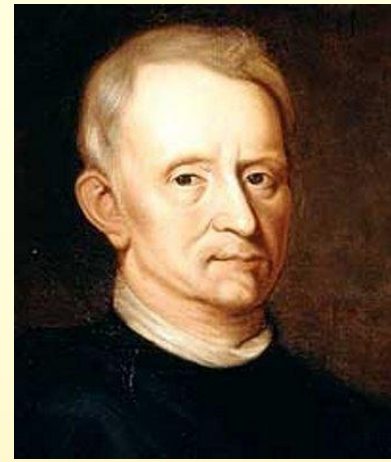


# CELLS

## *The Basic Units of Life*

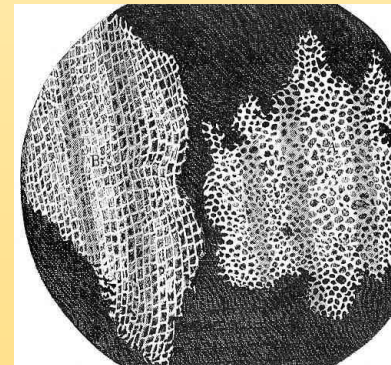


# Cell History



- **Cell** - the smallest unit that can perform all the processes needed for life.
- **Robert Hooke** -

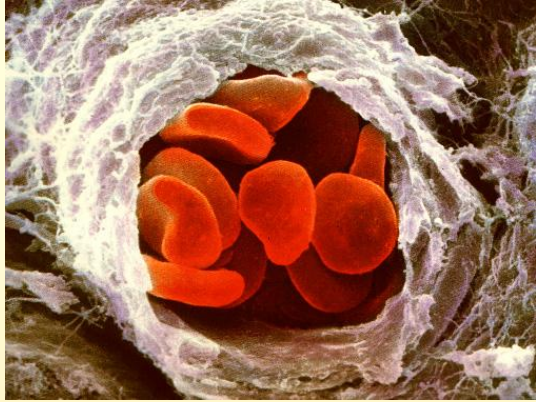
- built a microscope to see small things in his lab
- 1665: looked at a thin slice of cork
  - Named the small sections “cells”



# Cell Theory

## Rules For Cells

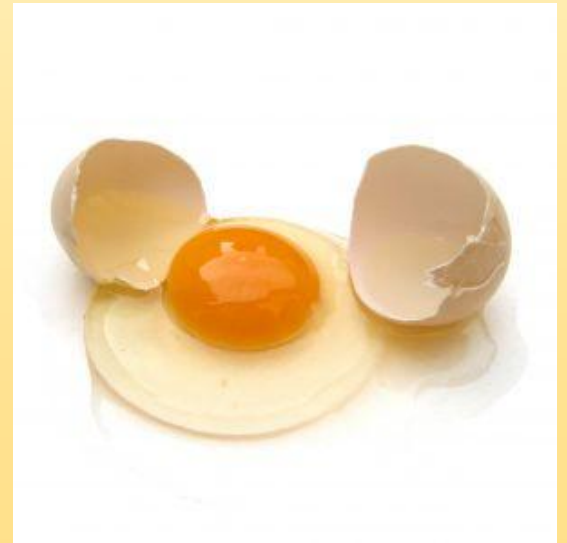
1. All organisms are made of one or more cells
2. The cell is the basic unit of all living things
3. All cells come from existing cells



# Cell Size

- Most cells are too small to be seen without a microscope
  - It would take 50 human cells to cover the dot on the letter i in a textbook.

• Large Cells:  
chicken egg yolk is one cell!



# Organization of Living Things

Cells → Tissues → Organs → Organ Systems → Organisms

Examples in animals



Cells are the building block of all organisms.



Examples in plants



Tissues are a clump of similar cells working together in the same way



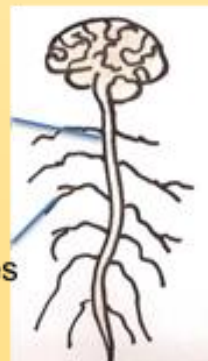
Organs are groups of tissues working together



Brain

Spine

Nerves



Nervous system



Systems are a group of organs working together.



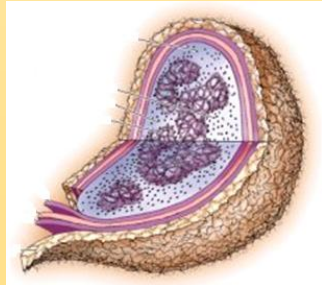
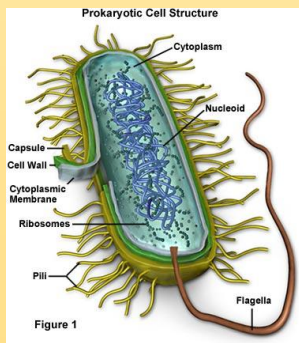
Shoot system

Root system

# Two Different Types of Cells

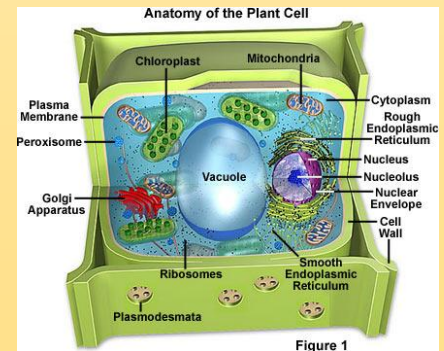
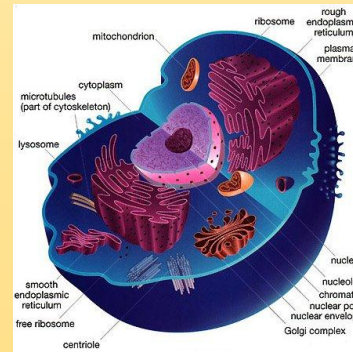
## Prokaryotic Cells

- Means “before a nucleus”
- Kingdom Monera
- Can live in extreme environments
- Live off many different energy sources



## Eukaryotic Cells

- Means “true nucleus”
- Kingdoms Protista, Fungi, Plantae & Animalia
- DNA is contained in the nucleus

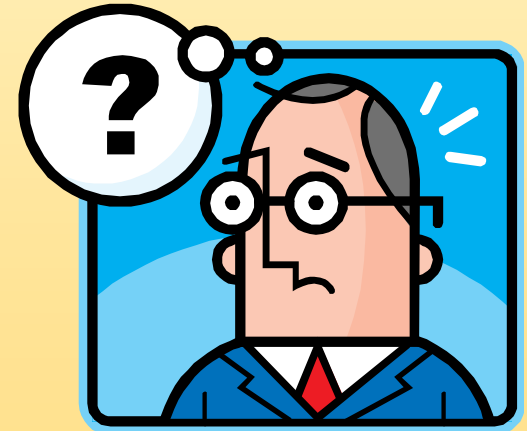


# Common Parts of A Cell

- Cells come in many shapes and sizes, but **all** cells have these in common:
  - Cell Membrane (barrier)
  - Cytoplasm (“juice” in the center)
  - Organelles (little organs with specific jobs)
  - Genetic Material (DNA or RNA)

# Who looked into a microscope and saw the first cell?

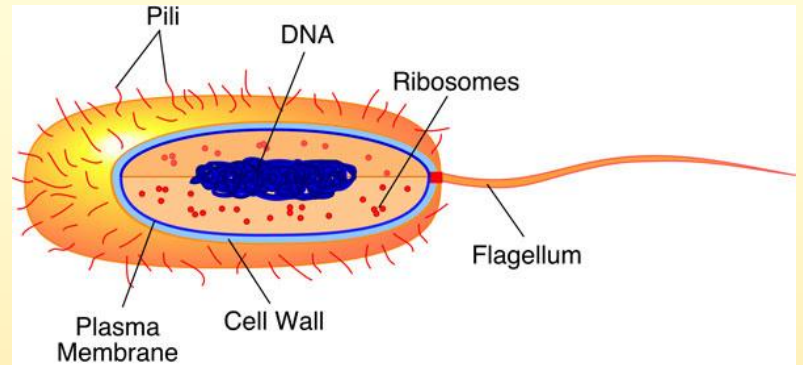
1. James Watson
2. Robert Hooke
3. Charles Darwin
4. Gregor Mendel





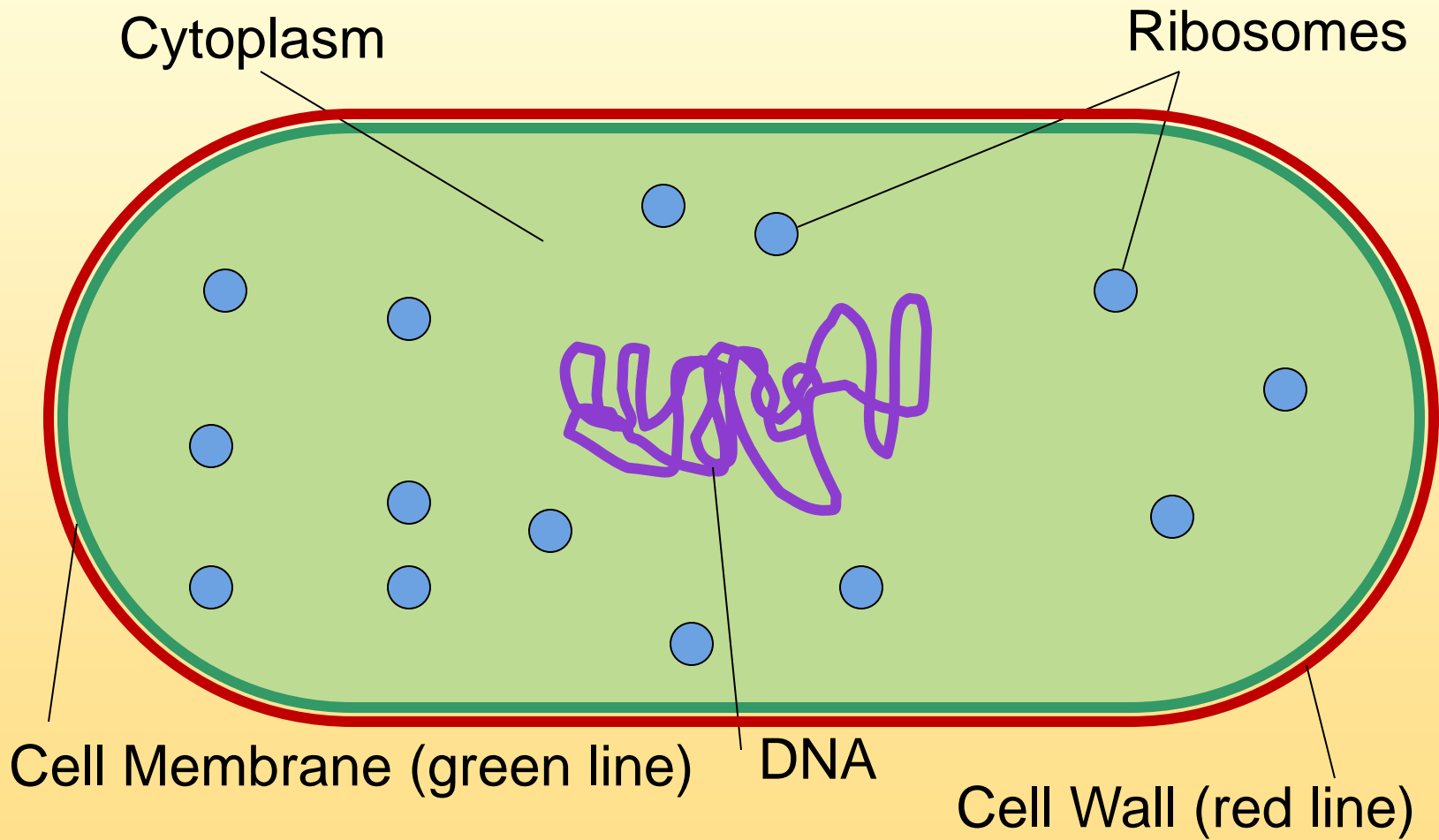
# Prokaryotic Cells Up Close

- No nucleus
- Have DNA
- Example: Bacteria
  - Tiny organisms that live almost everywhere
    - In soil & water
    - On/inside another living thing
  - Some are helpful (probiotic lactobacillus)
  - Others are harmful (streptococcus)



# Diagram of A Prokaryotic Cell

Draw Me!!



# Prokaryotic Organelles

## 1. Plasma membrane

- Encloses the cell
- Regulates material into and out of cell

## 2. Cell Wall

- Supports cell and determines its shape

## 3. Cytoplasm

- A liquid material that particles are suspended in

## 4. Ribosomes

- Makes proteins
- Located in cytoplasm

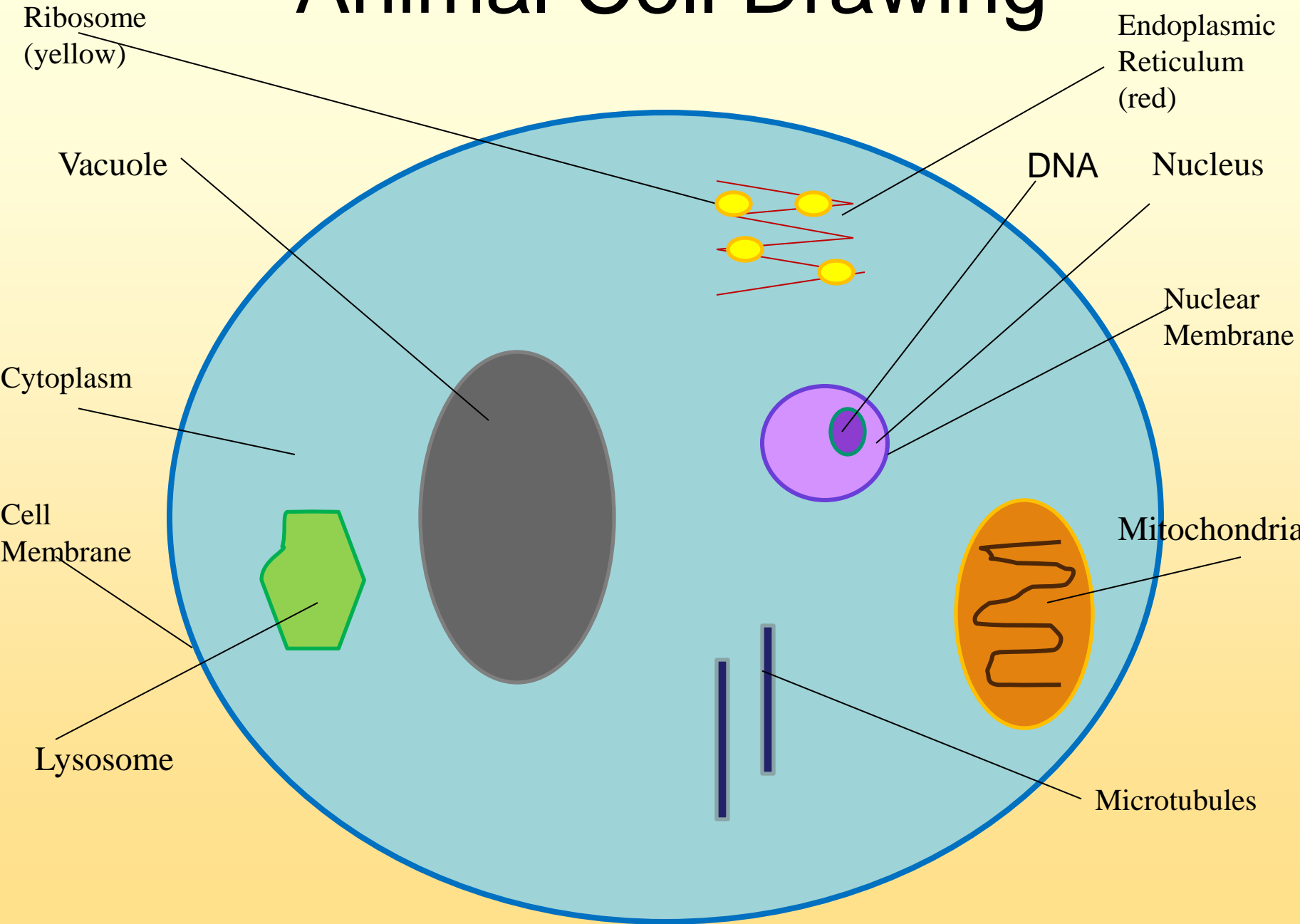
## 5. Nucleoid

- Contains hereditary material (DNA) of the cell
- Located in cytoplasm

# Eukaryotic Cells Up Close

- Have a nucleus that holds the DNA
- Two Types of Eukaryotic Cells:
  - Animal Cells
  - Plant Cells

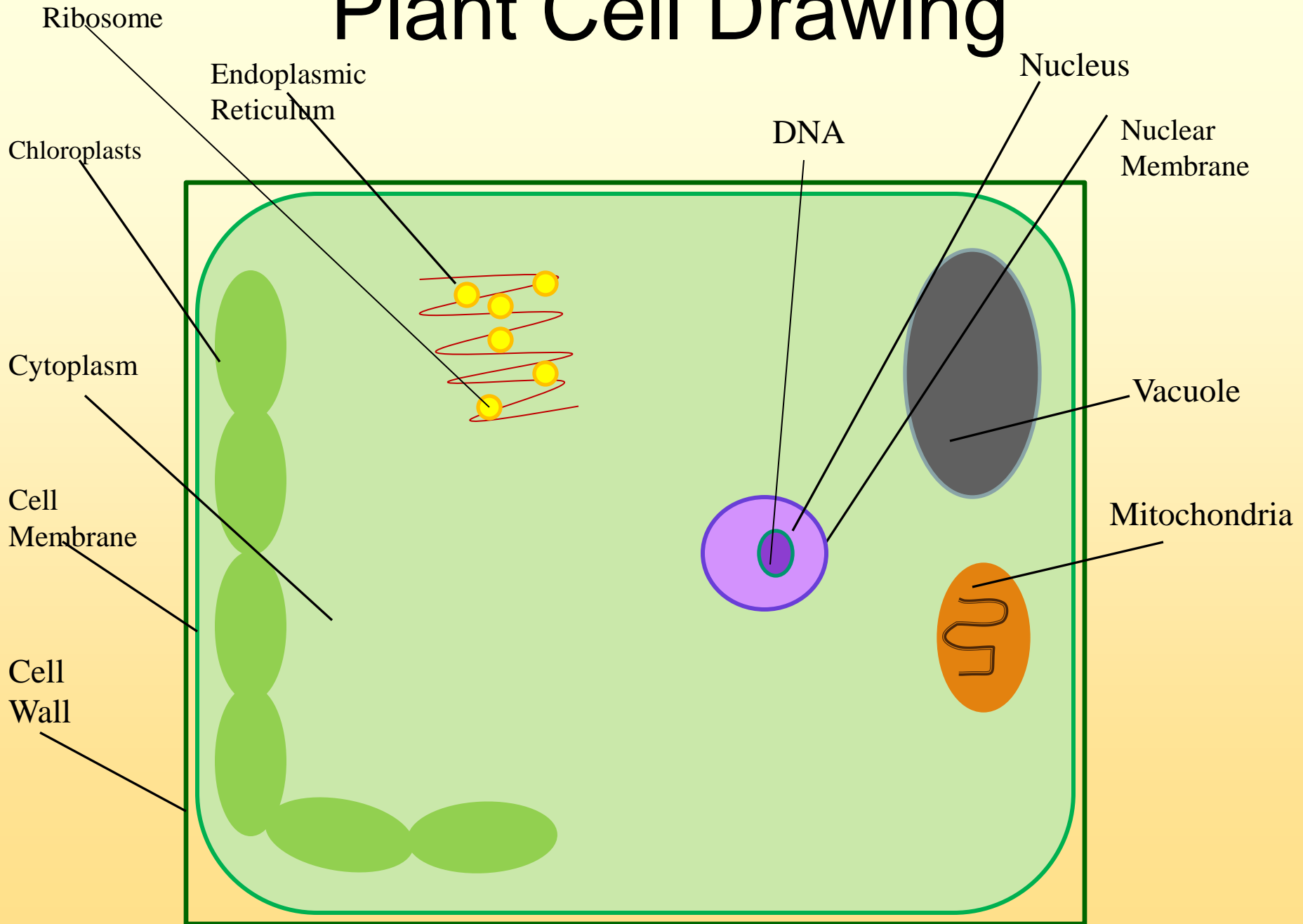
# Animal Cell Drawing



# Animal Cell Organelle Jobs

- 1. Lysosome** – Breaks down Food
- 2. Cell membrane** – Allows materials to enter and exit
- 3. Nucleus** – Controls all cell activities
- 4. Nuclear Membrane** – Protects the Nucleus
- 5. Mitochondria** – Makes Energy (ATP)
- 6. Endoplasmic Reticulum** - Transports Proteins
- 7. Microtubules** - Provides Shape and structure
- 8. Ribosomes** – Make Proteins
- 9. Vacuole** – Stores food, waste and water
- 10. Cytoplasm** – Fluid for movement

# Plant Cell Drawing



# Plant Cell Organelle Jobs

- 1. Cell membrane** – Allows materials to enter and exit
- 2. Nucleus** – Controls all cell activities
- 3. Nuclear Membrane** – Protects the Nucleus
- 4. Mitochondria** – Makes Energy (ATP)
- 5. Endoplasmic Reticulum** - Transports Proteins
- 6. Chloroplast** - makes food (chlorophyll)
- 7. Ribosomes** – Make Proteins
- 8. Vacuole** – Stores food waste and water
- 9. Cytoplasm** – Fluid for movement
- 10. Cell Wall** - rigid structure that surrounds the cell membrane and provides support to the cell



# Which is NOT a eukaryote?



1. Fungi
2. Animal
3. Bacteria
4. Protist

