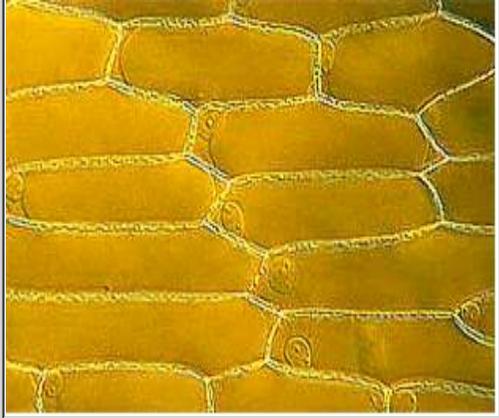
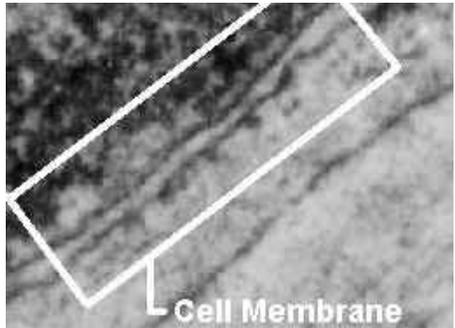
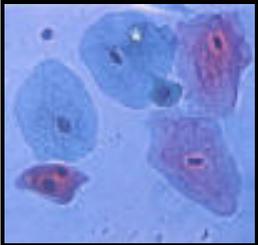
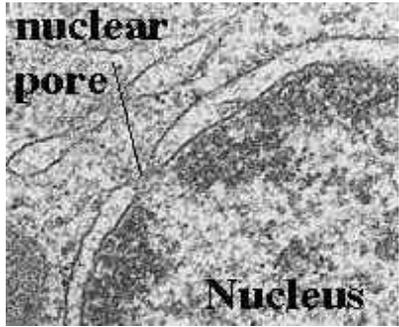


CELL STRUCTURE	LOCATION	DESCRIPTION	FUNCTION
<p><b>Cell Wall</b></p> 	<p>Plant, Fungi, &amp; Bacteria, <b>but not animal cells</b></p>	<ul style="list-style-type: none"> <li>• Outer layer</li> <li>• Rigid &amp; strong</li> <li>• Made of cellulose</li> </ul>	<ul style="list-style-type: none"> <li>• Support (grow tall)</li> <li>• Protection</li> <li>• allows H<sub>2</sub>O, O<sub>2</sub>, CO<sub>2</sub> to diffuse in &amp; out of cell</li> </ul>
<p><b>Cell Membrane</b></p> 	<p>All cells</p>	<ul style="list-style-type: none"> <li>• Plant - inside cell wall</li> <li>• Animal - outer layer; cholesterol</li> <li>• Double layer of phospholipids with proteins</li> <li>• Selectively permeable</li> </ul>	<ul style="list-style-type: none"> <li>• Support</li> <li>• Protection</li> <li>• Controls movement of materials in/out of cell</li> <li>• Barrier between cell and its environment</li> <li>• Maintains homeostasis</li> </ul>
<p><b>Nucleus</b></p> 	<p>All cells <b>except prokaryotes</b></p>	<ul style="list-style-type: none"> <li>• Large, oval</li> <li>• May contain 1 or more nucleoli</li> <li>• Holds DNA</li> </ul>	<ul style="list-style-type: none"> <li>• Controls cell activities</li> <li>• Contains the hereditary material of the cell</li> </ul>
<p><b>Nuclear membrane</b></p>			



All cells **except prokaryotes**

- Surrounds nucleus
- Double membrane
- Selectively permeable

- Controls movement of materials in/out of nucleus

### Cytoplasm



All cells

- Clear, thick, jellylike material (cytosol)
- Organelles found inside cell membrane
- Contains the cytoskeleton fibers

- Supports and protects cell organelles

### Endoplasmic reticulum (ER)



All cells **except prokaryotes**

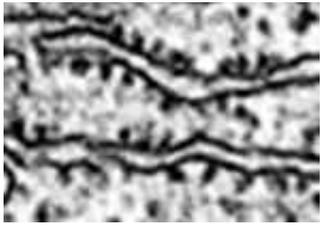
- Network of tubes or membranes
- Smooth w/o ribosomes
- Rough with embedded ribosomes
- Connects to nuclear envelope & cell membrane

- Carries materials through cell
- Aids in making proteins

### Ribosome

- Small bodies free or attached to ER

- Synthesizes proteins



All cells

- Made of rRNA & protein

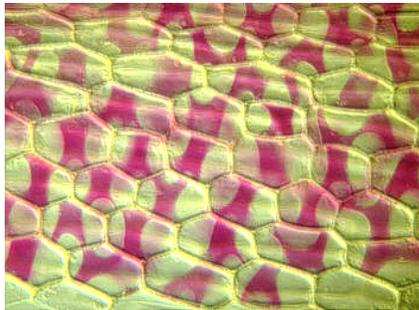
### Mitochondrion



All cells **except prokaryotes**

- Peanut shaped
- Double membrane
- Outer membrane smooth
- Inner membrane folded into cristae
- Breaks down sugar (glucose) molecules to release energy
- Site of aerobic cellular respiration

### **Vacuole**



**Plant cells** have a single, large vacuole

**Animal cells** have small vacuoles

- Fluid-filled sacs
- Largest organelle in plant cells

- Store food, water, metabolic & toxic wastes
- Store large amounts of food or sugars in plants

### **Lysosome**



Plant - uncommon  
Animal - common

- Small and round with a single membrane

- Breaks down larger food molecules into smaller molecules
- Digests old cell parts

- Green, oval containing chlorophyll (green pigment)

## Chloroplast



Plants and algae

- Double membrane with inner membrane modified into sacs called thylakoids
- Stacks of thylakoids called grana & interconnected
- Gel like innermost substance called stroma

- Uses energy from sun to make food (glucose) for the plant
- Process called photosynthesis
- Release oxygen

## nucleolus



All cells **except prokaryotes**

- Found inside the cell's nucleus
- May have more than one
- Disappear during cell division

- Make ribosomes

## Golgi Apparatus



All cells **except prokaryotes**

- Stacks of flattened sacs

- Have a *cis* & *trans* face
- Modify proteins made by the cells
- Package & export proteins

## Cilia

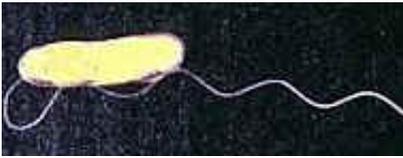


Animal cells,  
Protozoans

- Have a 9-2 arrangement of microtubules
- Short, but numerous

- Movement

## Flagellum

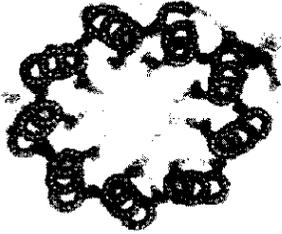


Bacterial cells & Protozoans

- Have a 9-2 arrangement of microtubules
- Long, but few in number

- Movement

### Centrioles

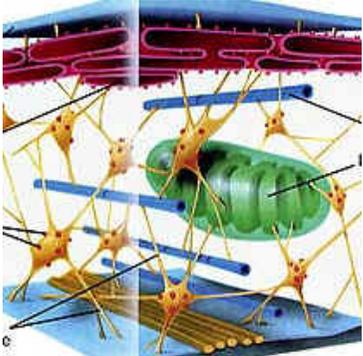


Animal cells

- Paired structures near the nucleus
- Made of a cylinder of microtubule pairs

- Separate chromosome pairs during mitosis

### Cytoskeleton



All cells

- Made of microtubules 7 microfilaments

- Strengthen cell & maintains the shape
- Moves organelles within the cell