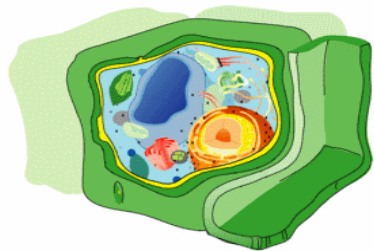
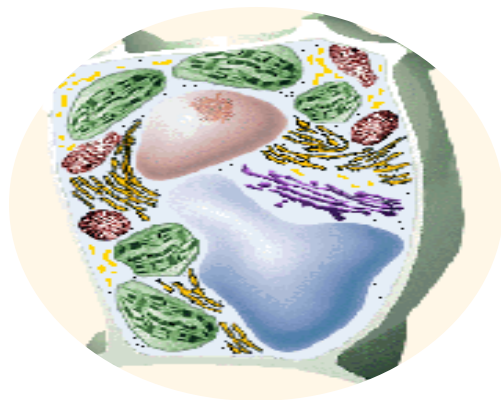


# The Plant Cell



102 BOT

Lab 2



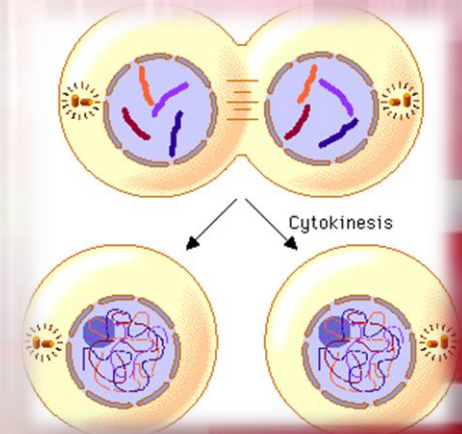
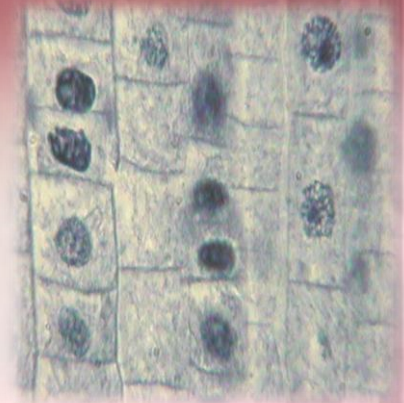
# Introduction

- **Cells are the basic units of organisms**
  - **Cells can only be observed under microscope**

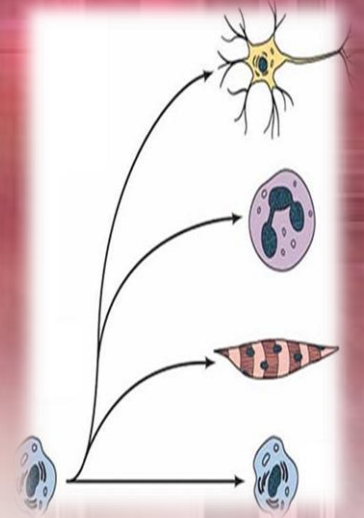


# Cell Theory

- **1. All organisms are made up of cells.**
- **Cells are the basic unit of structure and function in an organism (basic unit of life)**
- **All cells come from cells that already exist (cell division)**



# Definition of Cell



- **A cell is the smallest unit that is capable of performing life functions.**



# Examples of Cells



Amoeba Proteus



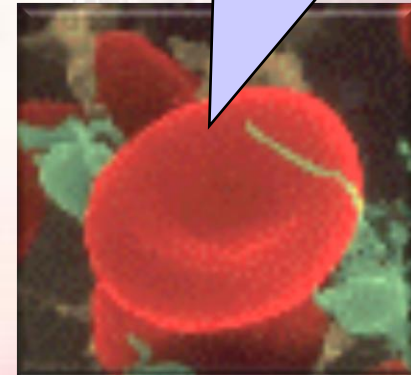
Plant Stem



Bacteria



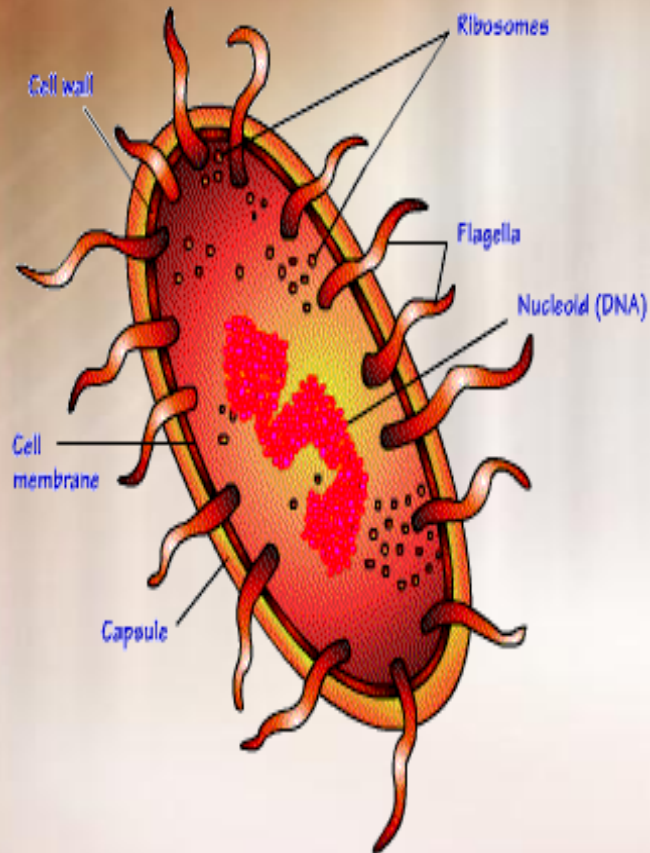
Nerve Cell



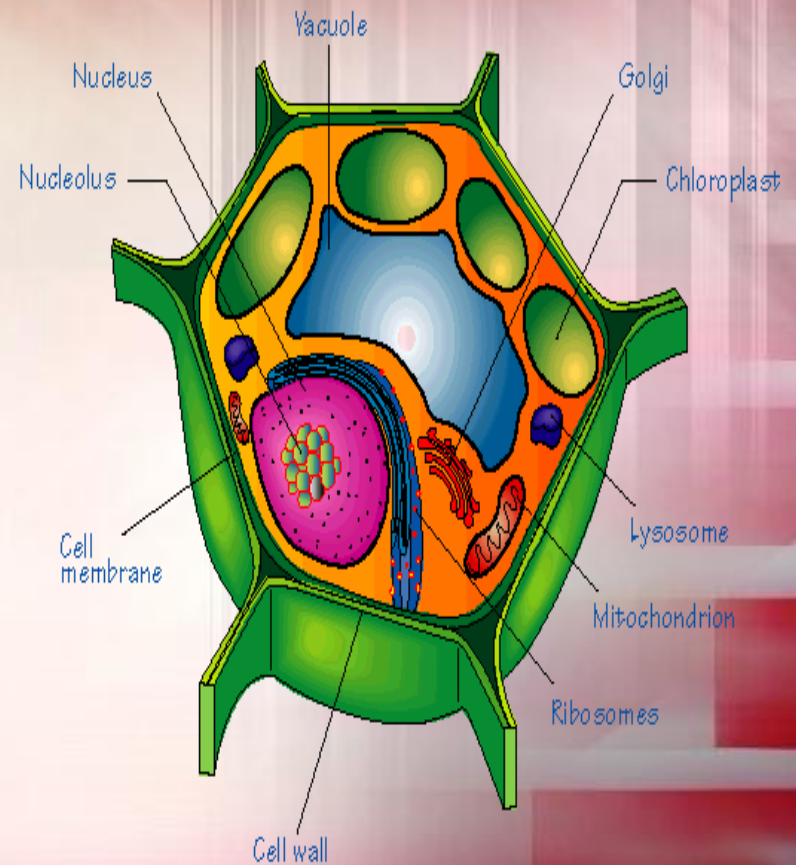
Red Blood Cell

# Cell Types

- **Prokaryotic**



- **Eukaryotic**

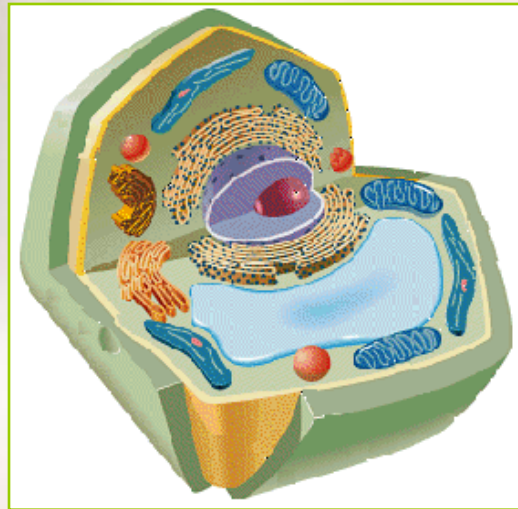


# Cell Size and Types

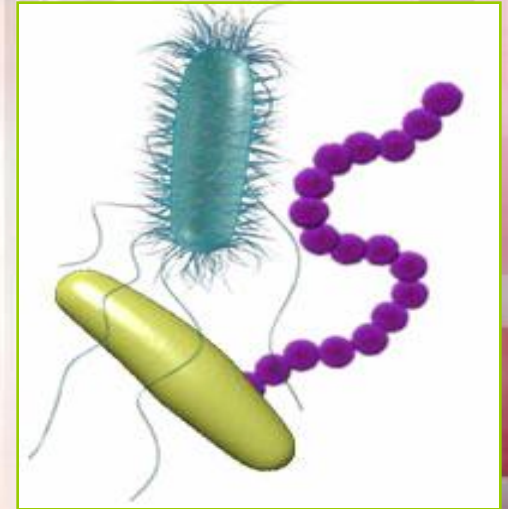
- **Cells, the basic units of organisms, can only be observed under microscope**
- **Three Basic types of cells include:**



**Animal Cell**



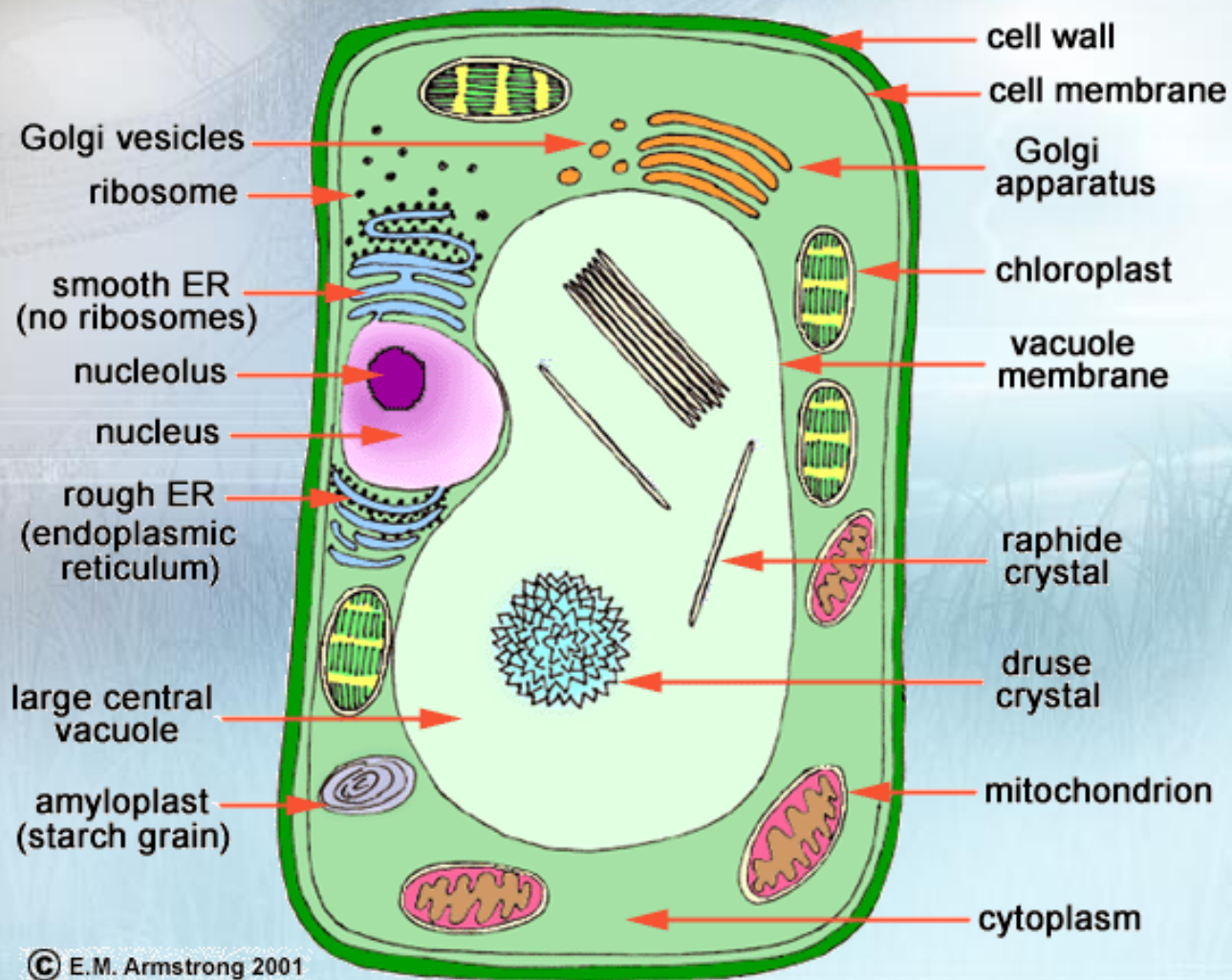
**Plant Cell**



**Bacterial Cell**



# “Typical” Plant Cell



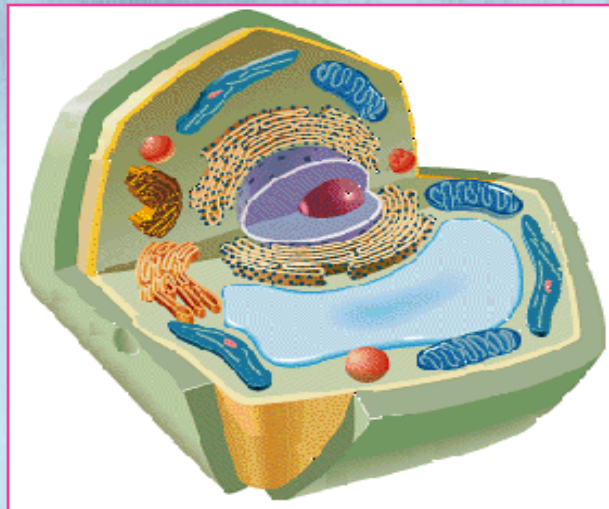


# Plant Cell

Plant cell contain following major organelles:

- **Cell wall : Made of cellulose**
- **The protoplast : consists of the cytoplasm and nucleus.**

Plant Cell



# • Living contents

- cytoplasm

- nucleus

- plastids (Contain the green pigment chlorophyll)

- mitochondria

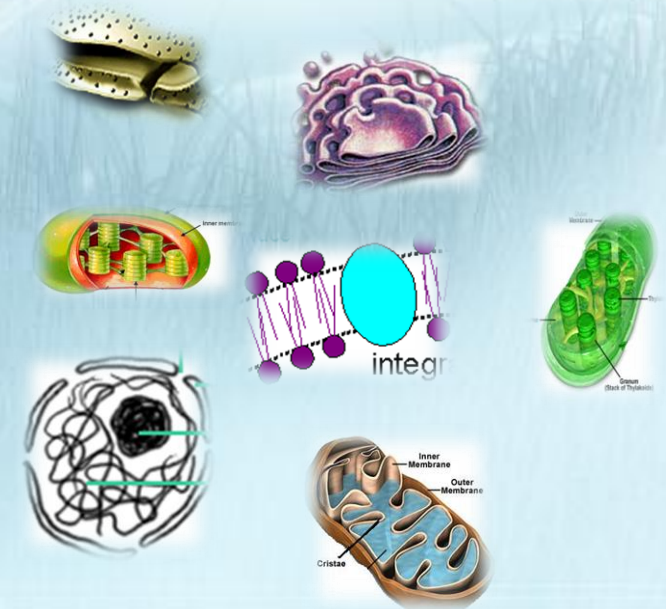
- golgi bodies

- lysosome

- endoplasmic reticulum

- ribosomes

- microtubules



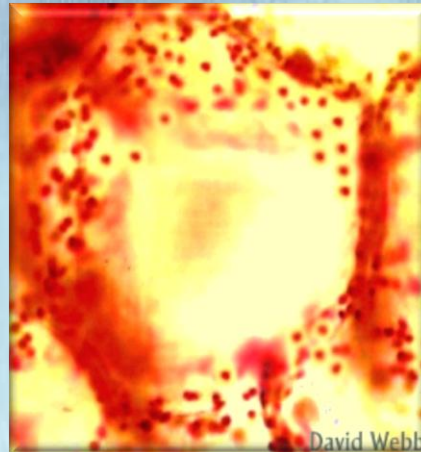
# Living contents :

## Plastids

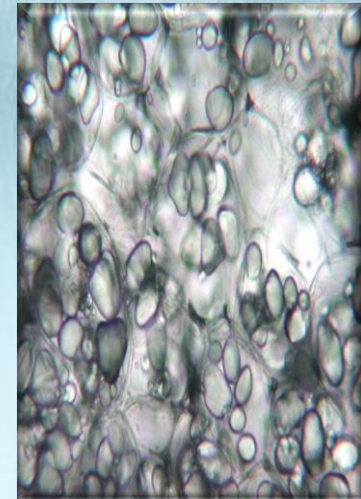
Chloroplasts

Chromoplasts

Leucoplasts

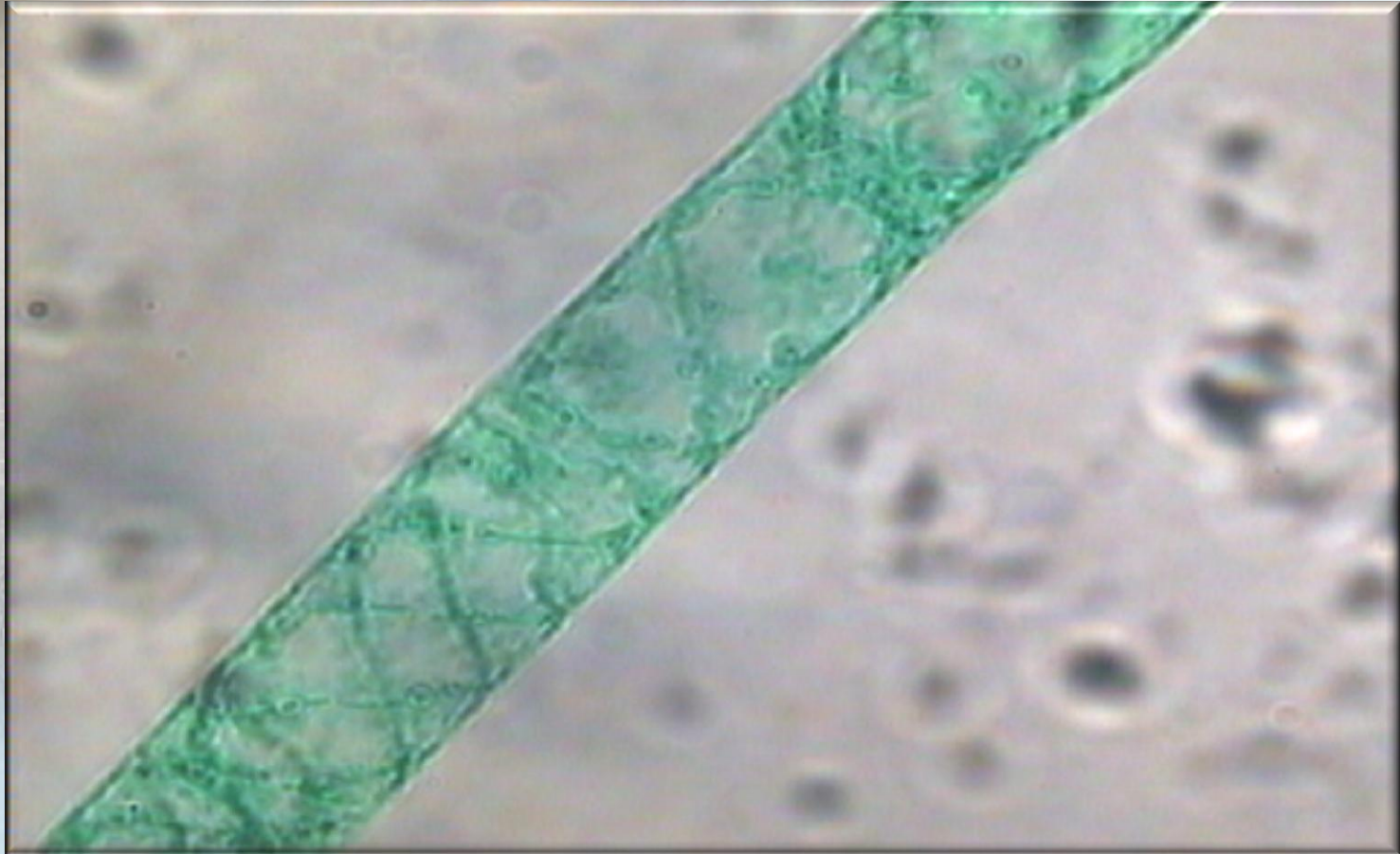


(Tomato )





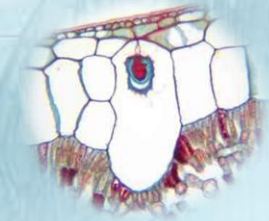
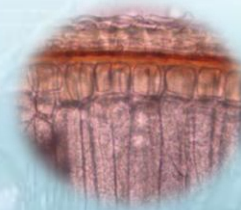
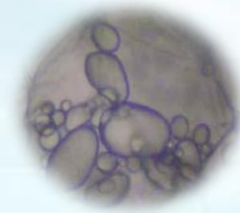
# Plastids



**Chloroplasts in Spirogyra**

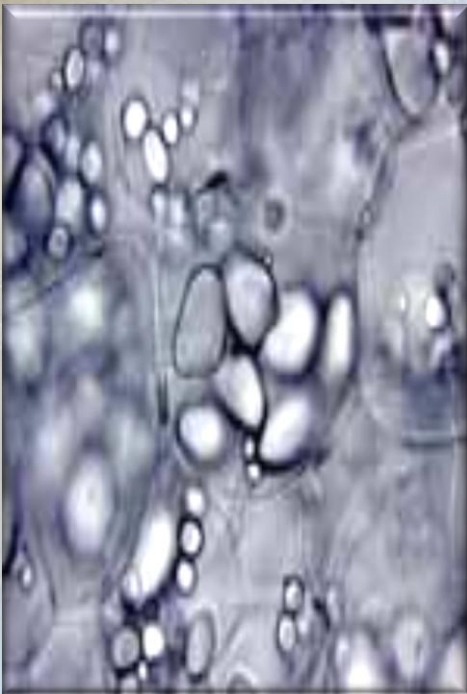
# • Non-living contents

- Starch granules
- Vacuoles
- Crystals
- Aleurone grains
- Cell wall



- **Non-living contents**

- **1-Starch grains**



**Starch grains (potato)**



# 2- Crystals

**Raphides**



**Druses**



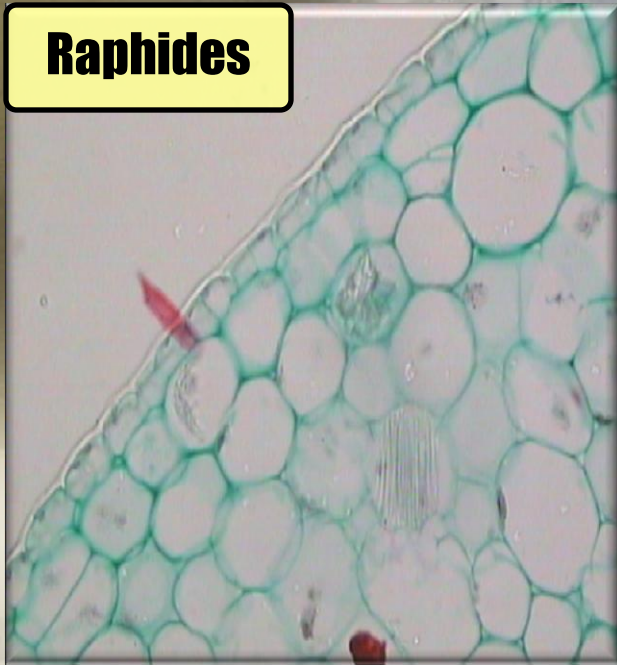
**Solitary**



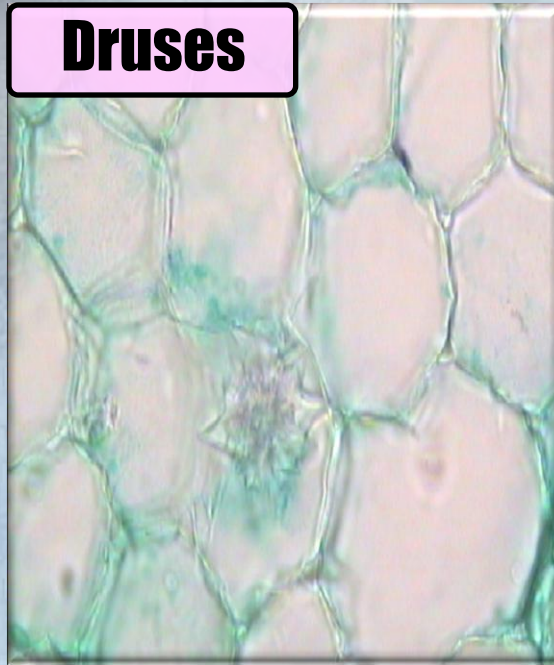
**cystolith**



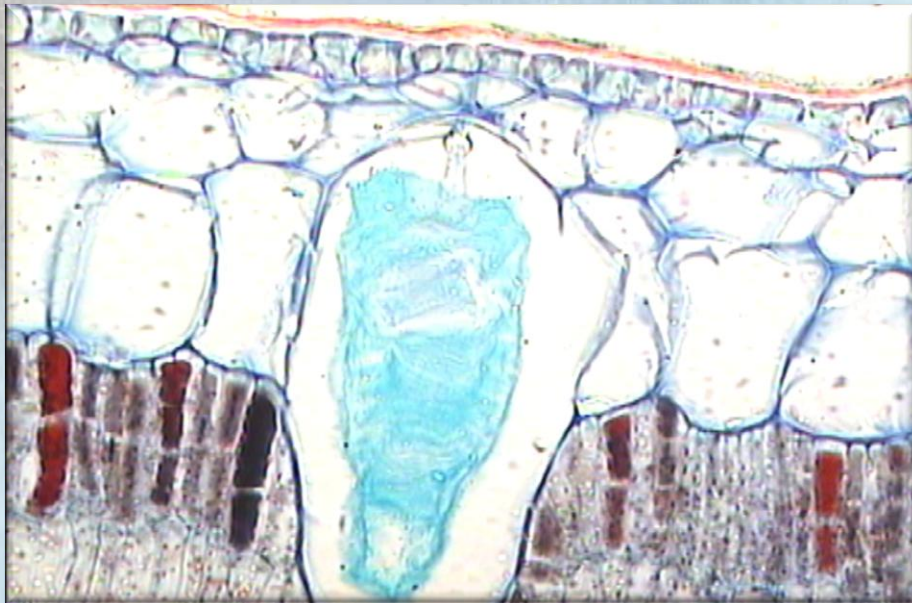
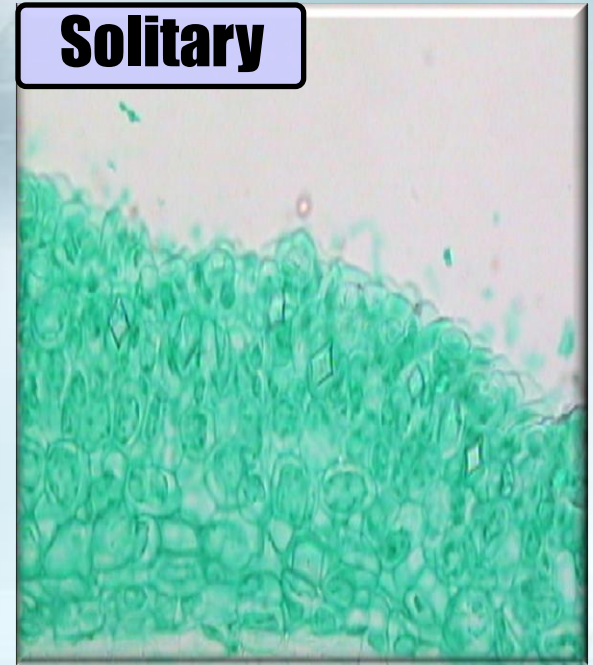
**Raphides**



**Druses**



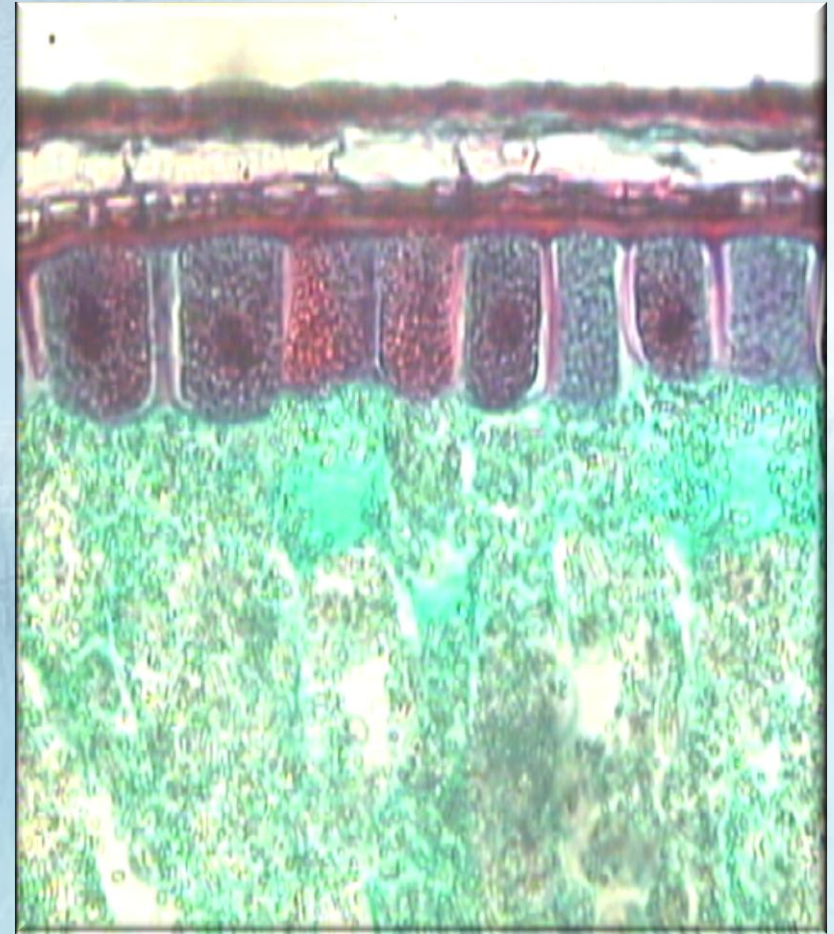
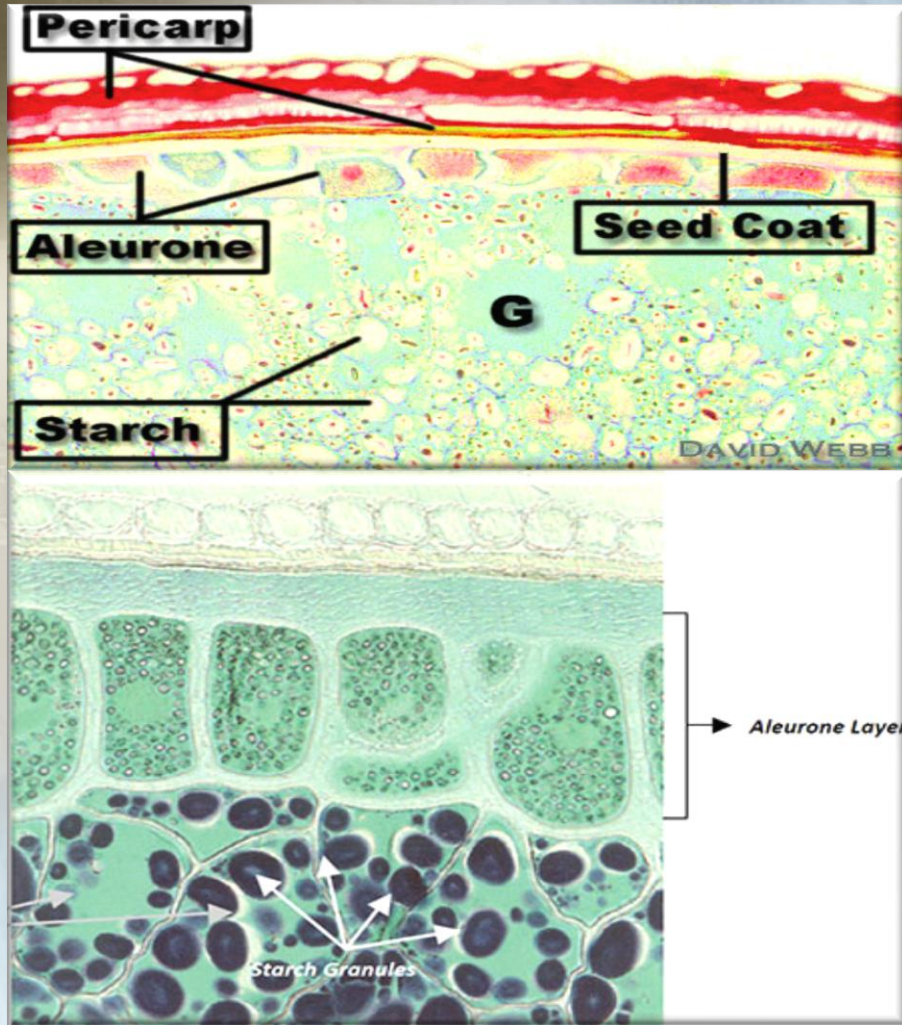
**Solitary**



**Cystolith Crystals**



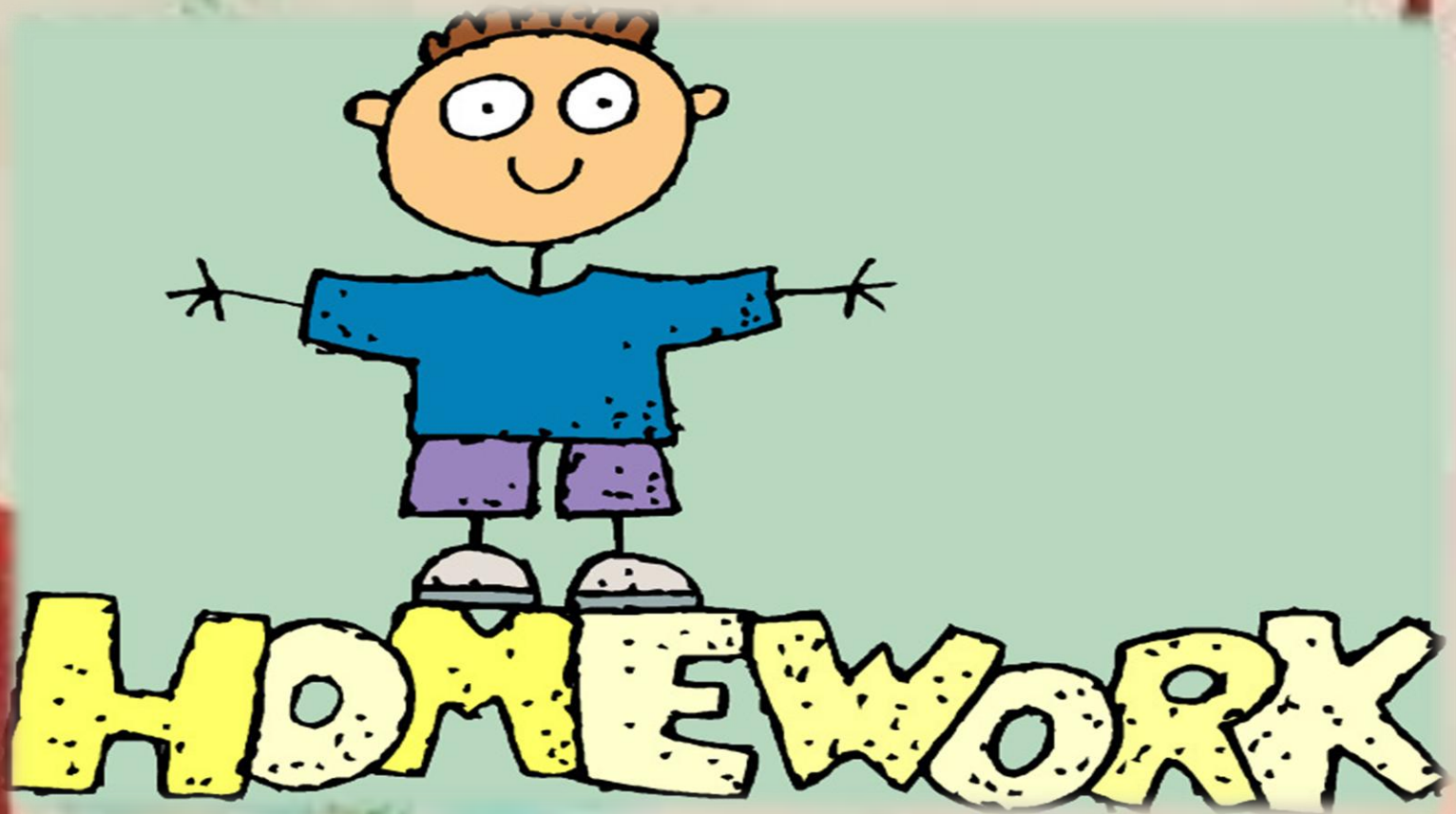
# 3- Aleurone grains



**Aleurone grains (Wheat )**



# DRAWING A LESSON TODAY SAMPLES



# Munira Al-Dosari



Thank You