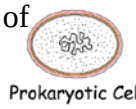
Class Notes **Cell Structure** **Questions/Main Idea:**	Name: _____ Period:_____ Date: _____ **Notes:**
What does the cell theory state?	• All living things are composed of cells. • Cells are the basic units of structure and function in living things. • New cells are produced from existing cells.
What are the two categories of cells?	**Prokaryotes** • No nucleus • Few organelles • Small in size Ex: Bacteria **Eukaryotes** • Nucleus • Many organelles • Large in size Ex: Humans, plants, fungi, etc.
What do prokaryotes & eukaryotes have in common?	■ All cells, both prokaryotes and eukaryotes, have DNA and a cell membrane. ■ Cells also contain organelles – specialized structures within the cell that perform certain tasks. ■ These organelles float around in the cell's cytoplasm, which is mostly made of water.
What are the characteristics of prokaryotes?  Prokaryotic Cell	■ Prokaryotes only have a few basic structures: – DNA – Cell/plasma membrane – Cell wall – Ribosomes – Some use structures like pili, cilia, and flagellum to move in aquatic environments. ■ Prokaryotes are simple but they come in many varieties
What are the characteristics of eukaryotes? 	• Eukaryotes are more complex: o Eukaryotes can be multicellular or unicellular. o Eukaryotes contain many organelles
What is the function of the **cell membrane**?	Regulates what materials enter and leave the cell.
What is the function of the **nucleus**?	Controls most cell processes and contains nearly all of the cell's DNA
What is the function of the **ribosomes**?	■ assemble proteins. – Some are free floating while others are attached to the endoplasmic reticulum.
What is the function of the **endoplasmic reticulum (ER)**?	■ There are two types: – Rough – chemically modifies proteins that are produced by the ribosomes on its surface. – Smooth – contains specialized enzymes and makes lipid components for the cell membrane.
What is the function of the **Golgi apparatus**?	Sorts, modifies, and/or packages protiens and other materials from the ER for storage or secretion from the cell.
What is the function of the **Lysosomes**?	Lysosomes contain enzymes that are specialized to digest lipids, carbs, proteins so their monomers can be reused
What is the function of the **Peroxisomes**?	Peroxisomess contain enzymes that are specialized to digest toxic substances
What is the function of the **Cytoskeleton**?	A network of protein filaments (microtubules and microfilaments) that help the cell move and maintain its shape

What is the function of the **Mitochondria**?	■ Provides the cell with usable chemical energy – It is the site of cellular respiration.
How are plant cells different from animal cells?	Plant cells have special features….. ■ Plants contain: – **Chloroplasts** – create and store usable energy through the process of photosynthesis. – Cell wall – provides the cell with rigid structure. – Large vacuole – used for the storage of water and some other materials ▪ Animal cells usually have many small vacuoles
Which organelles have their own set of DNA?	■ Only two organelles have their own DNA – mitochondria and chloroplasts. ■ Endosymbiotic Theory – suggests that mitochondria and chloroplasts are the decendents of ancient prokaryotes that developed symbiotic relationships with ancient cells. ■ Among multicellular animals, nearly all of the mtDNA in a fertilized egg is inherited from only the mother. ■

Summary: