

Polynucleotides

Nucleotide is made up of

Pentose sugar (5 Carbon Atoms)	Nitrogen Containing Base	A phosphate Group
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Cell Division

During Cell division DNA must make a identical copy, otherwise progeny cells will be different from parent cell.

Complementary Base Pairs

A-	T-	C-	G-
Adenine	Thymine	Cytosine	Guanine

T-A

C-G

This is Base Pairing

Semi Conservative Replication

DNA copies itself before cell division

Each new cell has full amount of DNA

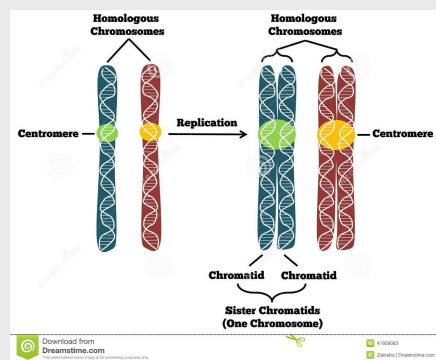
Semi conservative replication due to half of the strands in new DNA molecule are from the original

Daughter Helix

1 Parental Strand 1 New Strand

1 Unchanged from Original

Chromatids and DNA



Semi Conservative Replication Stages

Steps of DNA replication

- 1) Hydrogen Bonds are broken between polynucleotides DNA strands
- 2) Double Helix unwinds to make two single strands
- 3) Original Strand acts as a template for a new strands
- 3) Complementary Base pairing attracts new bases to its corresponding pairs
- 4) Condensation Reactions join nucleotides together
- 5) Catalysed by enzyme **DNA polymerase**
- 6) New hydrogen bonds form
- 7) New strand contains one strand from original DNA molecule and 1 new strand

Chromosomes + DNA Replication

Chromosomes are found in the nucleus

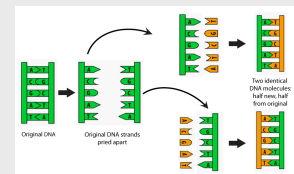
During Cell Division chromosomes duplicate

DNA Replication linked to Chromosome replication linked to Mitosis

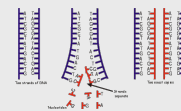
DNA Replicated During **Interphase**

Chromosomes are composed of DNA

DNA replication image



Replication Image 2



Chromatids and DNA 2

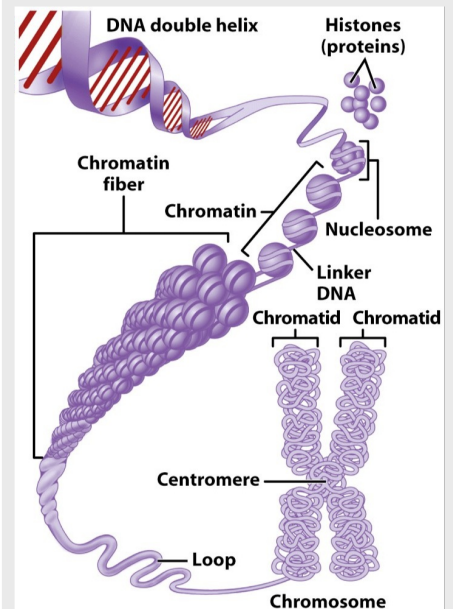


Figure 3-23 Principles of Anatomy and Physiology, 11/e © 2006 John Wiley & Sons



By **loboguy**
cheatography.com/loboguy/

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Page 1 of 1.

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