DNA Replication Notes Guide: - General Biology B

You are responsible not only for the material in this guide but the diagrams and pictures on the notes. The notes can be found on Mr. Walkers website: www.walkersclass.com.

Objective 2: Explain the pairing and sequencing of the nitrogenous bases and the process of DNA replication

DNA Replication

- The process of making a copy of DNA is DNA _____
- This process occurs in INTERPHASE of the cell cycle
- The first stage of DNA replication is the separation of the _____.

DNA Helicases

The double helix unwinds by enzymes called DNA _____.
Helicases break the _____ bonds that link the nitrogen bases .

DNA Polymerase

After the strand separates, DNA _____ move along each DNA strand. DNA Polymerase _____ nucleotides to the exposed nitrogenous bases. As DNA polymerases move along, _____ new double helixes are formed.

Final Step

Once the DNA polymerase has finished copying the DNA strand, two _____ strands which are identical are created.

Errors

During DNA replication, _____ can sometimes occur, and the wrong nucleotide is added to the new strand.

DNA polymerase III also goes along the strand and "_____" the strand and corrects any errors. This reduces the number of errors to about 1 error per 1 billion nucleotides

Rate of Replication

The DNA strand has an estimated _____ billion base pairs (A,C,T,G). The DNA strand is not replicated from start to finish. Rather, it is divided into _____ sequences about 100,000 bases and DNA replication begins