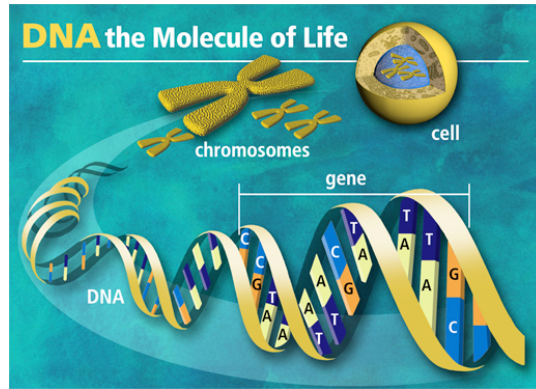


Accelerated Biology**DNA Structure and Replication****Structure of DNA**

A DNA molecule consists of three parts.

- _____ – a sugar
- _____ group
- _____ base
 - _____
 - Guanine
 - _____
 - Thymine



The _____ of DNA was discovered in 1953 by James _____ and Francis _____.

Discovering DNA's Structure

How were Watson and Crick able to determine the double helical structure of DNA?

- Chargaff's Observations
 - 1949 – Erwin Chargaff made an important discovery
 - The amount of _____ = _____
 - The amount of _____ = _____
- Wilkin's and Franklin's Photographs
 - 1952 – Developed high quality _____ diffraction of DNA
 - Suggested DNA resembled a tightly coiled _____

Purines and Pyrimidines

- Purines –
 - Bulky, double-ring
 - Made of _____ rings of carbon and nitrogen atoms
 - _____
 - _____
- Pyrimidines –
 - Smaller, single-ring
 - Made of a _____ ring of carbon and nitrogen atoms
 - _____
 - _____

The Double Helix

- The three parts of DNA are called a _____.
- The nucleotides are arranged into a _____.
- The “_____” of the ladder is formed by alternating _____ and _____ to which the _____ attach.
- Two bases held together by a _____ bond create the “_____” of the ladder. The bases are attached to the _____ molecules.

- The base pairing rules for DNA:
 - _____ and _____ always _____
 - _____ and _____ always _____

DNA Replication

- DNA Replication – During interphase, the cell must replicate (_____) the DNA in order to have _____ sets for each new cell after mitosis.
- The two strands of DNA are separated by _____ called _____ that break _____ bonds as they move along the strand.
- Enzymes called DNA _____ bind to the chains and assemble new strands of DNA by attaching a new _____ to the _____ strand.
- The end result is _____ pieces of DNA that are each half _____ and half _____ DNA.
- Errors are repaired by other enzymes that “_____” the new DNA.

