

## Two Types of Cells

### Prokaryotic

- \* has DNA
- \* no nucleus
- \* bacteria cells
- \* smallest cells
- \* hard cell wall
- \* oldest type of cell
- \* appeared 3.5 billion years ago
- \* has cytoplasm and organelles
- \* has cell membrane

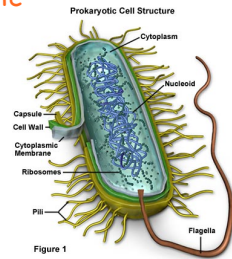
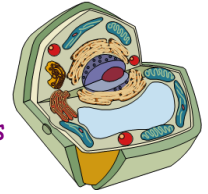
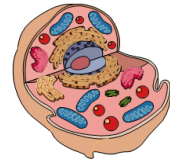


Figure 1

## Eukaryotic

- \* Has DNA
- \* Has a Nucleus
- \* Plant, animal, fungi, protist cells
- \* 10 x larger than Prokaryotic
- \* More complex cells
- \* Appeared 2 billion years ago
- \* Has cytoplasm and organelles
- \* Has a cell membrane

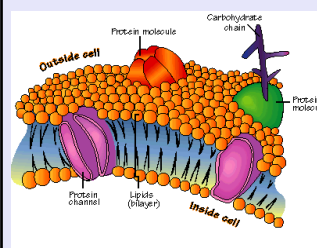


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## Parts of the Cell

## Cell Membrane



Protective outer covering that regulates interactions between the cell and its environment

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## Cell Wall

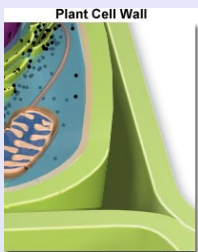
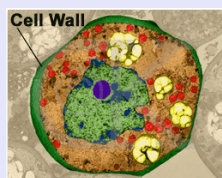
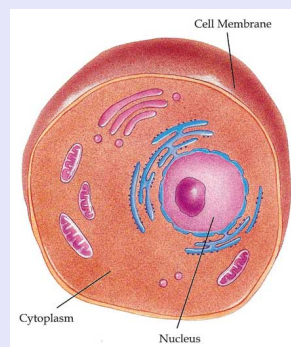


Figure 1



rigid structure that encloses, supports, and protects plant cells

## Cytoplasm



gel like mixture that contains hereditary material and is the location for most cell functions

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### Cytoskeleton

helps cell maintain shape

Actin filaments  
Microtubules  
Centrosome  
Nuclear lamina  
Intermediate filaments  
Cell nucleus

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### Parts of the Nucleus

pathway between nucleus & cytoplasm

controls all cell activity, contains hereditary material

nucleolus

makes ribosomes in center of nucleus

membrane that surrounds nucleus

nuclear membrane

Outer membrane  
Inner membrane  
Nucleoplasm  
Nucleolus  
Chromatin  
Nuclear envelope  
Pore in nuclear envelope

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### Ribosome

Ribosomes

Free ribosome  
Ribosomes associated with the rough endoplasmic reticulum

make proteins

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### Golgi Body

Golgi apparatus

incoming transport vesicle  
cis face  
lumen  
trans face  
secretory vesicle  
newly forming vesicle

packages and transports cell material in and out of the cell

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### Endoplasmic Reticulum

Rough ER

Smooth ER

Nuclear envelope  
Nucleus

folded membranes that extend from nucleus to cell membrane. transports proteins, breaks down chemicals and makes proteins

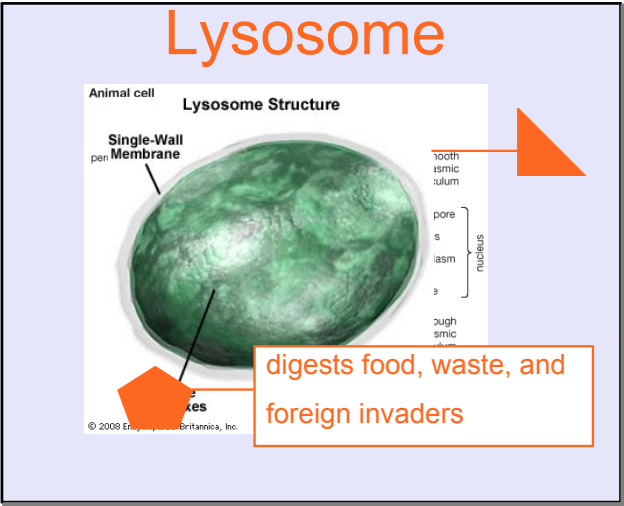
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### Vesicle

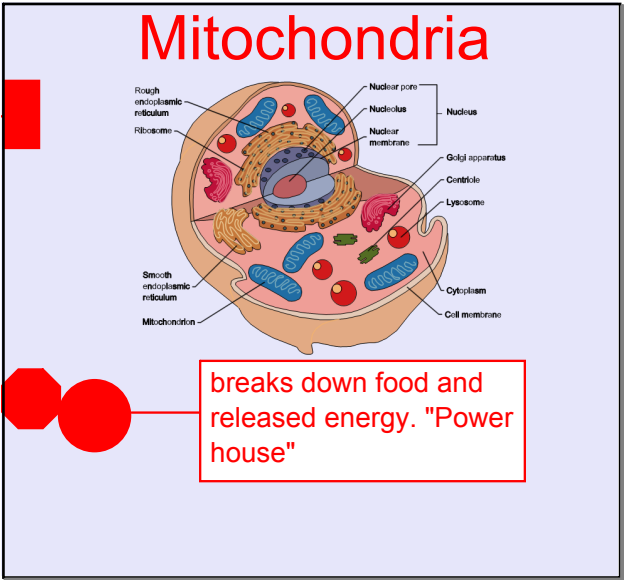
EXTERNAL ENVIRONMENT  
Cell membrane  
Vesicle  
CYTOSOL

stores and transports materials

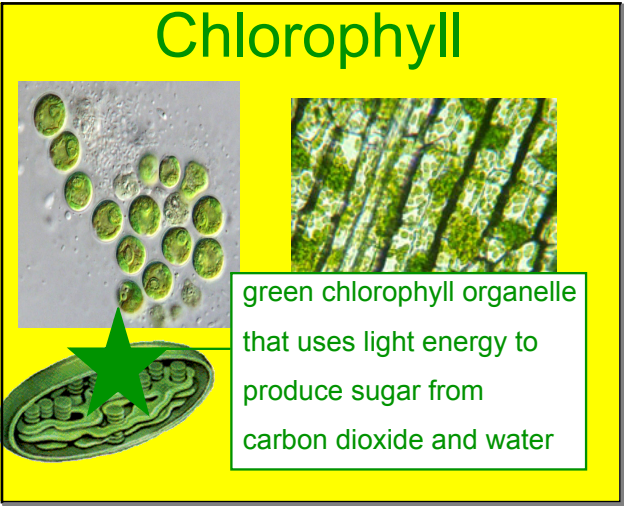
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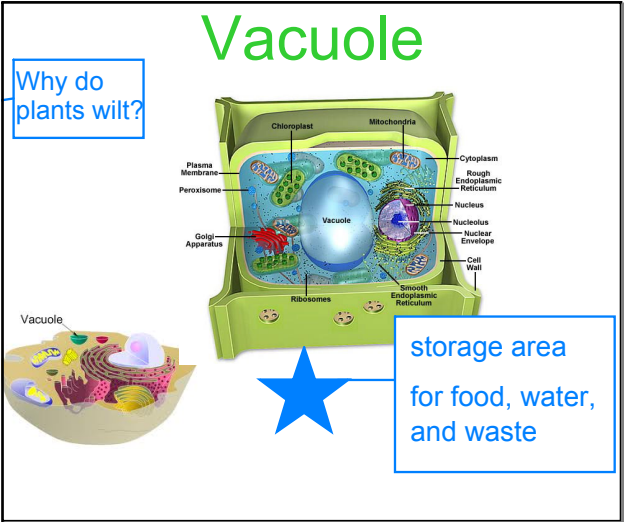
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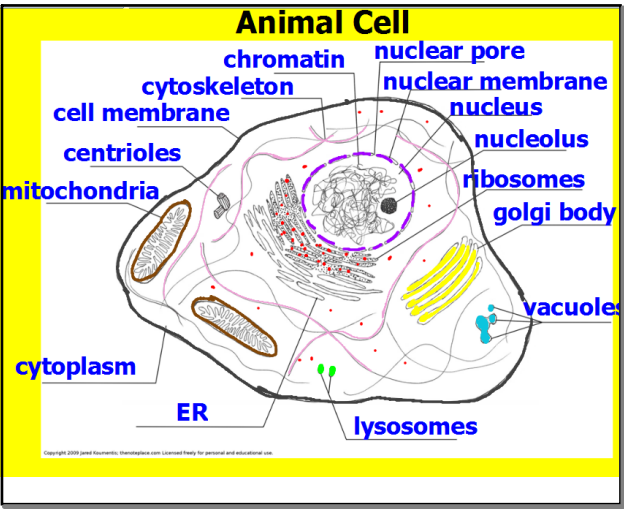
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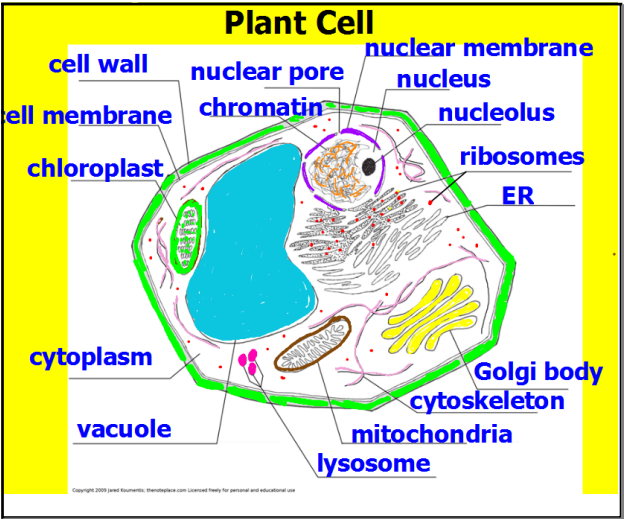
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