

School Book

6th std - Term 2

The Cell

Professor Academy



Content

- Cell
- Discovery
- Structural Organization
- Size
- Shapes
- Number
- Types
- Plant & Animal cell
- Cell Components

Common Name: Rice

Scientific Name: *Oryza sativa*



Common Name: Wheat

Scientific Name: *Triticum aestivum*



Common Name: Sugarcane

Scientific Name: *Saccharum officinarum*





Common Name: Maize

Scientific Name: *Zea mays*

Common Name: Grass

Scientific Name: Poaceae



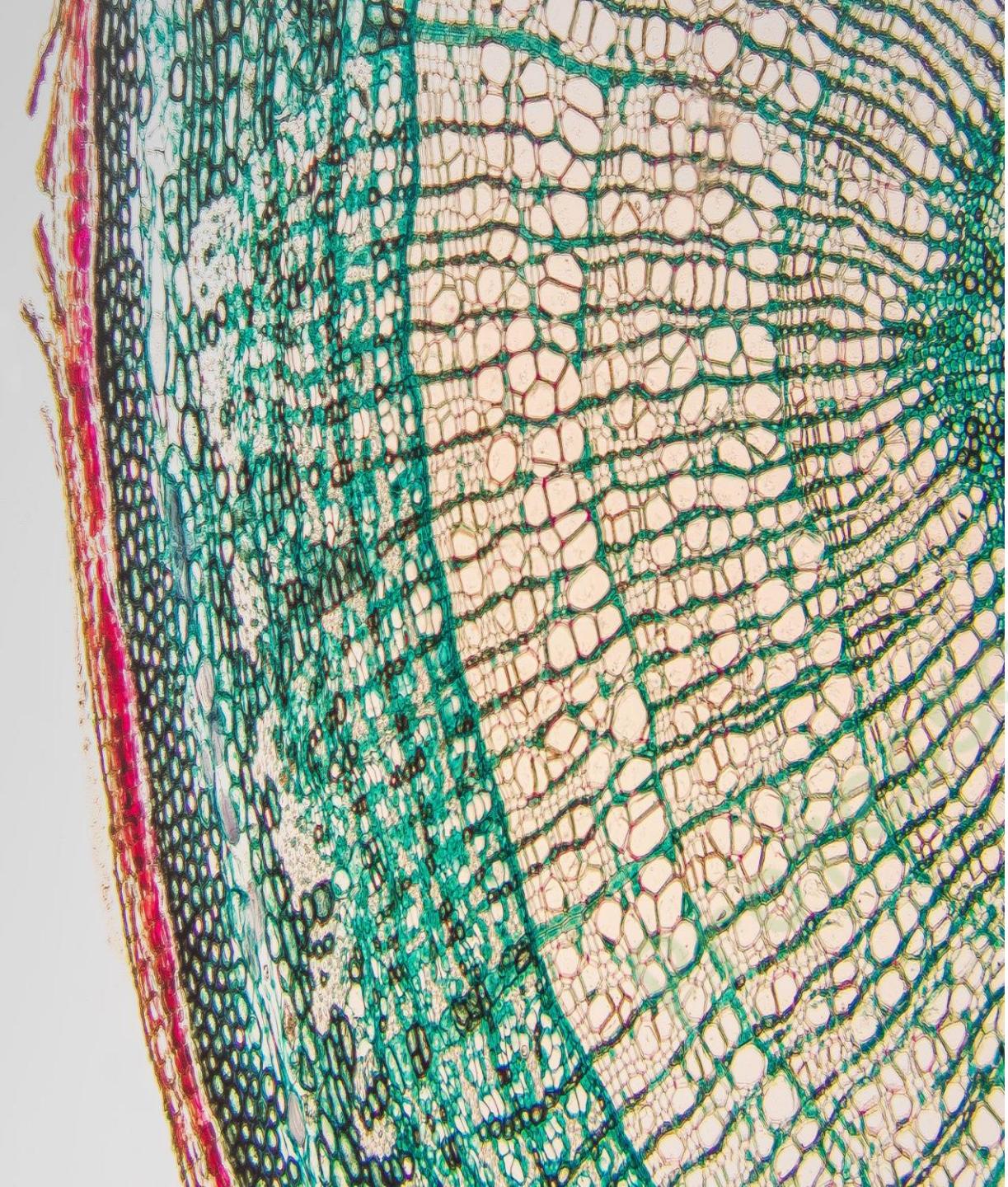


The Cell

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What is the basic building block of the wall?

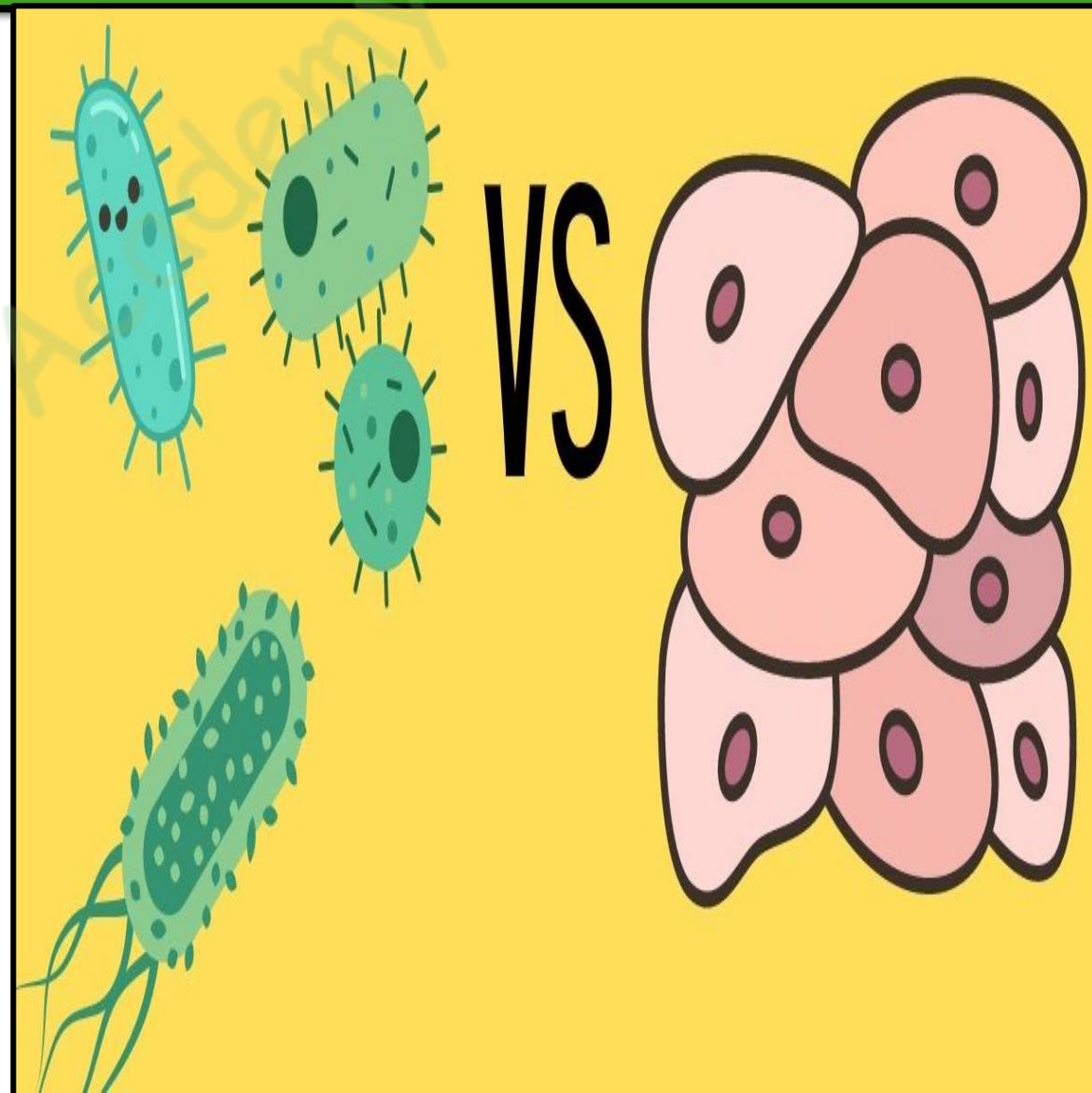




- Body - **building blocks** →
“**Cells**”
- Basic structural & functional
unit - living organism

The Cell

- All living things - made - **one / more cells**
- Variety of cell types - **common features**



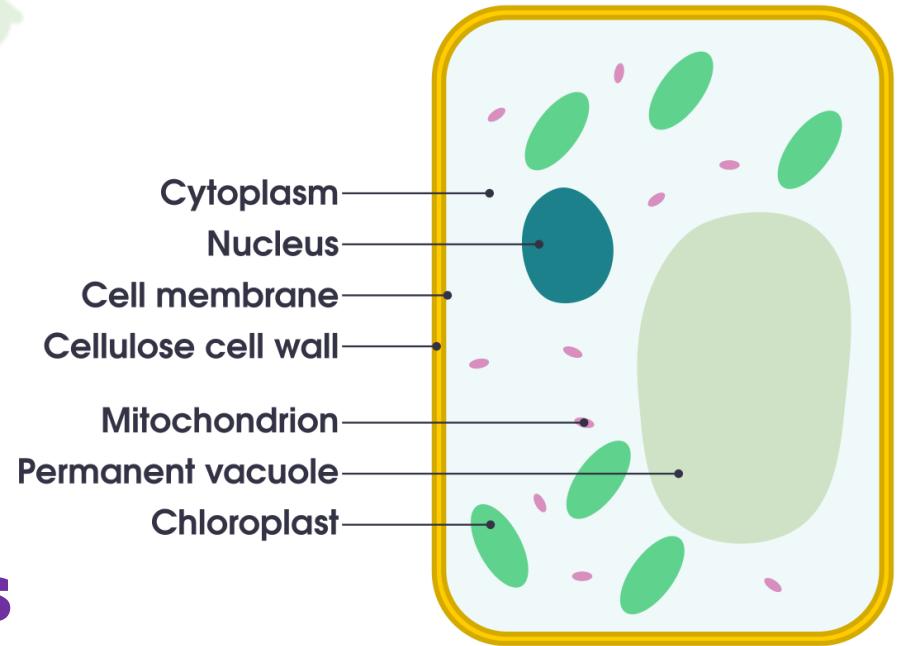
Discovery of the cell



- **Robert hooke** - built - **compound microscope**
- **Water lens** - focus light - oil-lamp
- Identical chambers - hexagonal
- Published book → **Micrographia** - 1665
- First used - term - **cell**
- Latin → '**cellua**' - chamber

The Structural Organization Of The Cell

- Three major parts:
 1. **An outer cell membrane**
 2. **A liquid cytoplasm**
 3. **A nucleus**
- Many distinct structures → **Organelles**



Size of the cell

- Size of cells - **micrometer to centimeters**
- **Smallest size** of cell - **Bacteria**
- **0.01 micrometer - 0.5 micrometer**





Size of the cell

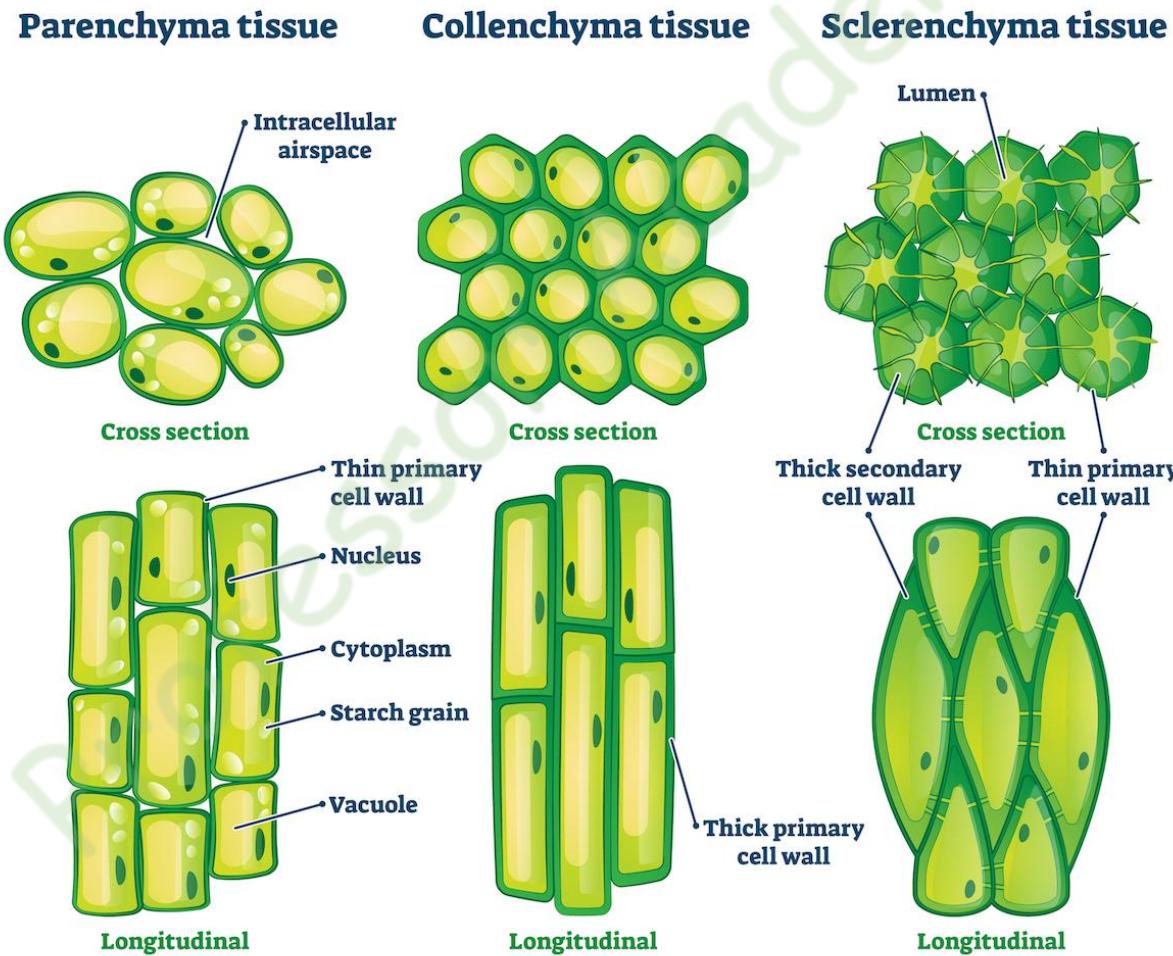
- **Largest cell** - egg of an ostrich
- **170 millimeter** - width
- **Nerve cells** → longest cells



Does Cell size has any relation to the size of an organism?



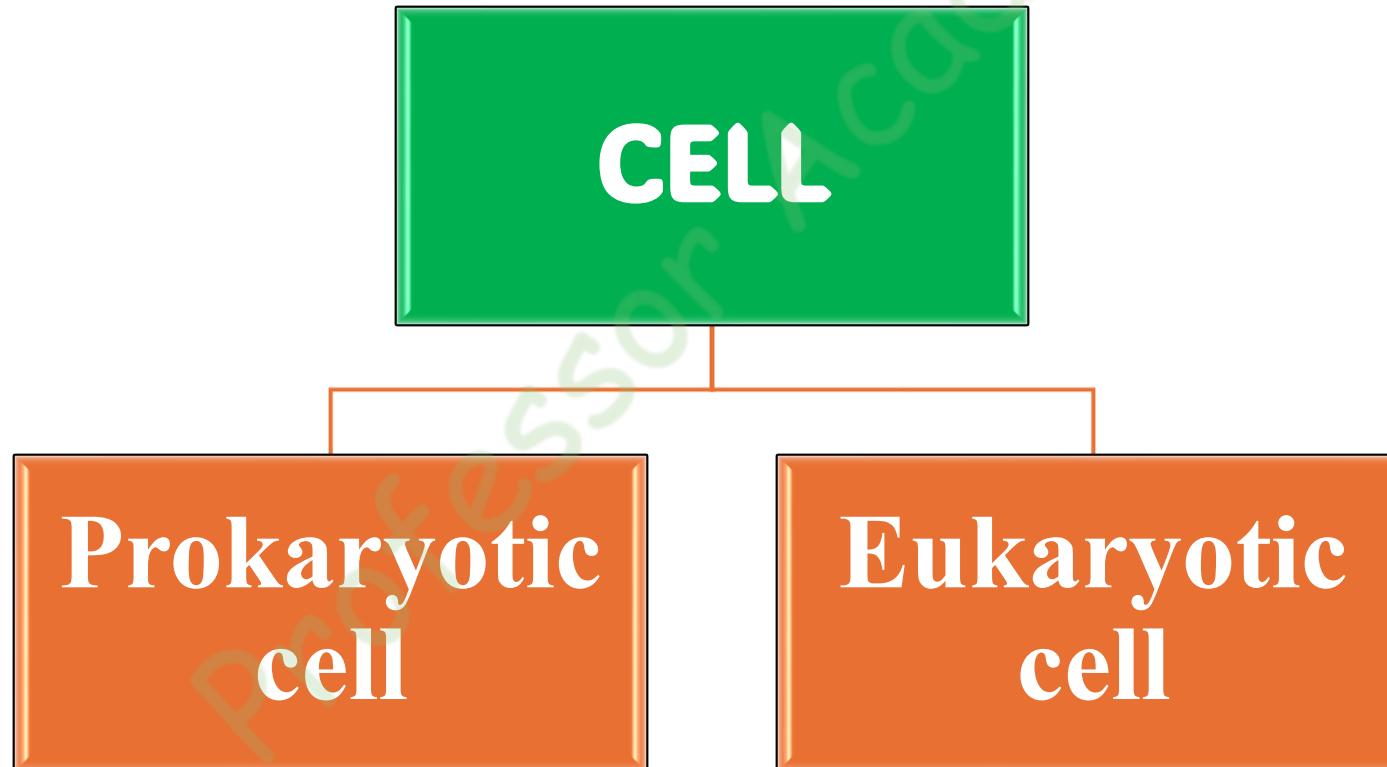
Shapes



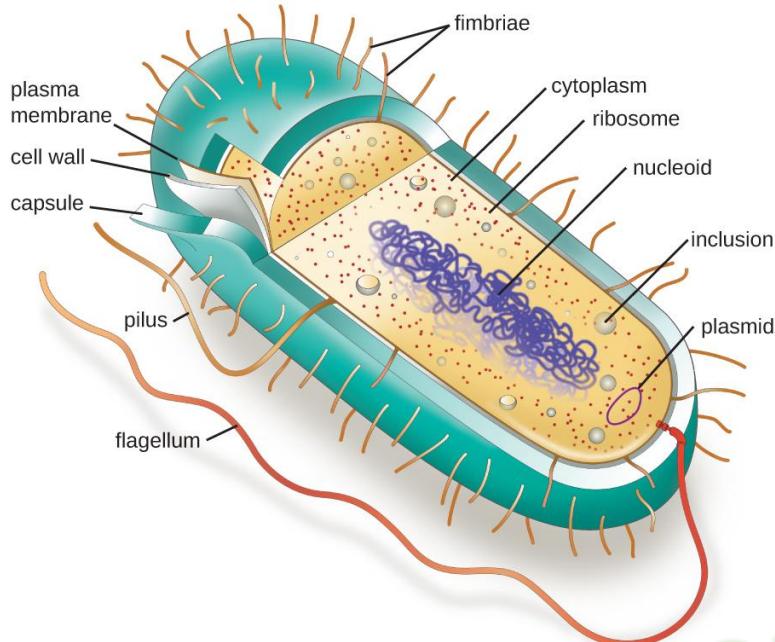
Number

- Number of cells - vary - different organisms
- Either **unicellular** / **multicellular**
- Spirogyra, mango, & human beings - multicellular
- Hundreds to millions of cells

TYPES OF CELL



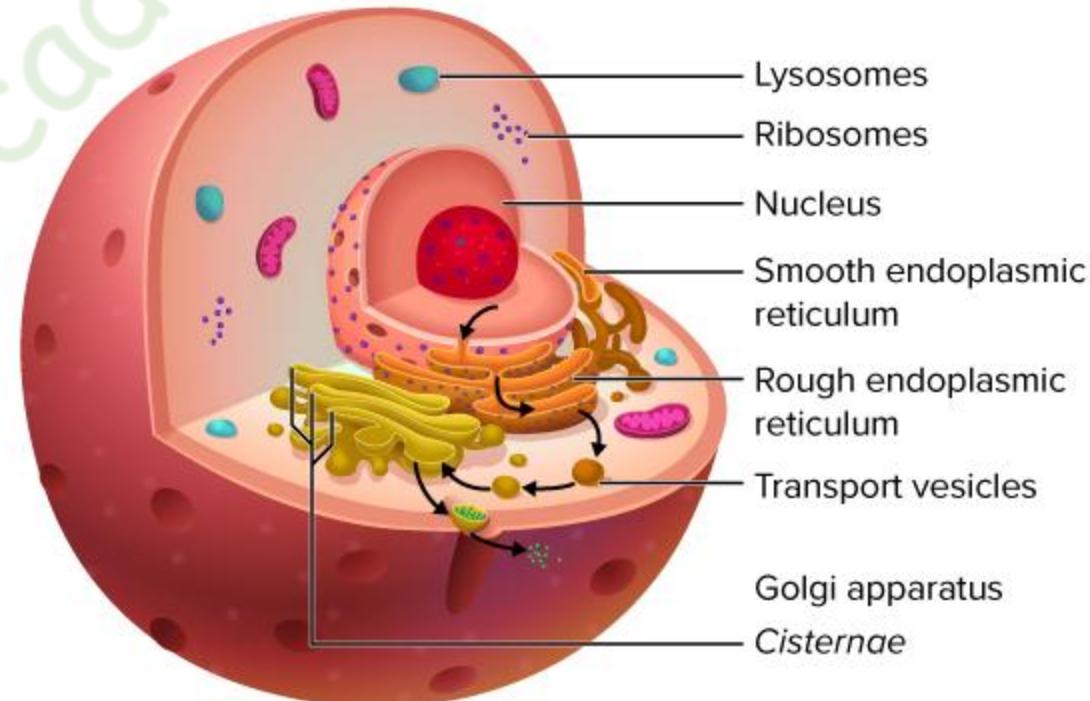
Prokaryotic cell



- **Unicellular organisms** - bacteria
- **No true nucleus**
- Nucleus → **nucleoid**
- No nuclear membrane - around - nucleoid
- **0.003 - 2.0** micrometer - diameter

Eukaryotic cell

- **True nucleus**
- Membrane bound organelles
- Nucleus - **nuclear membrane**
- Bigger than prokaryotic cell
- **10 – 100 micrometer**



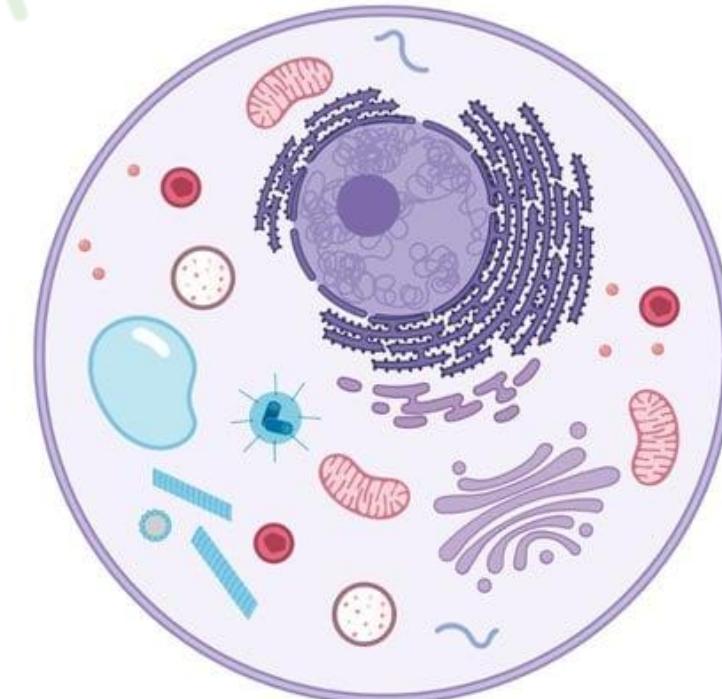
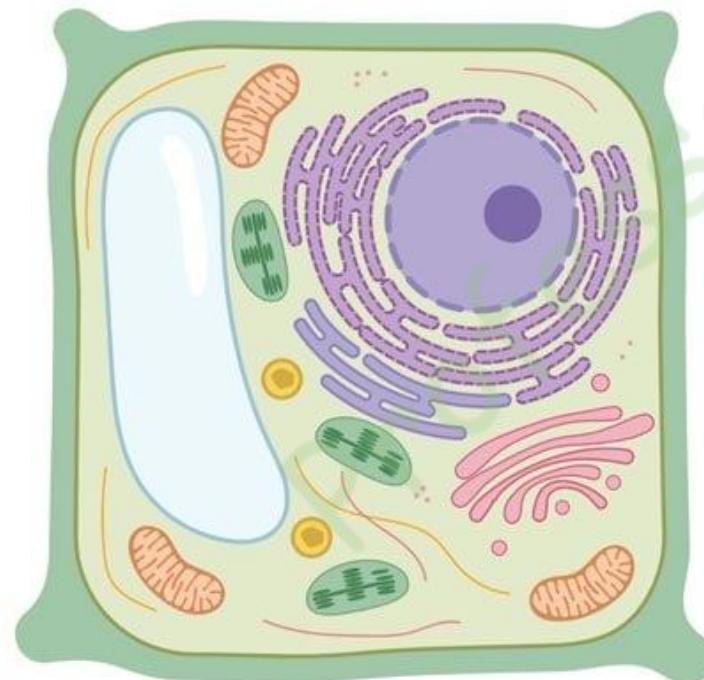
Plant cell & Animal cell

Both cells are eukaryotic

Plant Cell

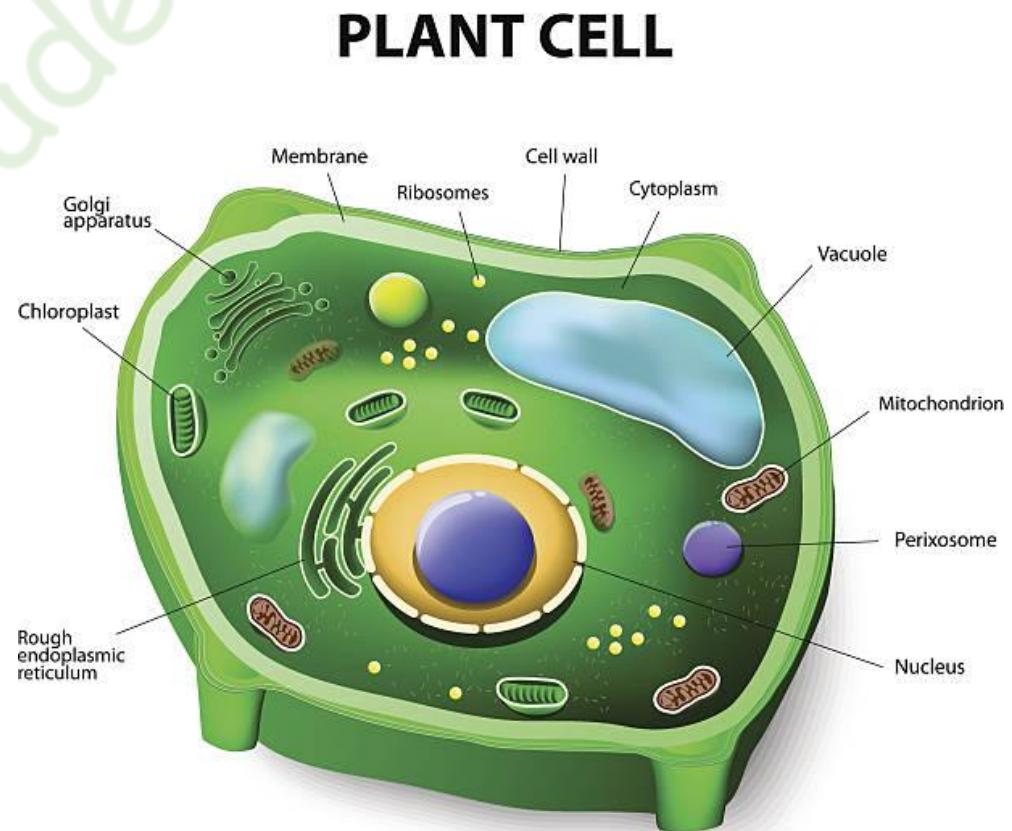
VS

Animal Cell

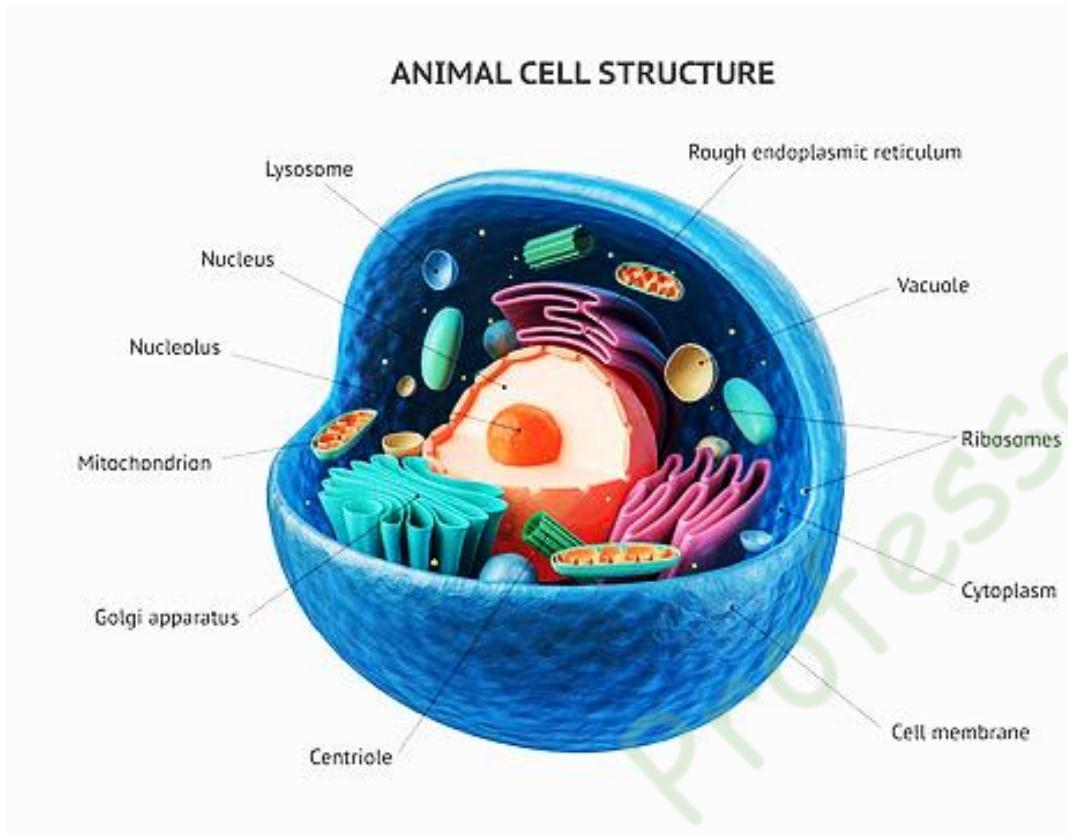


Plant cell

- **Larger** in size
- **Hard** in nature
- Cell wall + Cell membrane
- Chloroplast contain **chlorophyll**
- Large **vacuoles**
- **Centrioles** - absent

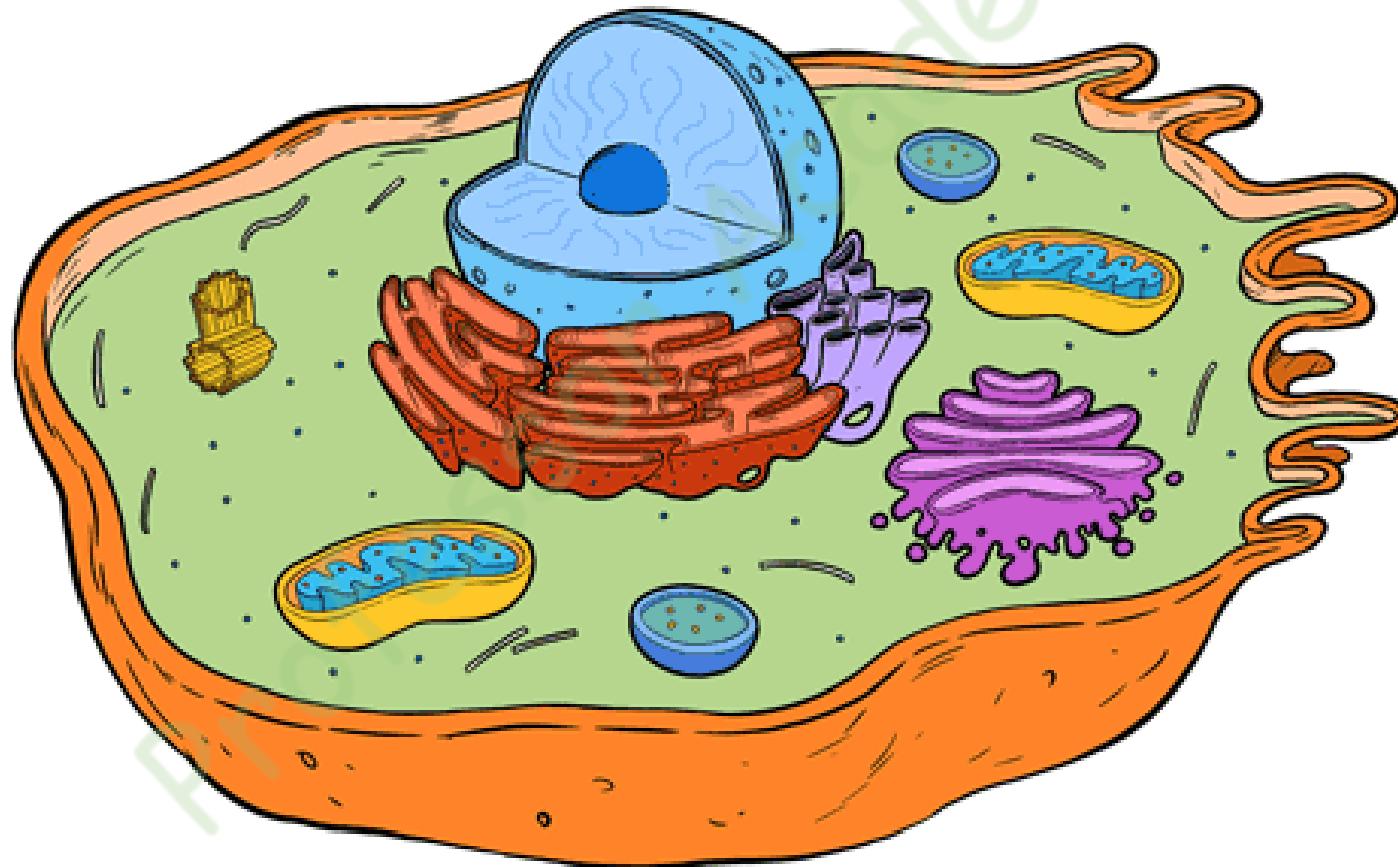


Animal cell



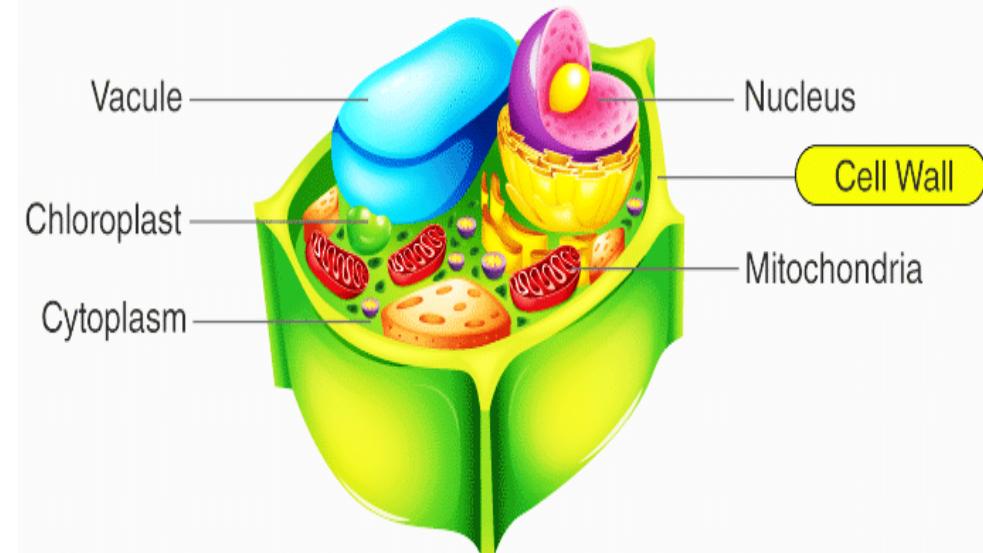
- Smaller than plant cells
- Not so hard
- **Cell wall is absent**
- **Chloroplast is absent**
- Many **small vacuoles**
- **Centrioles present**

Cell Components



Cell Wall

- **Special Name: Supporter & protector**
- **Surrounds & protects** - cell
- Make cell stiff & strong



Cell Membrane



- **Special Name:** **Gate of the cell**
- Holds the cell
- **Controls movement** - materials in & out

Cytoplasm

- **Special Name: Area of movement**
- **Watery, gel-like** material
- Cell parts move



Mitochondria

- **Special Name: Powerhouse of the cell**
- Produce & supply - **energy** - cell



Chloroplasts



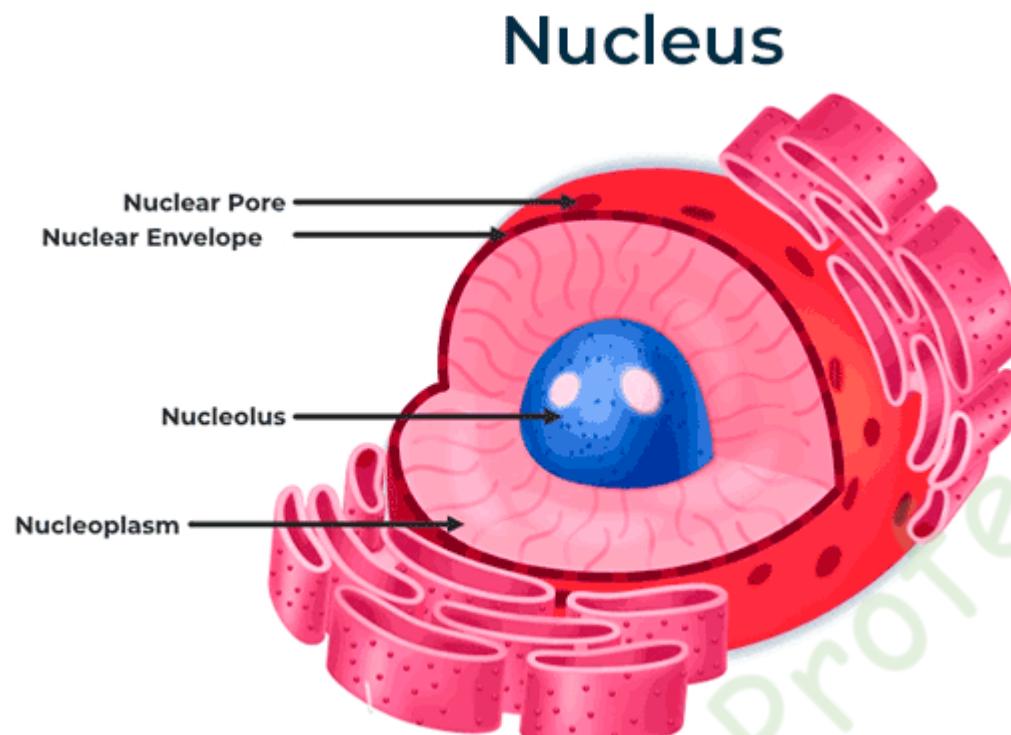
- **Special Name: Food producers**
- Green pigment **chlorophyll**
- Capture - **sunlight** - produce food
→ **photosynthesis**

Vacuoles

- **Special Name: Storage tanks**
- Store food, water, and chemicals



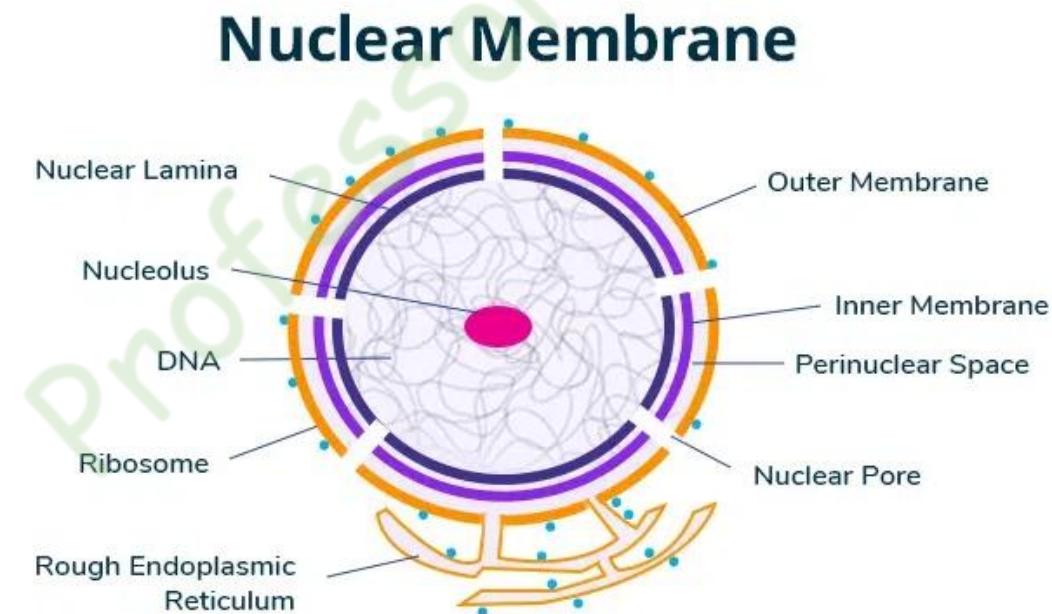
Nucleus



- **Special Name: Control centre**
- **'Brain'** of the cell
- Regulates & controls - cell activities

Nucleus Membrane

- **Special Name: Gate of the nucleus**
- **Protects** the nucleus
- Control the movement of materials



Any Question?

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All the best !

Professional Academy