

1. Cell Theory
2. Cell Organelles
3. DNA and Chromosomes

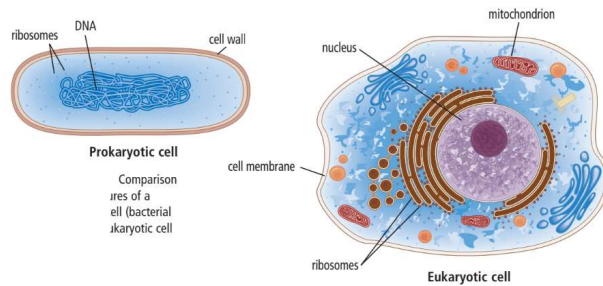
Cell Theory

The Cell Theory is considered one of the main ideas of modern biology. It contains three main ideas:

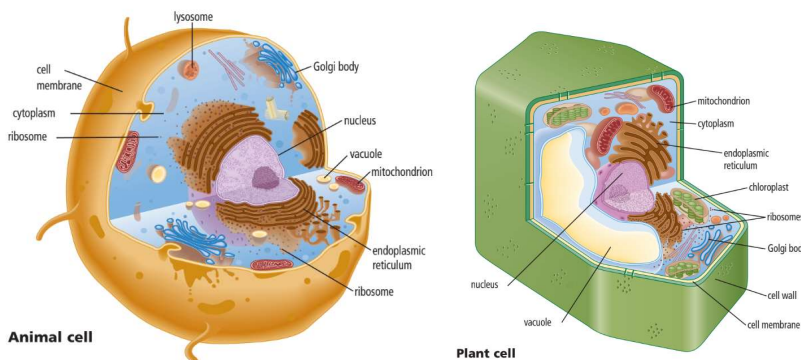
1. The _____ is the _____ unit of _____
2. All _____ are composed of _____ cells
3. All cells come from _____

There are two major groups of cells:

1. _____ cells
 - a. These are a type of cell whose _____ are _____ by _____. These cells do not have a nucleus, instead they generally have a single piece of circular, double stranded DNA located in the cell.
 - b. Example: Bacteria
2. _____ cells
 - a. These are cells whose _____ are _____ by _____. These cells do contain a membrane bound _____ which contains the _____.
 - b. Example: Plant and animal cells



Classified as being a type of eukaryotic cell, plants and animal cells contain several organelles that carry out several functions to ensure the cell's survival. An _____ is a cell _____ where _____ functions are carried out to ensure the cell's survival. Organelles take up about _____ % of a cell. The rest of the cell consists of _____.



Cell Organelles

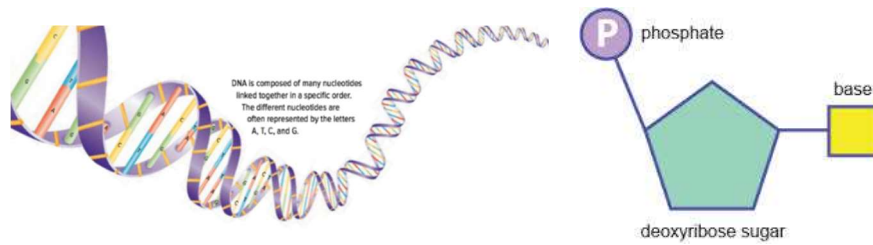
Cell Organelle	Function (Role)	Is it in an animal and/or plant cell?
Nucleus	Stores _____; the _____ of the cell (tells other organelles what to do)	
Mitochondria	_____ producers; they carry out _____ (when chemical energy from the food we eat is changed into energy that our cells use) to produce energy	
Cell membrane	A _____ that separates the inside contents of the cell with the outside environment	
Cytoplasm	Jelly-like substance that contains _____, _____, and other life-supporting materials	
Cell wall	Tough, rigid structure that surrounds the cell membrane; _____ the cell	
Chloroplast	Trap _____ from the _____ and change it into _____ energy	
Ribosome	Assemble _____ (the building blocks for structures in the cell)	
Endoplasmic Reticulum	Network of membrane covered channels; _____ is _____ through here from the ribosome to the Golgi body	
Golgi Body	_____ and packs them into vesicles	
Vacuole	_____ compartments (often stores waste)	
Vesicle	Carry _____, _____, and _____ into, out of, and around the cell	
Lysosome	_____ and recycle organelles	

DNA

What is DNA?

DNA stands for _____.

- Stores the _____ of an organism
- Genetic information determines how an organism _____, _____, and _____



Structure of DNA:

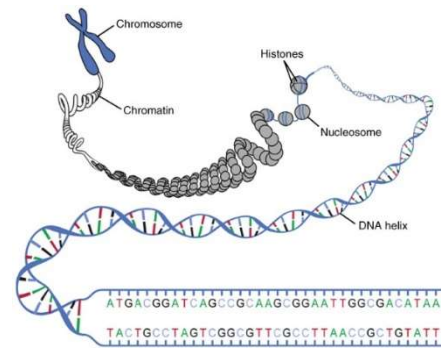
- Two long strands shaped like a twisted ladder called a _____
- Consists of many copies of chemical building blocks called _____. There are 4 different versions of a nucleotide and they all differ by the type of base that they have. The four types of bases are: _____ (A), _____ (T), _____ (C), _____ (G)
- DNA sequence: The specific _____ of _____; the “_____” that holds the genetic information
- One strand of DNA is going to bond with the other strand of DNA to create a double stranded structure. These strands bond by the nitrogenous bases that bond with _____ bonds in which certain bases can only bond with certain bases.
 - _____ bonds with _____
 - _____ bonds with _____

Strand one: A C T G A T G G C T A

Strand two:

Function of DNA:

- Stores the genetic information of an organism
- An organism’s _____ is stored in _____ of its _____
 - DNA molecules coil and compact into a condensed form called _____ to fit into the cells
 - Just before reproduction: DNA condenses further into structures called _____
 - During _____: Copies of chromosomes (and therefore DNA) are transferred to the offspring



_____ nucleotides (called a _____) are needed to make one amino acid. Amino acids can then be combined together to create different types of _____. Proteins are complex molecules that are able to perform critical roles in the body.

- Example: antibodies are able to bind to foreign particles (like viruses and bacteria) to help protect the body
- Example: enzymes are able to carry out a number of chemical reactions in the body

	T	C	A	G
T	TTT } phe TTC } TTA } leu TTG }	TCT } TCC } ser TCA } TCG }	TAT } tyr TAC } TAA } stop TAG } stop	TGT } cys TGC } TGA } stop TGG } trp
C	CTT } CTC } CTA } leu CTG }	CCC } pro CCA } CCG }	CAT } his CAC } CAA } gln CAG }	CGT } CGC } arg CGA } CGG }
A	ATT } ATC } ATA } ile ATG } met	ACT } ACC } ACA } thr ACG }	AAT } asn AAC } AAA } lys AAG }	AGT } ser AGC } AGA } arg AGG }
G	GTT } GTC } GTA } val GTG }	GCT } GCC } ala GCA } GCG }	GAT } asp GAC } GAA } glu GAG }	GGT } GGC } glv GGA } GGG }