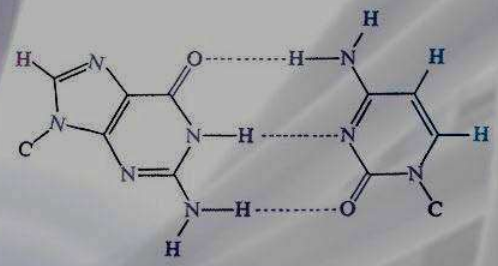
DNA Structure & Function to Replication



deoxyribonucleic acid

WJ

DNA Replication

Please copy web links to your browser and watch the videos.
Take notes on important ideas and information

http://www.wiley.com/college/pratt/0471393878/student/animations/dna_replication/index.html
http://highered.mcgraw-hill.com/sites/0072437316/student_view0/chapter14/animations.html#
http://nobelprize.org/educational_games/medicine/dna/a/replication/replication_ani.html
http://nobelprize.org/educational_games/medicine/dna/a/replication/lagging_ani.html
http://www.stolaf.edu/people/giannini/flashanimat/molgenetics/dna-rna2.swf

Vocabulary

DNA Helicase
DNA Polymerase
3' to 5'
Nucleotides
Single Stranded Binding Proteins (SSB's)
RNA Primase
DNA ligase
Rnase H
Replication Fork

DNA Replication

Purpose: to make copy of DNA so that cell can divide and have an exact copy of DNA in each cell.

1. DNA Helicase – an enzyme that separate the two strands of DNA. Opens the double helix like a zipper.
2. Single Strand binding proteins (SSB's) bind to individual DNA strands to stabilize them and prevents the double helix from reforming, zipping back together.
3. RNA Polymerase (aka Primase)–inserts a starter of RNA primer indicating the starting point of DNA .
4. Replication begins starts from (5'→ 3' prime in the daughter strand). DNA nucleotides are added by DNA polymerase which links together the nucleotides to the parent strand.

DNA Replication

5. In the Leading Strand replication happens continuously along the 5' to 3' end of the daughter strand.

   The Lagging strand replicates also in the 5' to 3' in a series of fragments called Okazaki Fragments.

6. The RNA primase (polymerase) is released by RNase H and the DNA polymerase fills in the remaining gaps left by the RNA primers.

7. DNA ligase fills in the gaps to complete the DNA replication process.