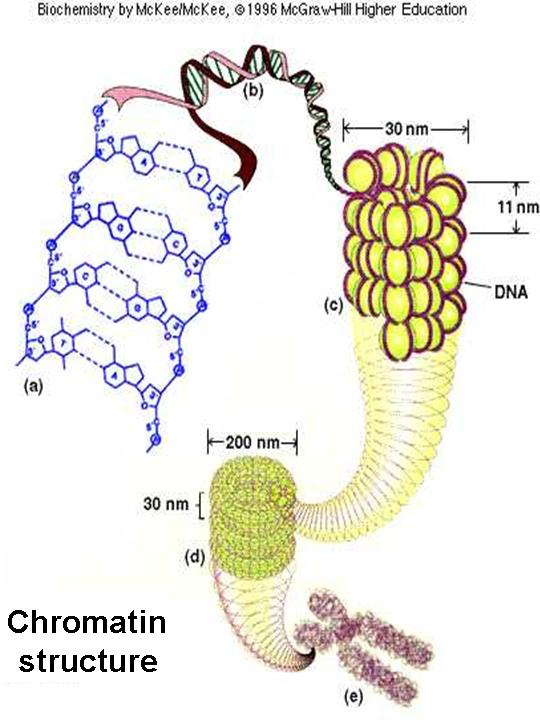
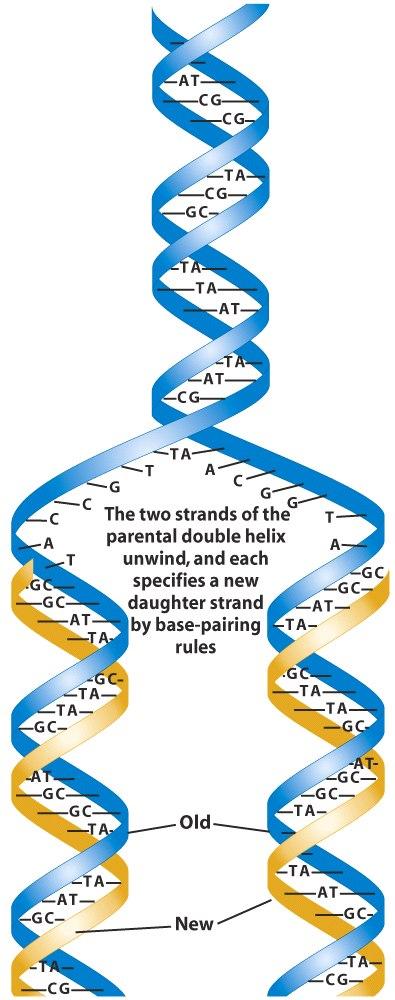
**Chapter 25 Review #1 Q’s**

**LO – D-0 – DNA Intro**

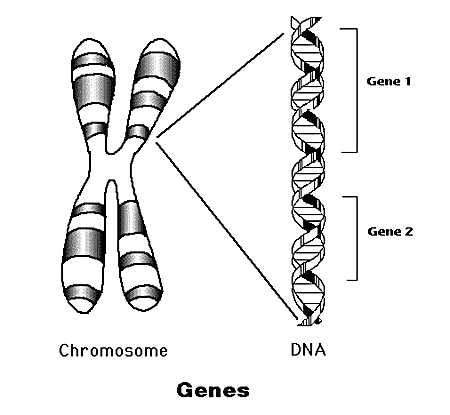
1. **DNA is normally found wrapped around small spherical proteins called Histones. This ropey structure is known as CHROMATIN.**

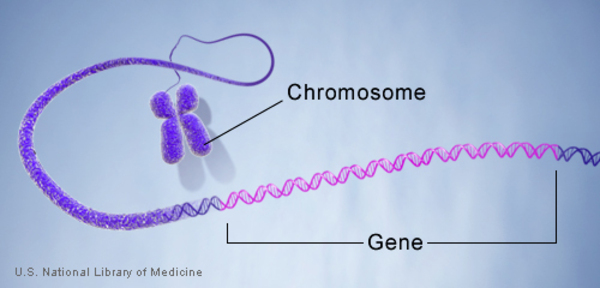
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1. **Histones help protect the delicate DNA, and also help condense the DNA so that it is wrapped up tightly.**
2. **Prior to cell division (mitosis), the DNA must copy itself through a process called REPLICATION, then it condenses down to chromosomes.**



1. **GENES are segments along the DNA that contain specific base sequencing that tells your protein factories what order to place Amino Acids to build the perfect primary structure for a given protein.**

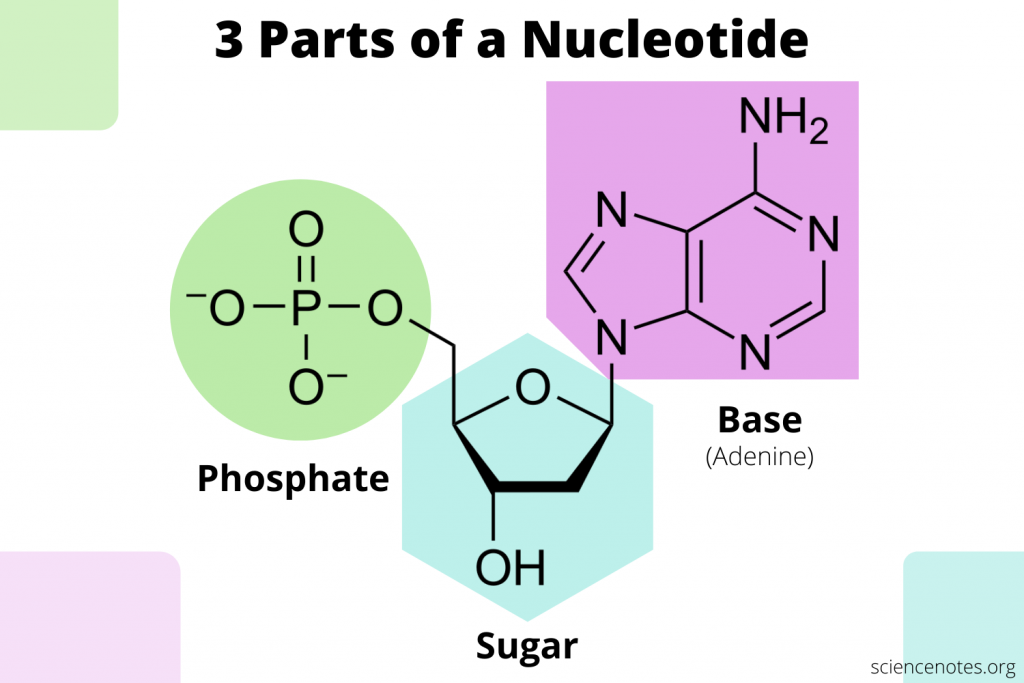




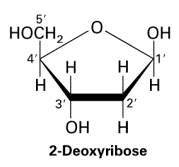
**LO – D-1 – DNA Structure**

1. **The basic molecule (building block) of DNA/RNA is a NUCLEOTIDE.**
2. **Each nucleotide must contain three key structures: - A Phosphate Group**

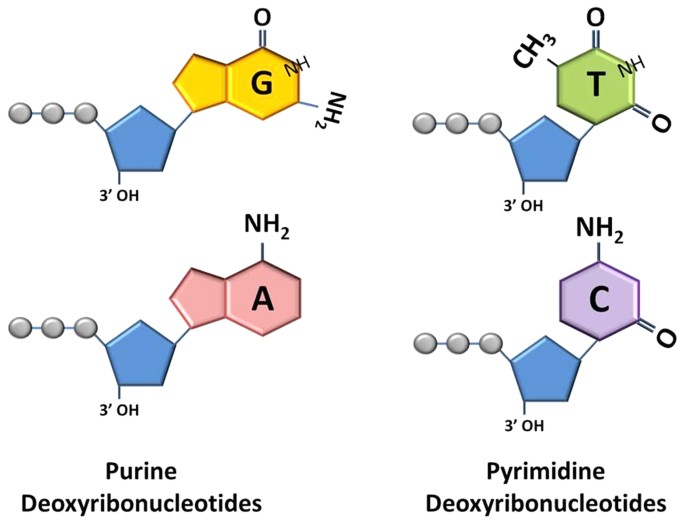
* **A 5-Carbon Sugar (pentose)**
* **A Nitrogenous Base.**



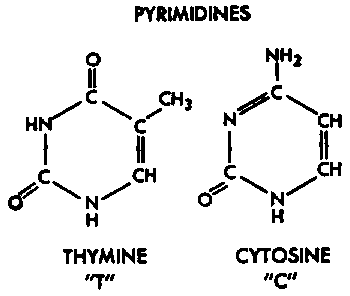
1. **All DNA nucleotides use the same pentose sugar, it is called DEOXYRIBOSE. It's formula is C5H10O4**



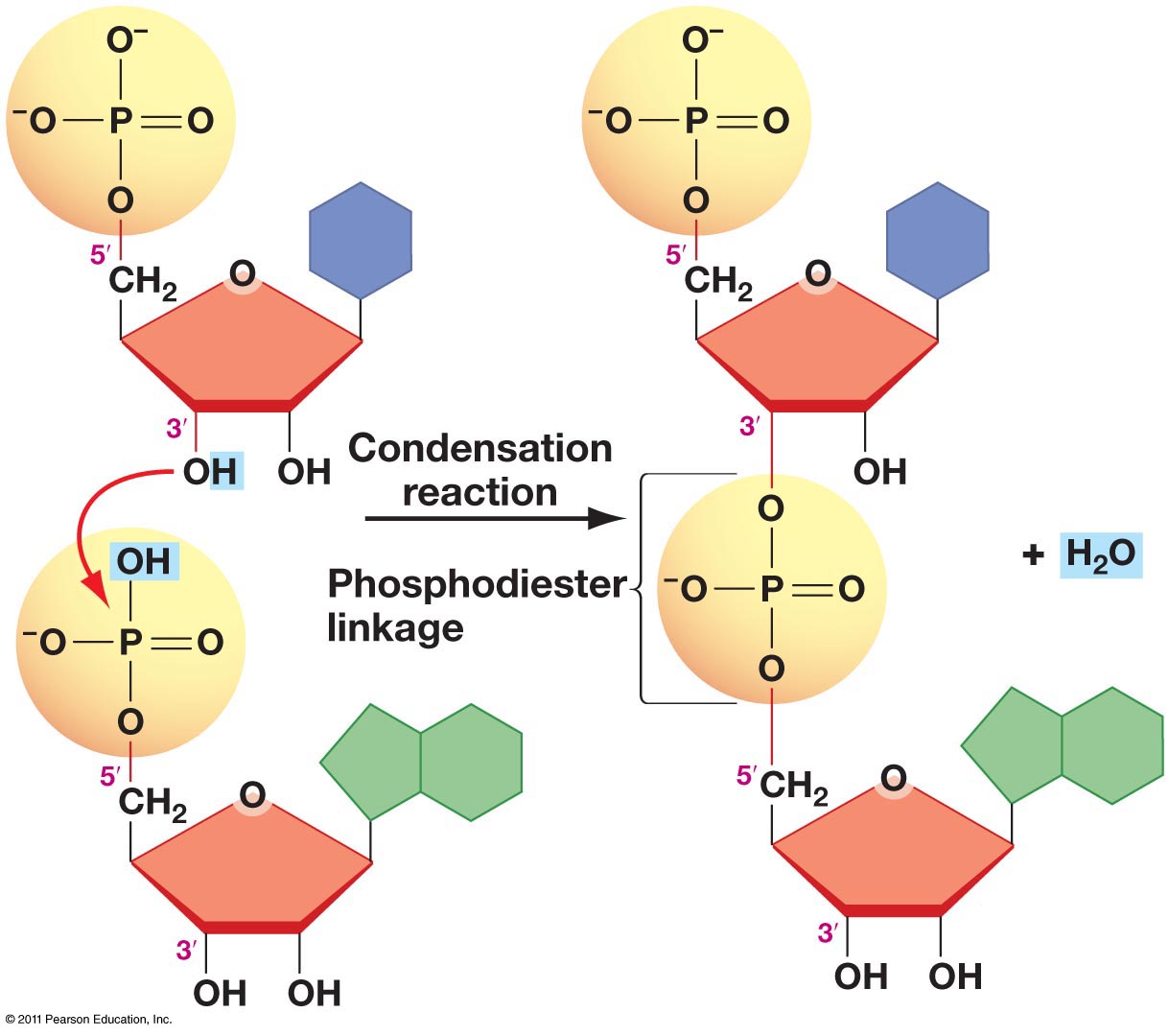
1. **The two main types/categories of bases that are found in DNA are PURINES and PYRIMIDINES.**



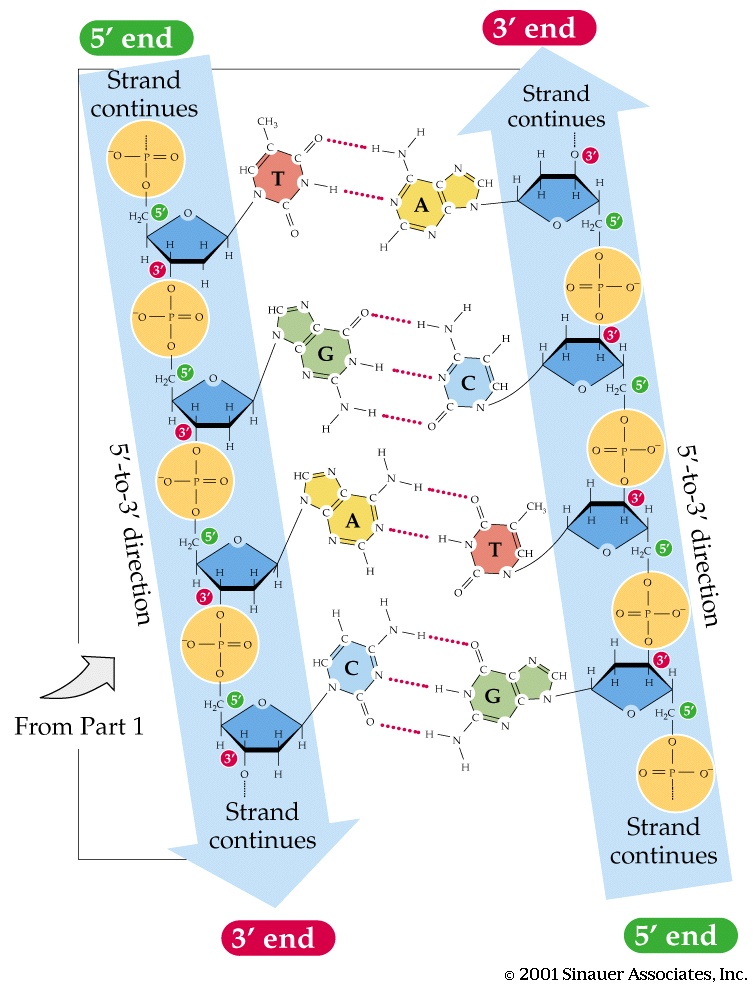
1. **Purines are double-ringed bases, while Pyrimidines are single-ringed bases.**

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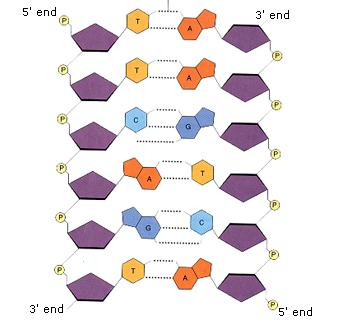
1. **It takes place between the sugar of one nucleotide and the phosphate of another.**



1. **The rails are made out of Deoxyriboses and Phosphates.**

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1. **The rungs/steps or cross-bridges are made out of the Bases that pair together.**



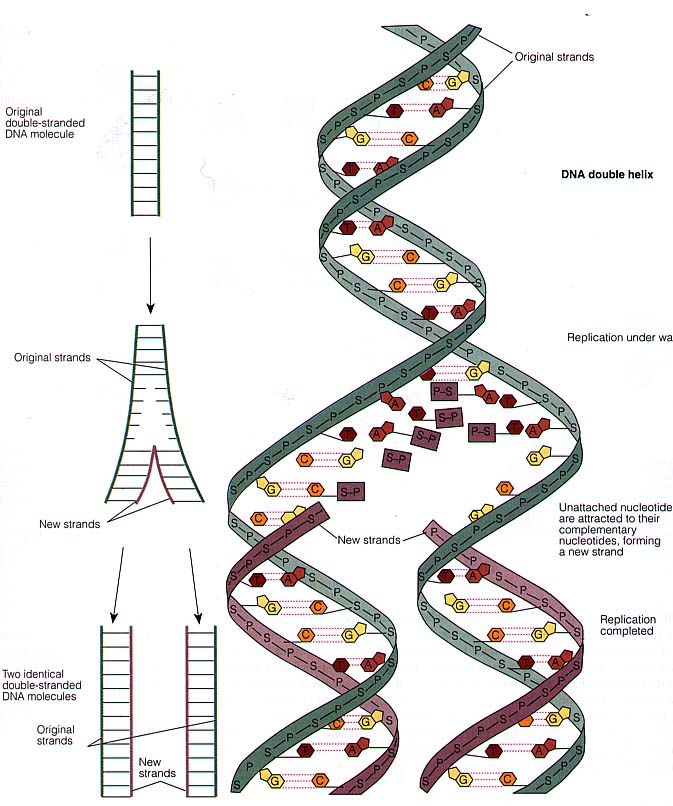
1. **DNA normally spirals upward and because there are two strands the shape is described as being a "DOUBLE HELIX".**
2. **The two complimentary strands are held together by weak Hydrogen Bonds between the bases.**
3. **Thymine always joins to ADENINE with 2 H-bonds.**
4. **Cytosine always bonds to GUANINE with 3 H-bonds**
5. **REPLICATION**



1. **mRNA forms from DNA then the mRNA is translated into primary sequencing of a given polypeptide – PROTEIN Synthesis as Amino Acids join to form a polypeptide.**

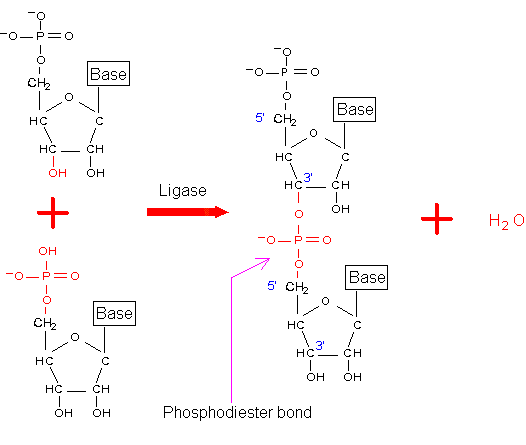
**LO – D-2 DNA REPLICATION**

1. **During Semi-conservative Replication each of the strands in a DNA double helix split apart to act as a template to build a brand new complimentary strand. The final result is two DNA double helixes each of which has a strand from the original double helix.**

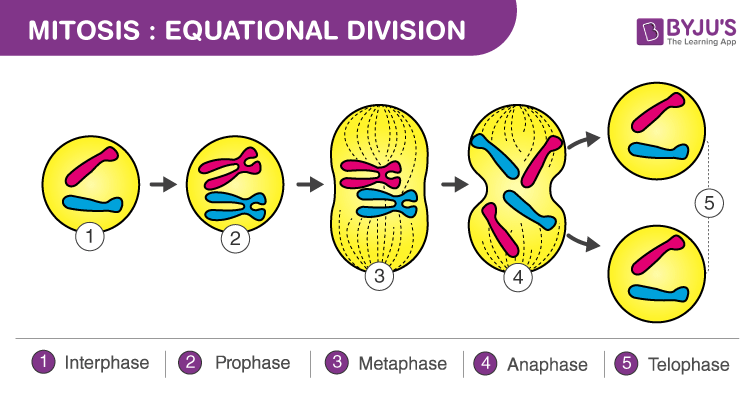
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1. **A couple of key enzymes are required for replication, an enzyme called DNA HELICASE enzymes helps unwind and unzip the H-Bonds between the two DNA strands , so that DNA POLYMERASE enzymes can guide the rest of the replication processes.**
2. **The unzipping of DNA means that the Hydrogen bonds between complimentary bases are broken apart.**
3. **As the strands are freed up, new free-floating DNA nucleotides in the nucleus come in to complimentary base pair. The base on the new Nucleotide H-bonds to the base on the existing (original) strand of DNA.**
4. **As the new bases are held in place, dehydration synthesis occurs between the phosphate group of one nucleotide and the Deoxyribose of an adjacent nucleotide.**

**See Picture**

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1. **Replication must occur in organisms because the full set of DNA must be passed onto each new daughter cell during mitosis.**



1. **A MUTATION occurs.**