

# Study Guide

## Cheat Sheet of Cells

<b>Cell Theory:</b> <ul style="list-style-type: none"> <li>All life made of cells, all cells come from other cells!</li> <li>Cells are the basic unit of life</li> </ul>	<b>CATEGORIES OF CELLS</b>		<b>All Cells Have</b> <ol style="list-style-type: none"> <li>Plasma membrane.</li> <li>DNA/RNA</li> <li>Ribosomes tiny (structures that build proteins)</li> <li>Cytoplasm</li> </ol>
	<u><b>Prokaryotic Cells</b></u> <ul style="list-style-type: none"> <li>Smaller</li> <li><b>Simpler</b></li> <li>Most do not have organelles</li> <li>Found in bacteria and archaea</li> </ul>	<u><b>Eukaryotic Cells</b></u> <ul style="list-style-type: none"> <li>Larger</li> <li>More <b>complex</b></li> <li>Have organelles</li> <li>Found in protists, plants, fungi, animals</li> </ul>	

### Organelle

<u><b>Energy Makers</b></u>		<u><b>Maintaining Structure</b></u>	<u><b>Regulation</b></u>
<u><b>Chloroplast</b></u> Location of Photosynthesis = conversion of solar energy to chemical energy of sugar.	<u><b>Mitochondria</b></u> Location of cellular respiration = produce ATP (energy molecules) from the energy of food molecules.	<u><b>Cytoskeleton</b></u> <ul style="list-style-type: none"> <li>Protein based microtubules or microfilaments</li> <li>Maintains cell shape</li> <li>Holds organelles in place or allows movement</li> </ul>	<u><b>Plasma Membrane</b></u> Regulates what comes in and out = Semi-Permeable  <u><b>Structure</b></u> <ul style="list-style-type: none"> <li>Phospholipid Bilayer</li> </ul>

<u><b>Ribosomes</b></u>	Making Proteins	<u><b>Lysosome</b></u>
Responsible for protein synthesis. Ribosome components are made in the nucleolus but assembled in the cytoplasm.	<ol style="list-style-type: none"> <li>DNA become mRNA</li> <li>mRNA leaves Nucleus</li> <li>Ribosome clamps onto mRNA</li> <li>Reads the mRNA into Amino Acids</li> <li>Amino Acids assemble into protein</li> </ol>	<b>Cleaning up Wastes</b> = a sac of digestive enzymes found in most animal cells and some plants.

### **Endomembrane System**

<u><b>Rough ER</b></u>	<u><b>Golgi Apparatus</b></u>	<u><b>Smooth ER</b></u>	Plant cells have: <ol style="list-style-type: none"> <li>Central Vacuole:</li> <li>Cell Wall</li> <li>Chloroplasts</li> </ol>
Rough due to <u>ribosomes</u> <ul style="list-style-type: none"> <li>Ribs produce membrane proteins and secretory proteins.</li> <li>Packages the molecule into transport vesicles</li> </ul>	Receives, refines, stores, and distributes chemical products of the cell	<u><b>Produces lipids</b></u> , including steroids	

**Endosymbiotic Hypothesis**  
 mitochondria and chloroplasts evolve from free-living prokaryotes