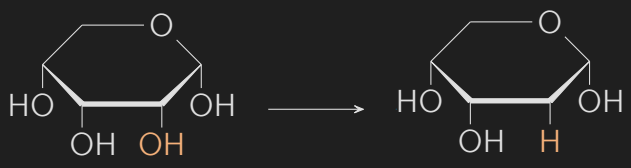
Human Genetics

DNA Structure and Function

This chapter was really just basic review material. The portion on DNA was more of a test of my recent changed settings. The majority of the chapter was omitted. I might add more review content later if I find necessary.

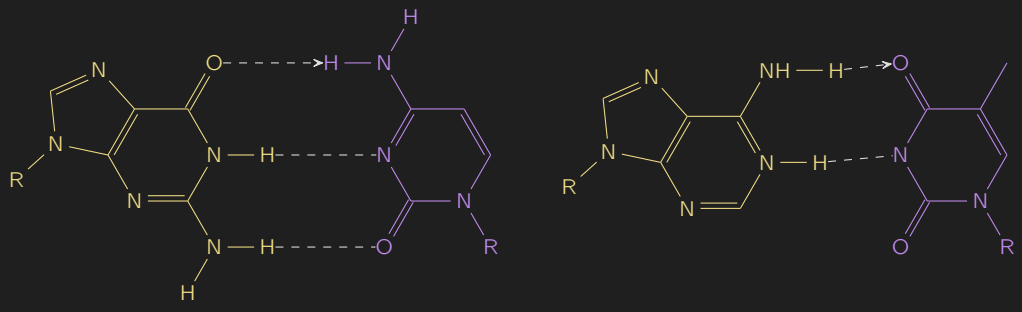
Deoxyribonucleic Acid

- **Deoxyribonucleic Acid (DNA)**: a double helix containing two polynucleotide chains that carries the genetic instructions for all known organisms and many viruses.
  - The bases are made of four bases:
    - The purine derivatives: adenine (A) and guanine (G).
    - The pyrimidine derivatives: thymine (T) and cytosine (C).
  - The backbone is made of alternating deoxyribose molecules (a ribose missing its 2' oxygen) connected to phosphodiester bonds from 5' → 3' positions—forming two antiparallel strands.



Ribose Deoxyribose

- Number of adenines = thymines. (A-T)
- Number of guanines = cytosines. (C-G)
  - Bonds between bases are noncovalent (no electron sharing, weak).
  - C—G pairs form three hydrogen bonds, while A—T forms two; making G—C slightly more stable.



Guanine Cytosine Adenine Thymine