

## New Terms - Molecular Genetics (DNA replication, transcription, and translation)

<b>DNA -</b>	deoxyribonucleic acid, consists of two long chains of nucleotides that form a double helix.
<b>double helix -</b>	the nucleotide chains that form DNA - the chains twist around themselves in the form of a spiral staircase.
<b>nucleotide -</b>	consists of a nitrogenous base, a phosphate group, and a molecule of deoxyribose.
<b>RNA -</b>	ribonucleic acid, the nucleic acid that carries out the instructions of the DNA. Has only two differences from DNA - the carbohydrate ribose (instead of deoxyribose), and the nitrogenous base uracil (instead of thymine).
<b>tRNA -</b>	transfer RNA, in the cytoplasm of the cell and is used in protein synthesis to carry amino acids to the ribosomes.
<b>mRNA -</b>	messenger RNA, in the nucleus and receives the genetic code from DNA and takes it into the cytoplasm to carry out protein synthesis.
<b>rRNA -</b>	ribosomal RNA, used to make ribosomes.
<b>replication -</b>	the process by which DNA makes copies of itself; duplication talked about during the S stage of interphase in the cell cycle.
<b>transcription -</b>	process by which DNA "unzips" and codes a strand of mRNA in the nucleus - one of the first stages in protein synthesis.
<b>translation -</b>	the mRNA is "read" and formed into a protein containing amino acids that were gathered and brought to the mRNA by tRNA.
<b>DNA polymerase -</b>	enzyme used in DNA replication
<b>RNA polymerase -</b>	enzyme used in forming mRNA, and tRNA
<b>protein synthesis -</b>	process by which proteins are formed by linking amino acids.
<b>nitrogenous bases -</b>	part of the nucleotide. They are made up of purines and pyrimidines.
<b>purines -</b>	two fused carbon and nitrogen atoms
<b>pyrimidines -</b>	single fused ring of nitrogen and carbon atoms
<b>adenine -</b>	purine base in DNA and RNA symbolized by A
<b>guanine -</b>	purine base in DNA and RNA symbolized by G
<b>cytosine -</b>	pyrimidine base in DNA and RNA symbolized by C
<b>thymine -</b>	pyrimidine base in DNA symbolized by T
<b>uracil -</b>	pyrimidine base in RNA symbolized by U
<b>complementary base pairing -</b>	describes the pairing of nitrogenous bases during replication, purine bases pair with pyrimidine bases (A-T ; G-C ; A-U).
<b>initiation -</b>	indicates the start of protein synthesis indicated by the start codon
<b>elongation -</b>	period in protein synthesis where protein is formed
<b>termination -</b>	end of protein synthesis indicated by the stop codon
<b>codon -</b>	groups of 3 nucleotides. Each serves as a code word for and amino

**anticodon -**  
**start codon -**  
**stop codon -**

acid

complementary codon to the codon, found on the tRNA molecule  
AUG  
UAG