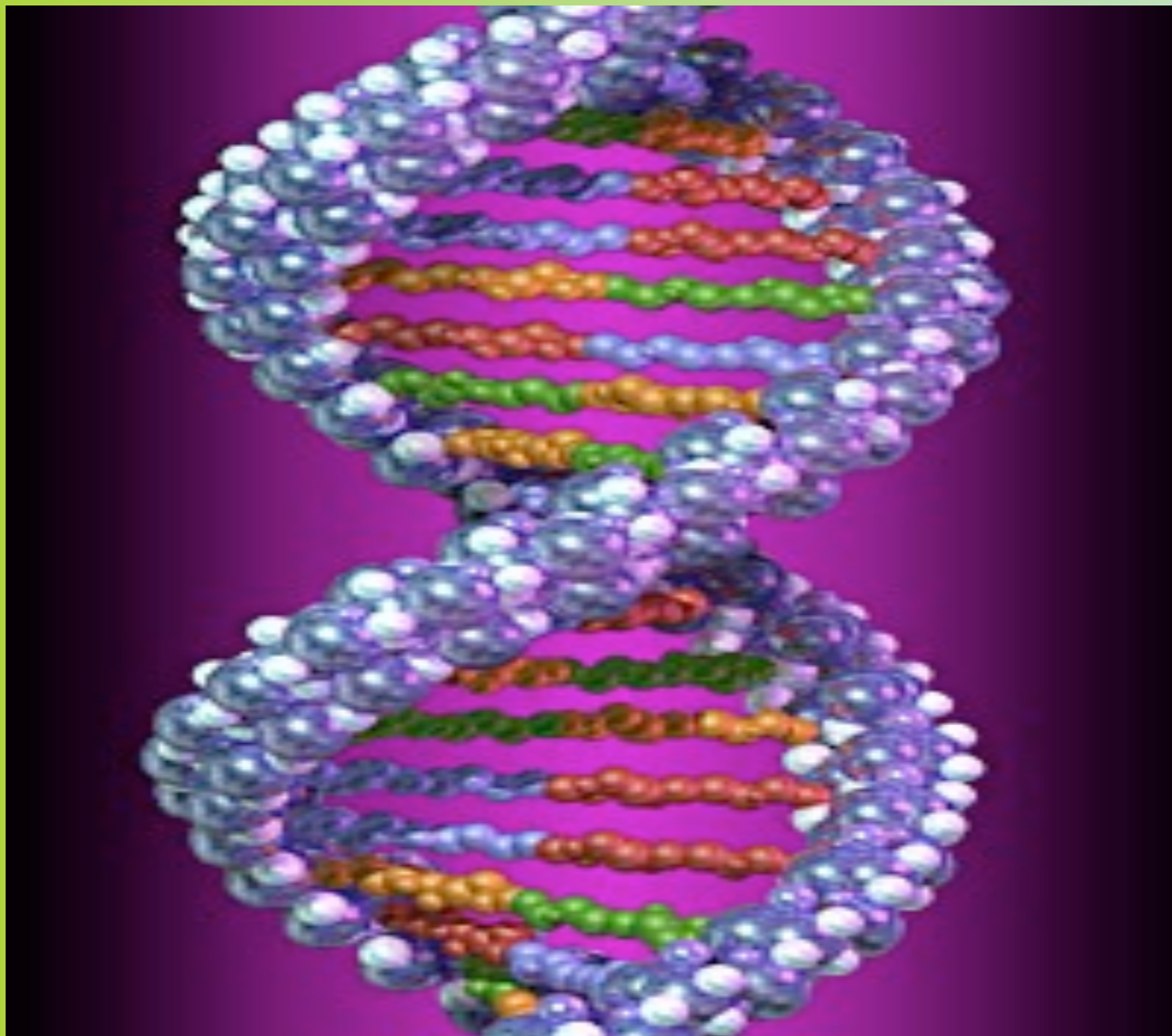




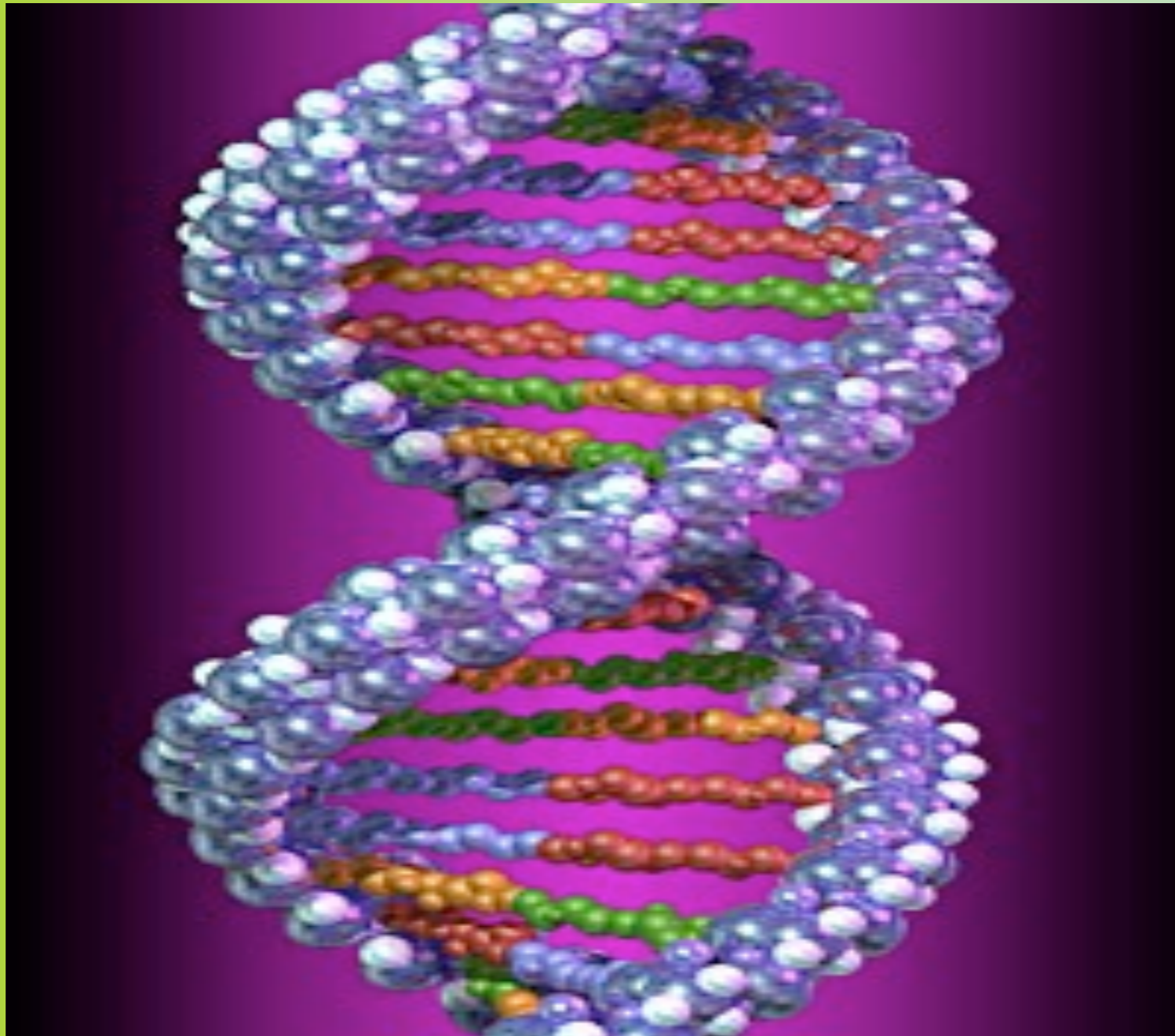
# *DNA and Genetics*





# DNA

*(Deoxyribonucleic Acid)*





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# ***Genetic material of cells...***

- **GENES** – units of genetic material that **CODES FOR A SPECIFIC TRAIT**
- DNA is a **NUCLEIC ACID**
- DNA is made up of repeating molecules called **NUCLEOTIDES**



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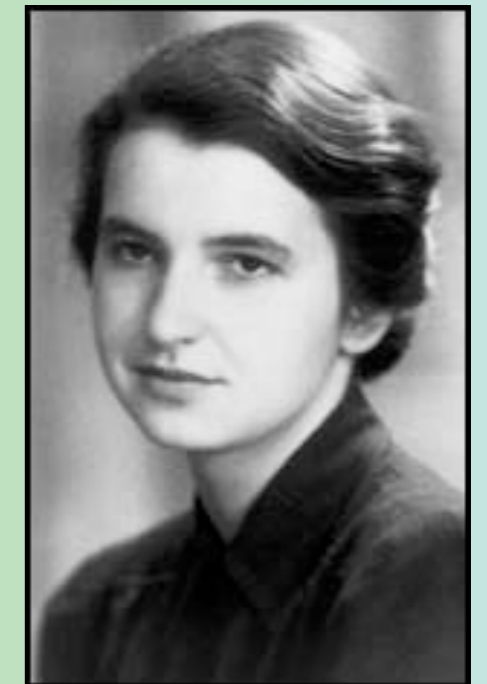
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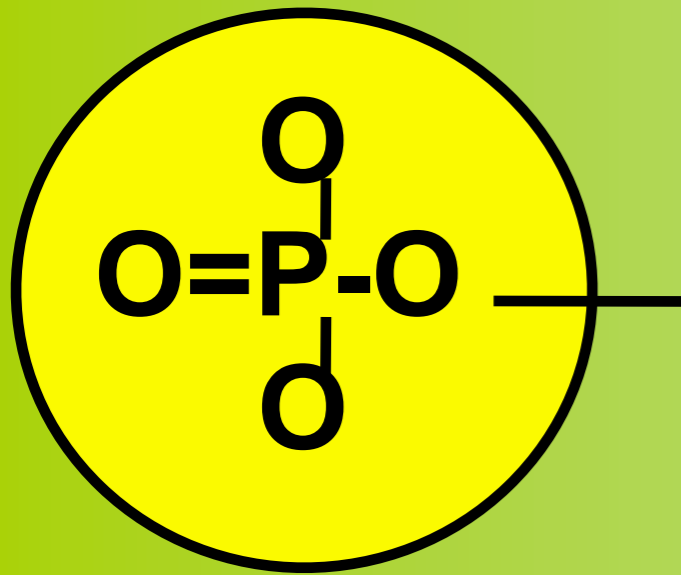
- DNA was made of 2 long strands of nucleotides arranged in a specific way called the **“Complementary Rule”**



# DNA Nucleotide

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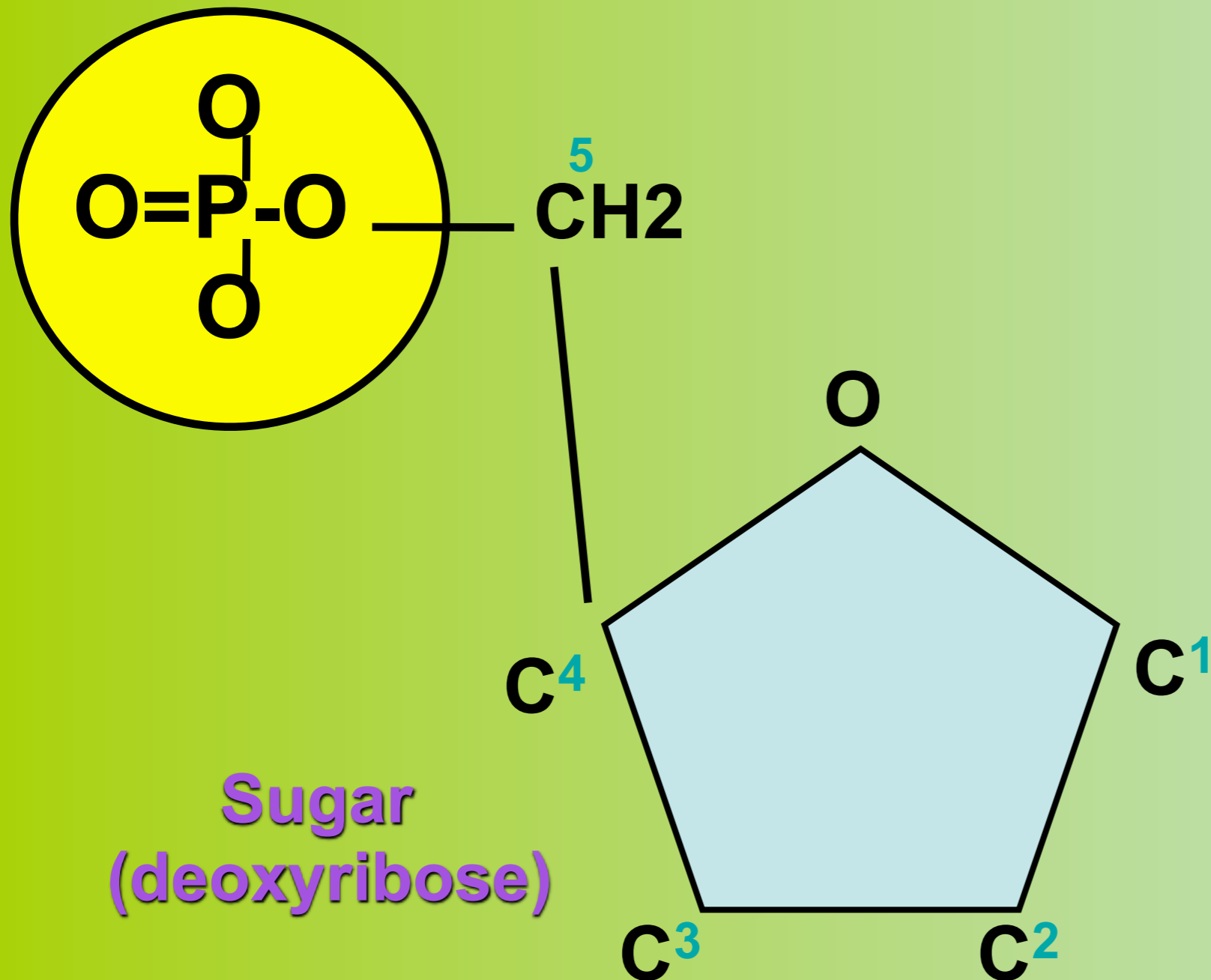
Phosphate  
Group





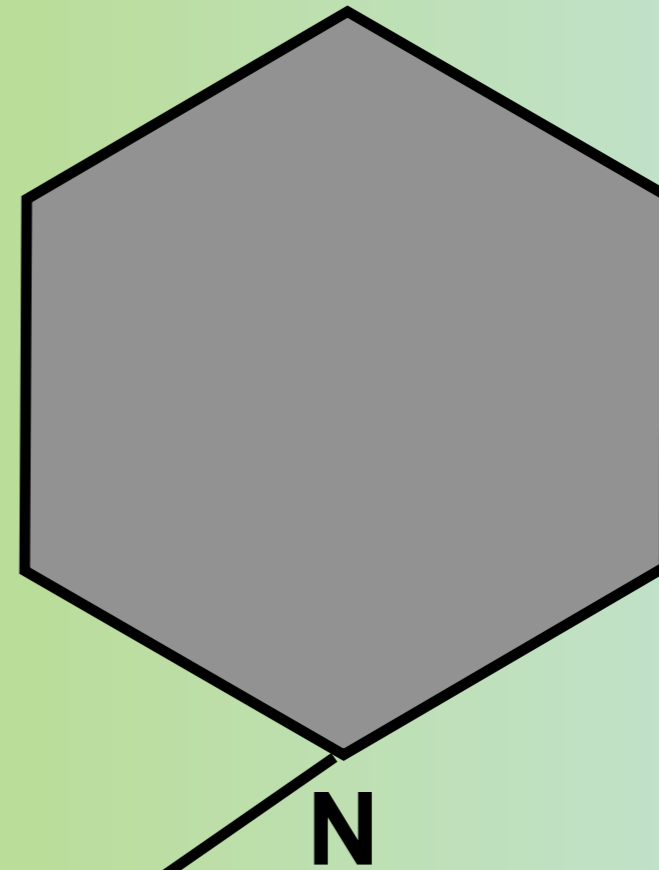
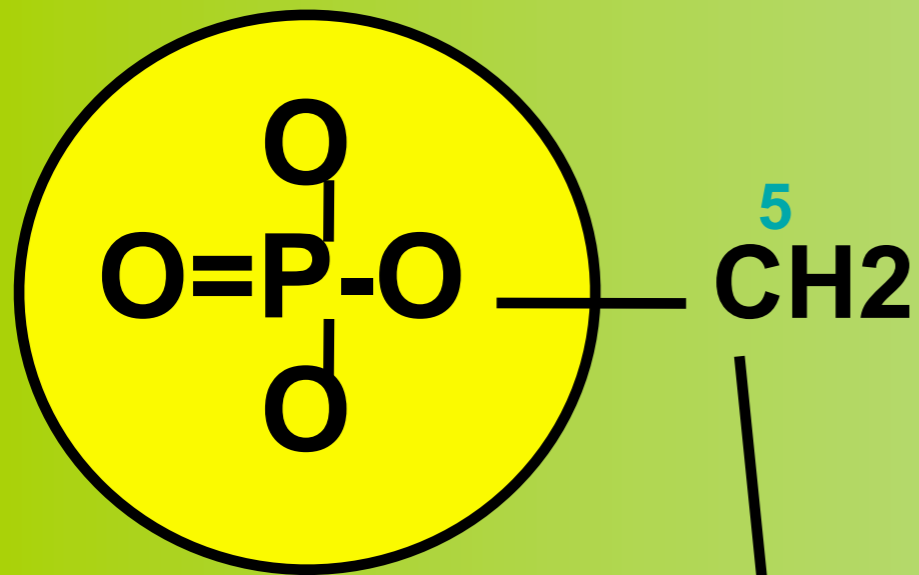
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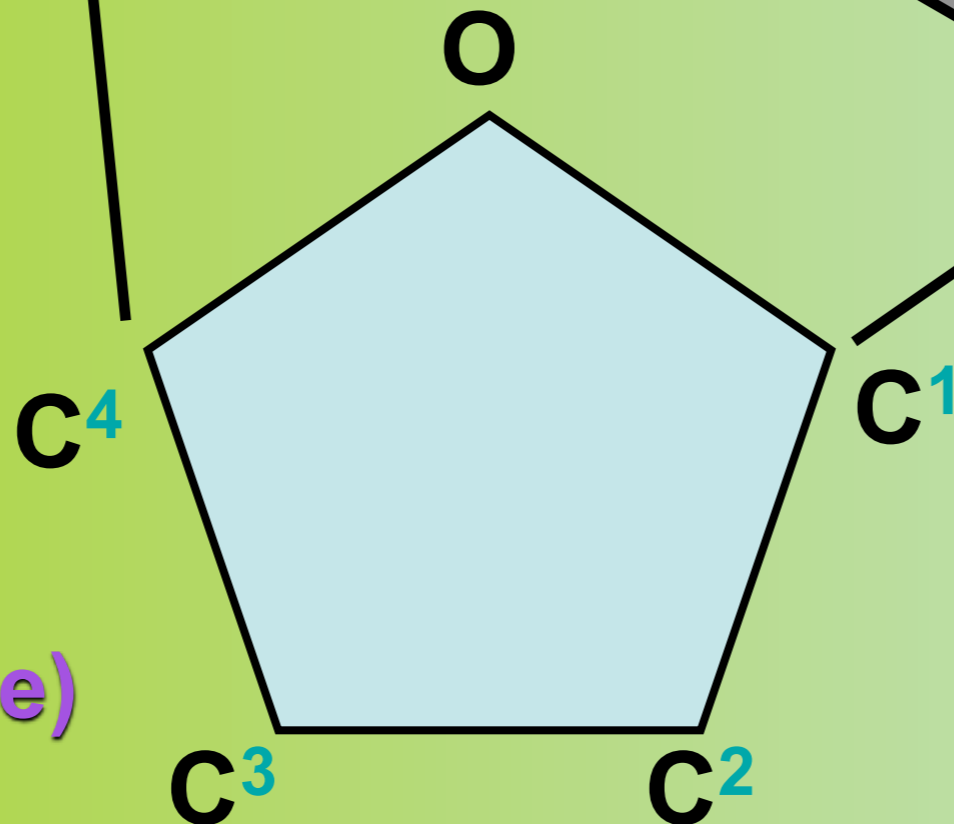
# DNA Nucleotide

Phosphate  
Group



Nitrogenous base  
(A, G, C, or T)

Sugar  
(deoxyribose)



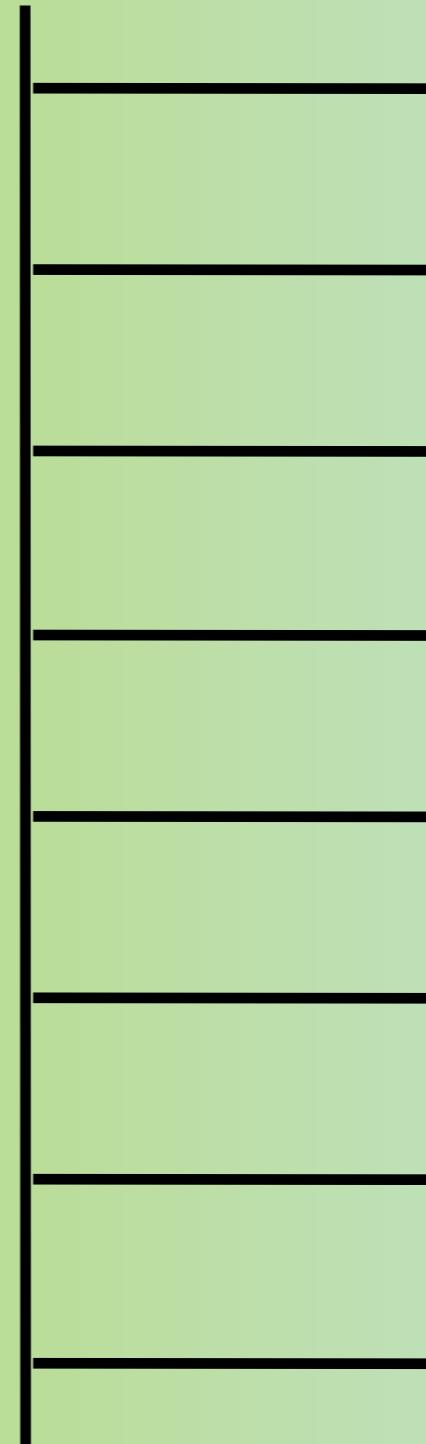


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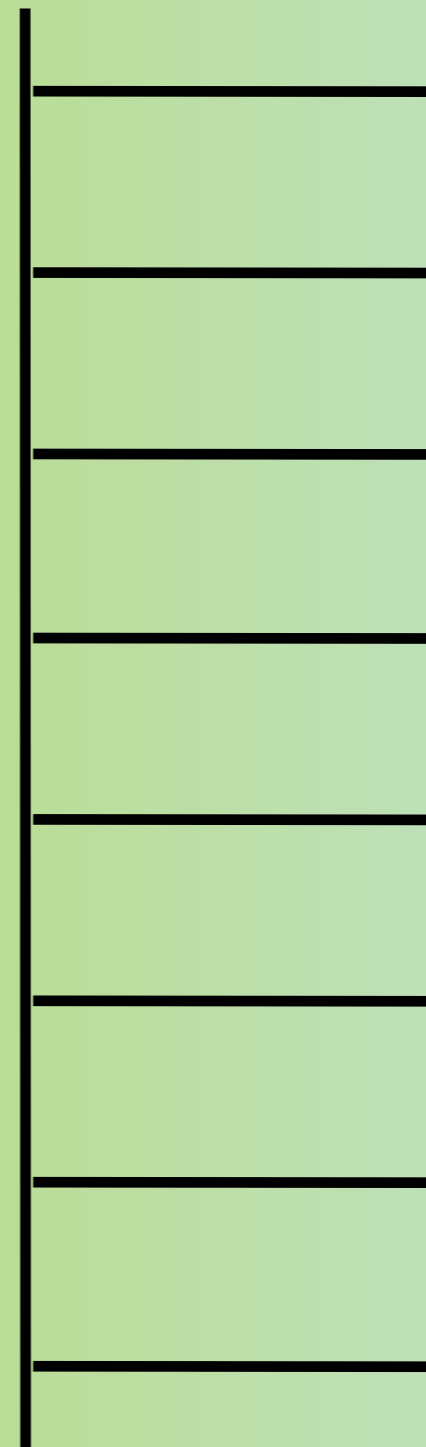
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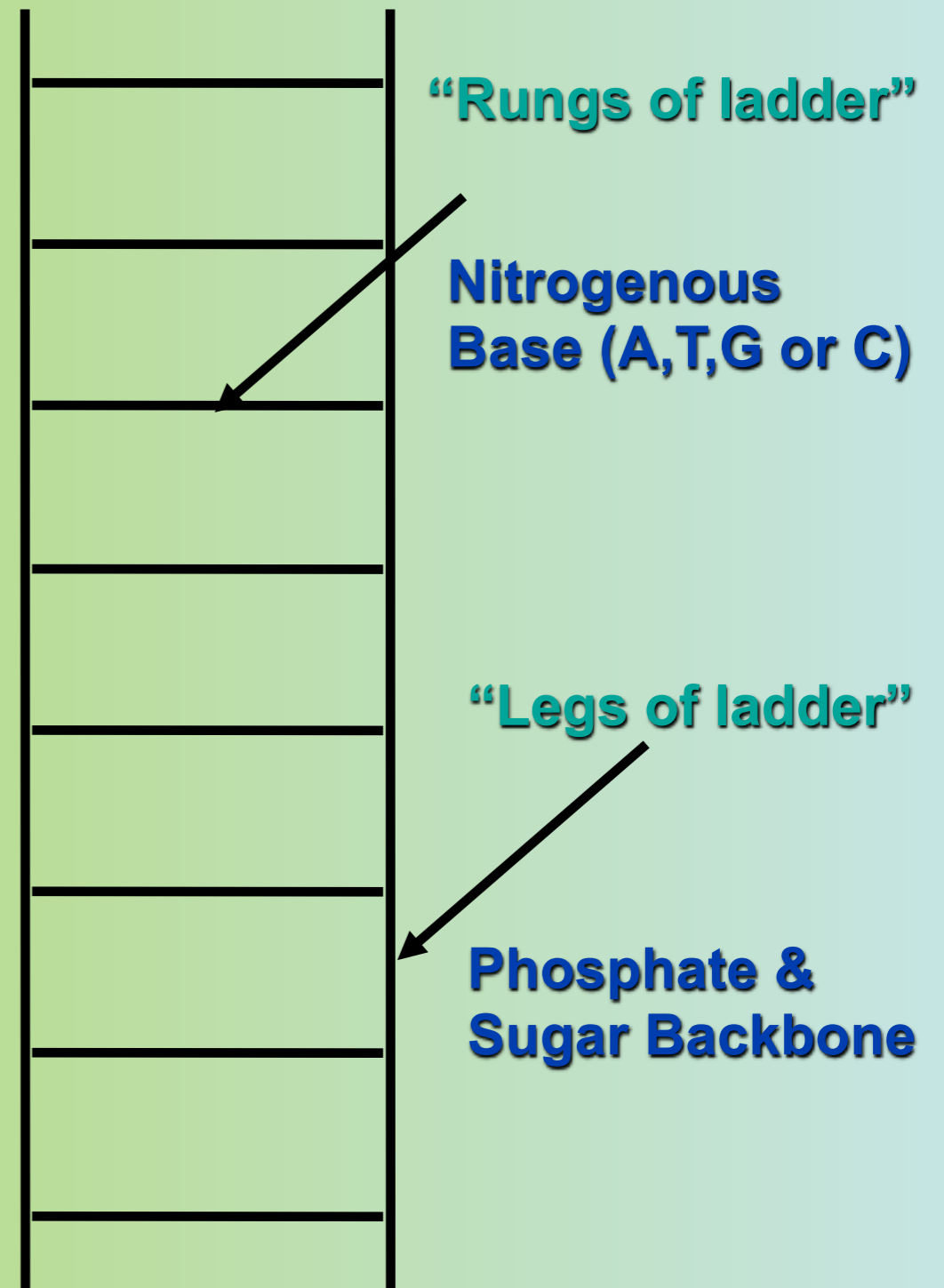
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**“Legs of ladder”**

**Phosphate &  
Sugar Backbone**

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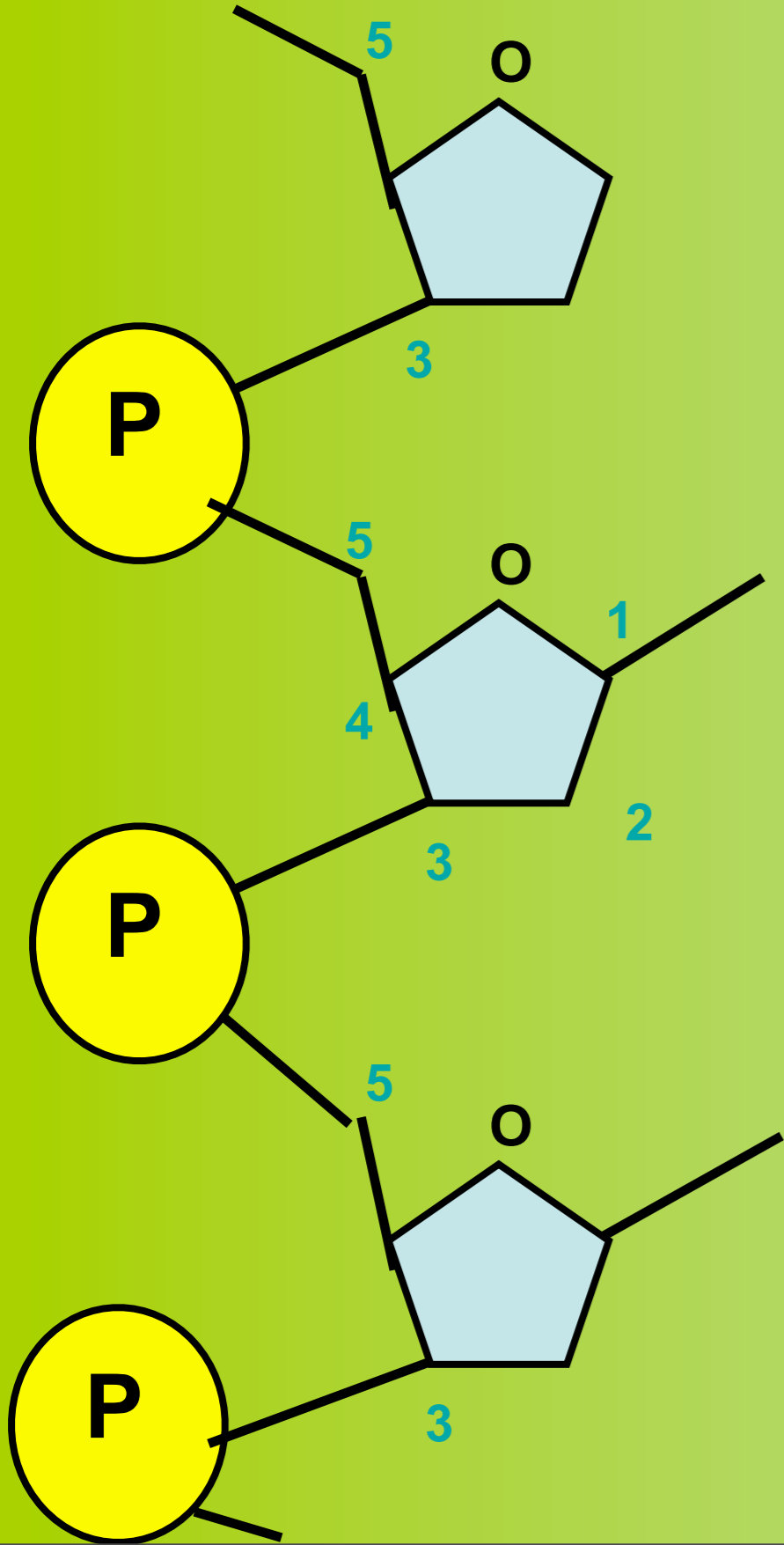




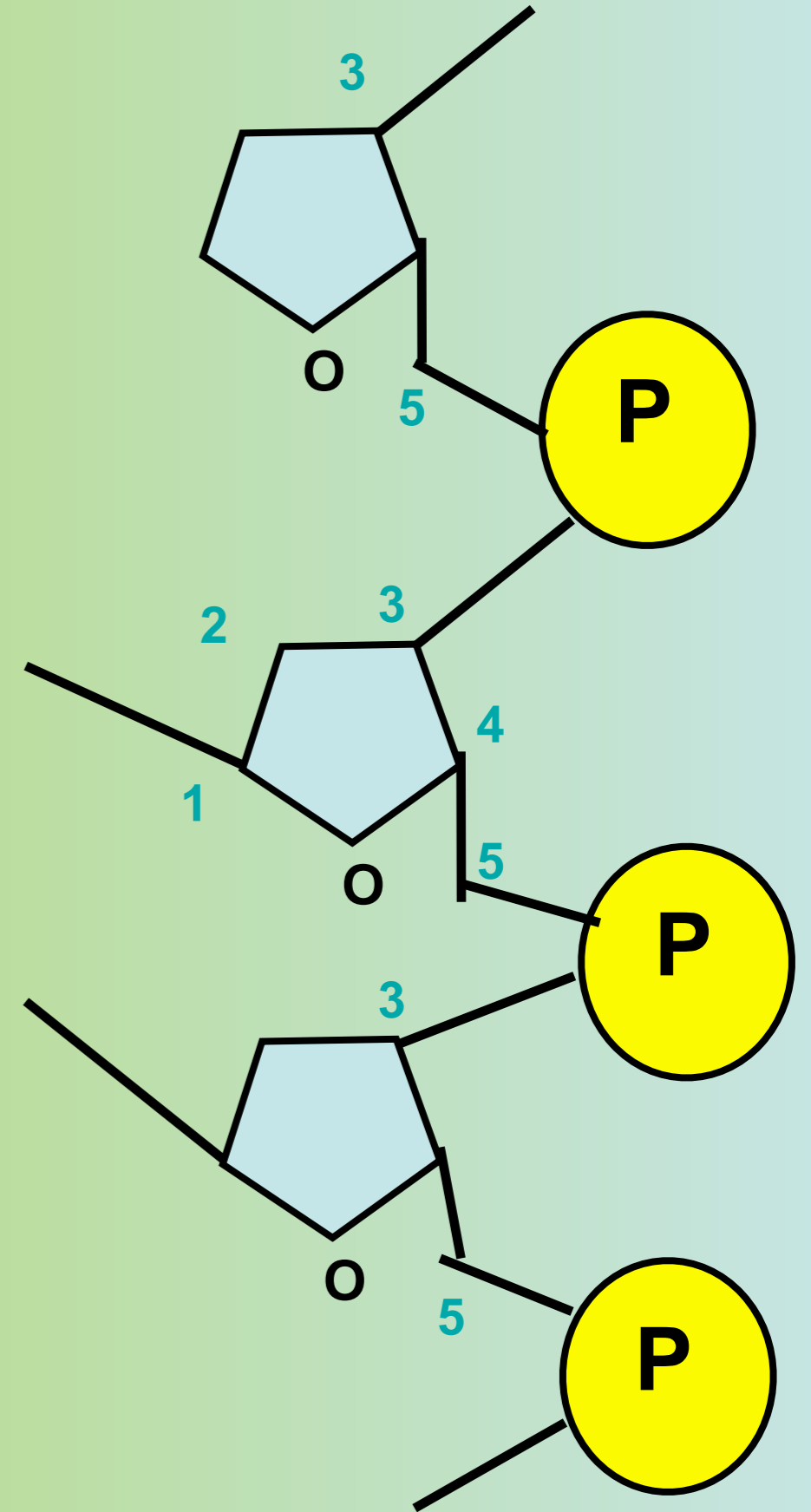
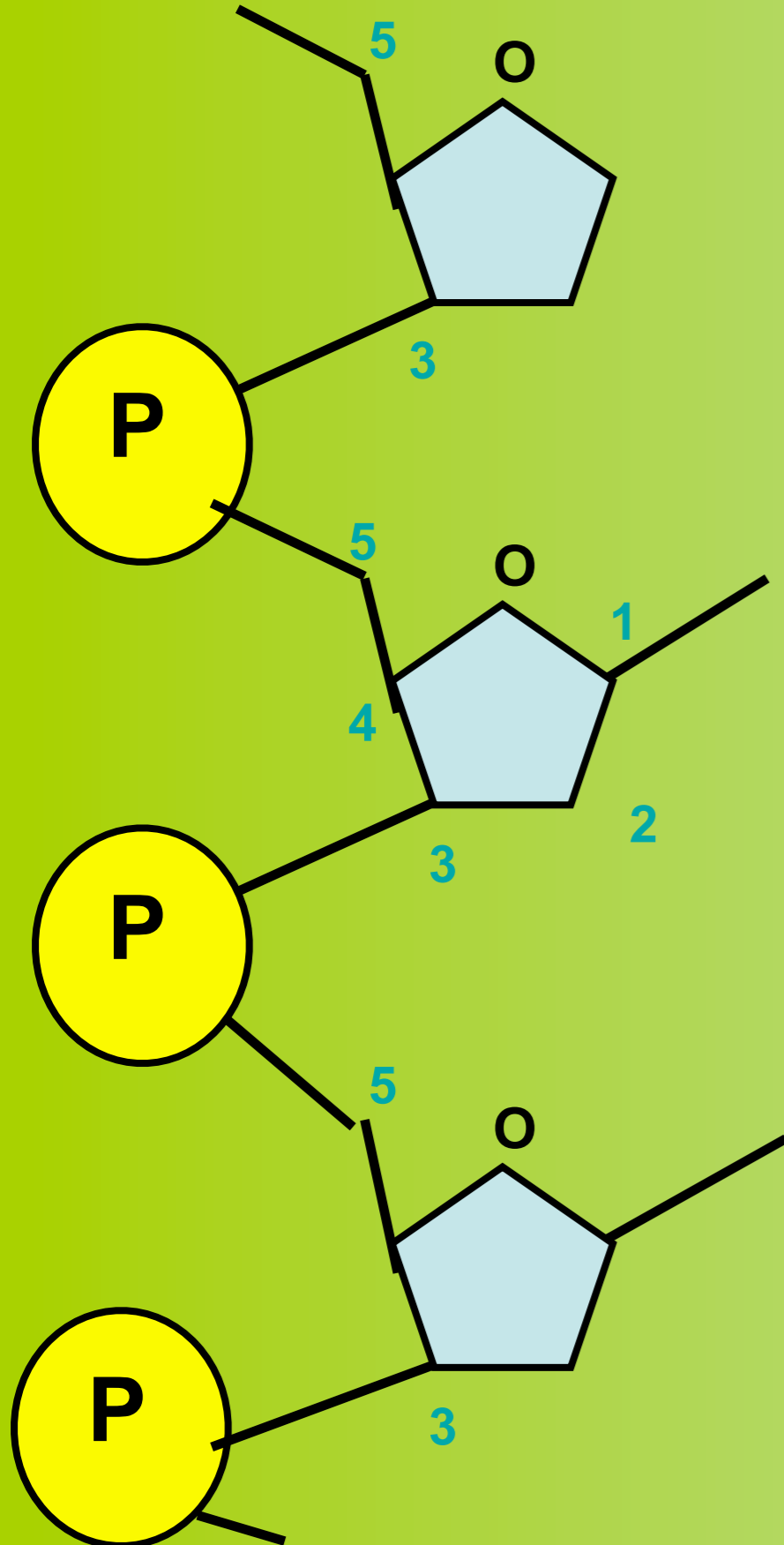


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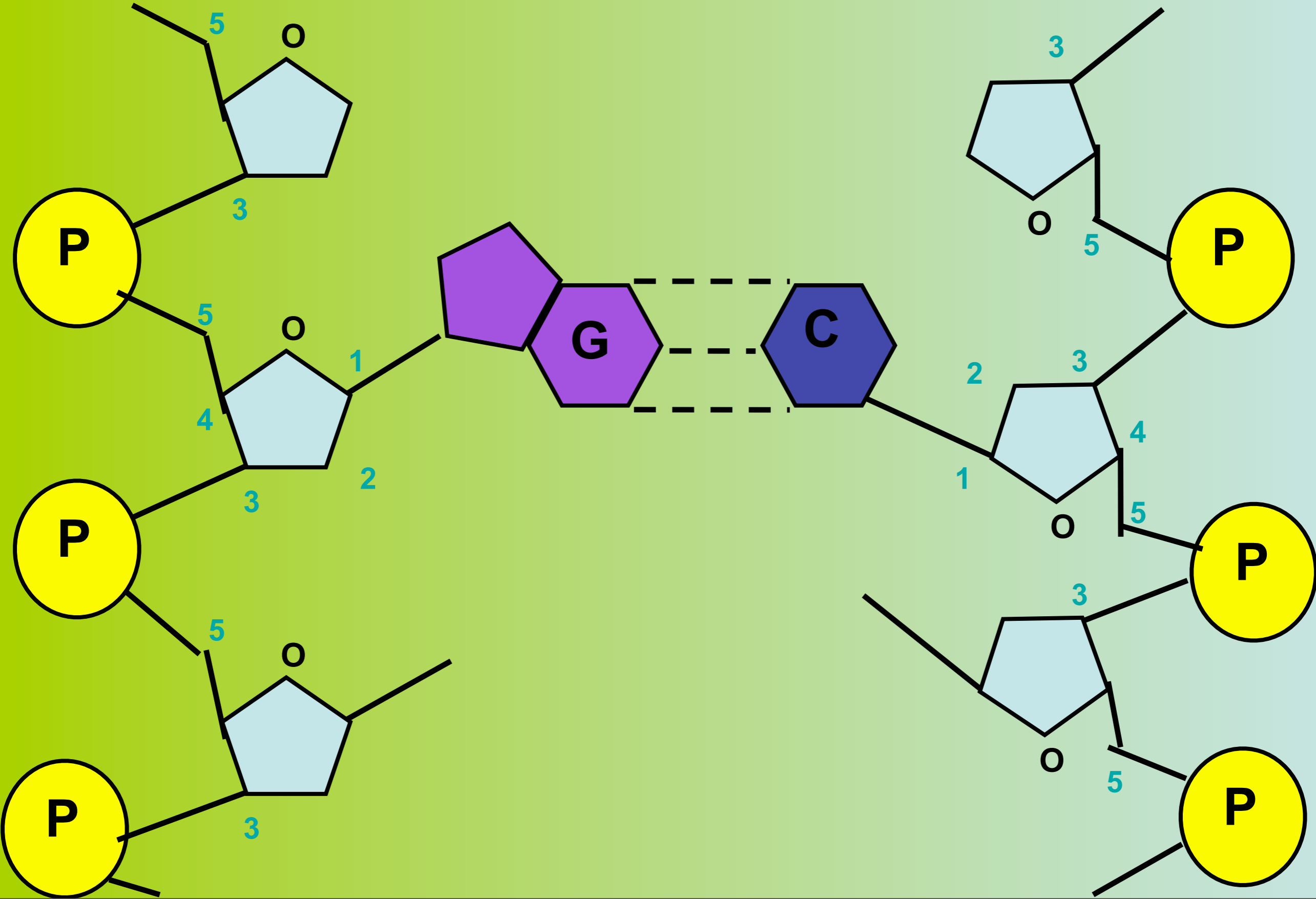
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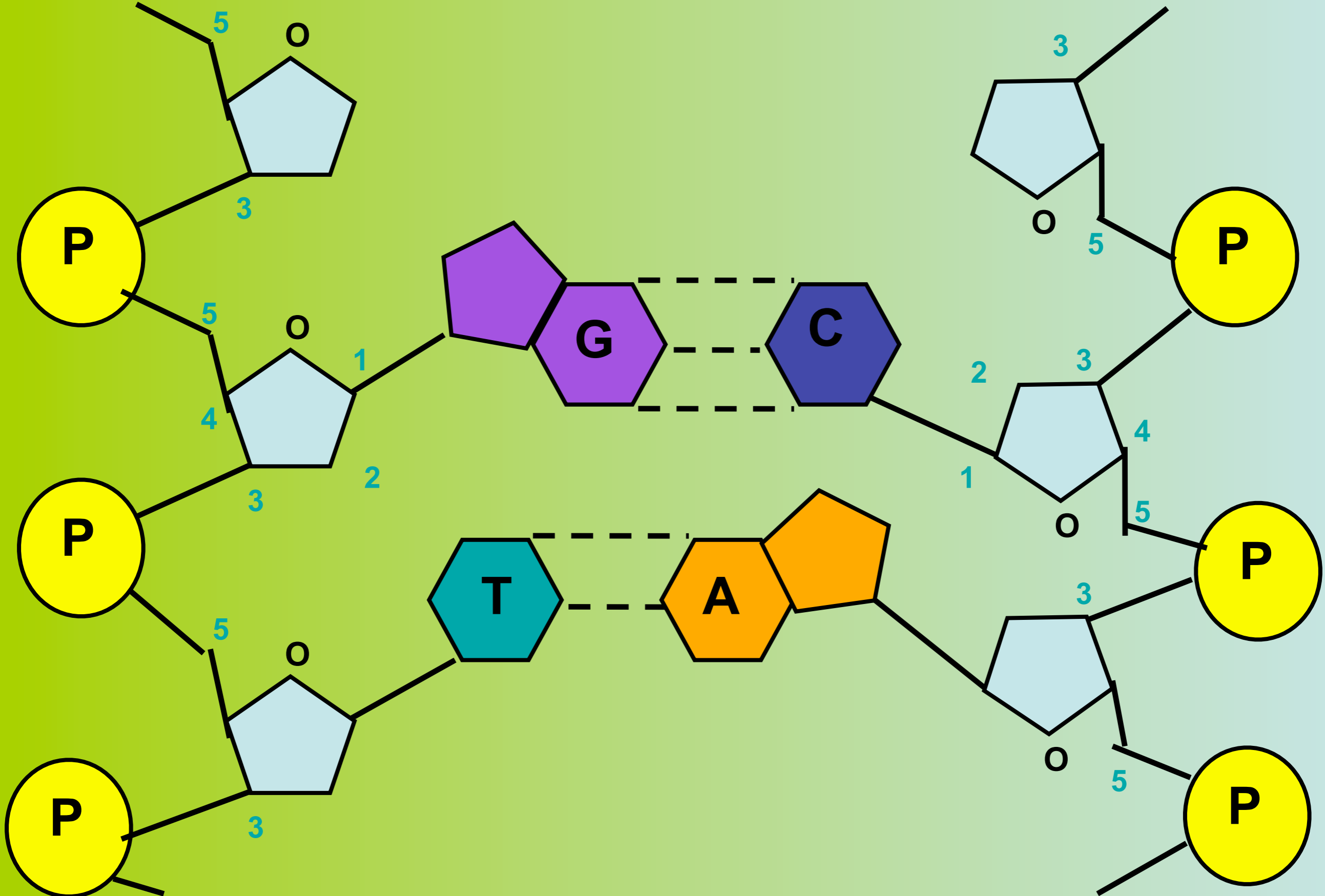
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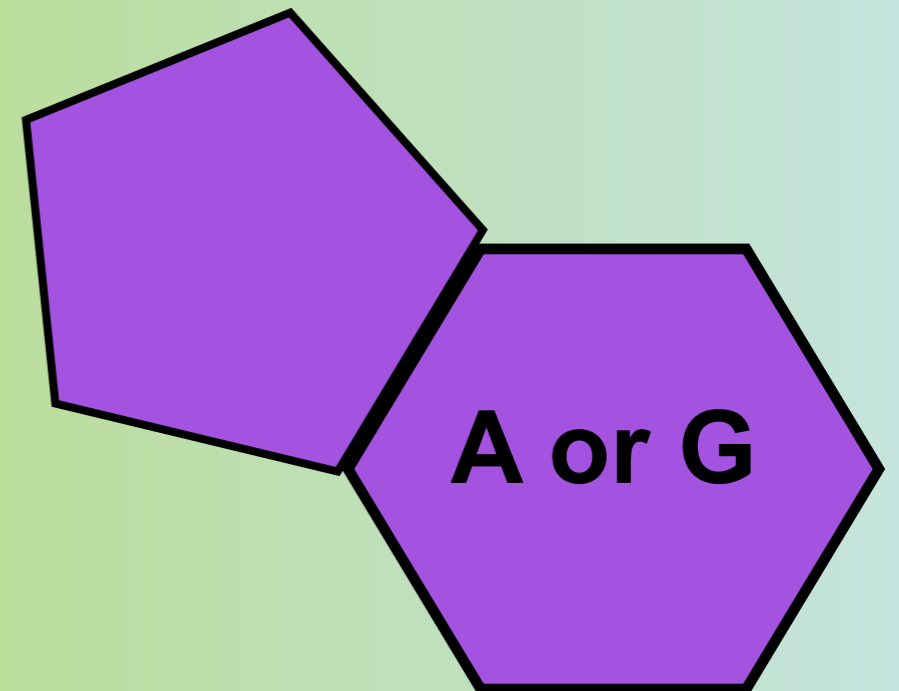
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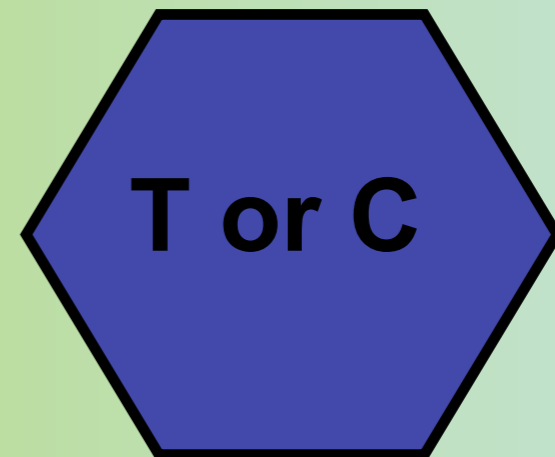
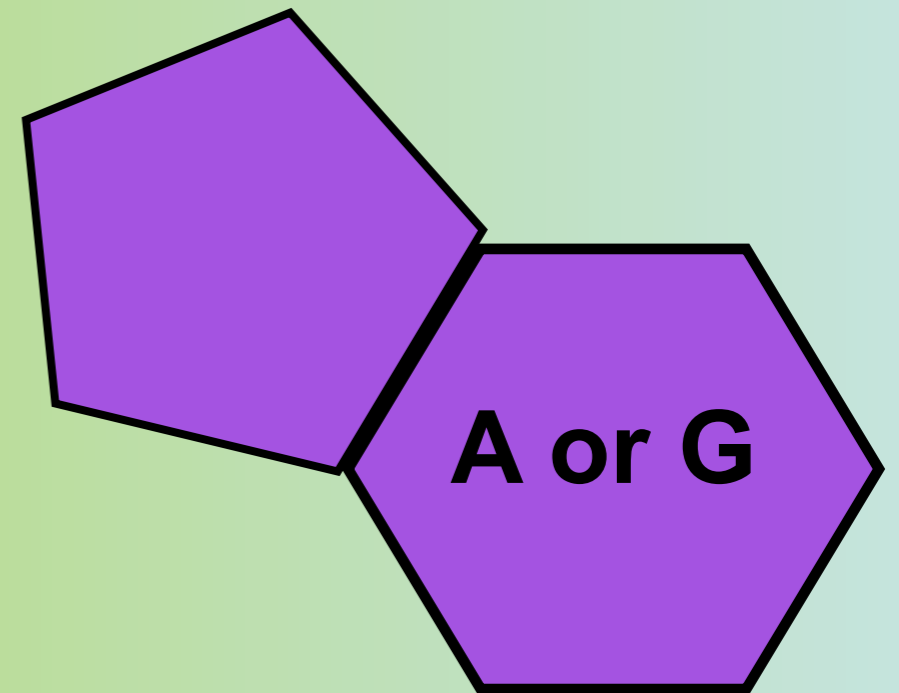
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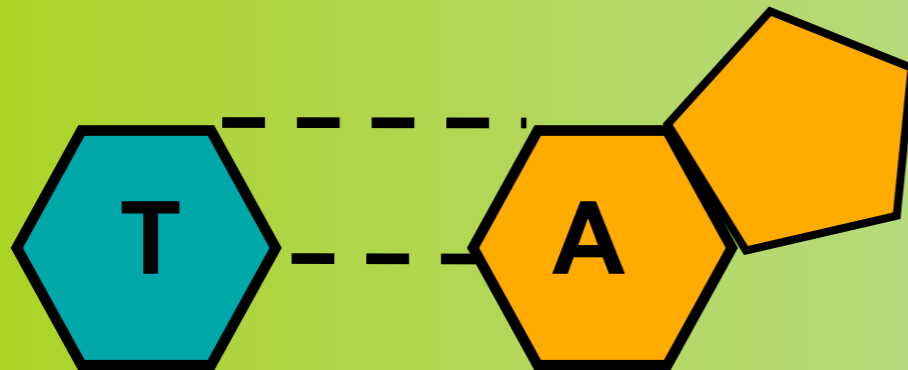
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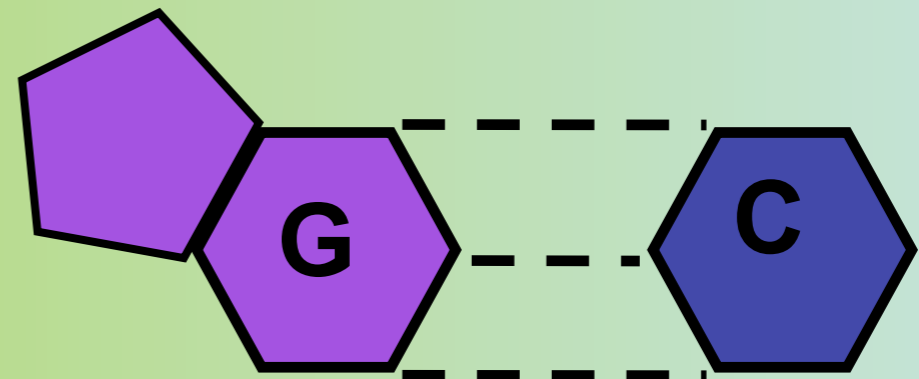
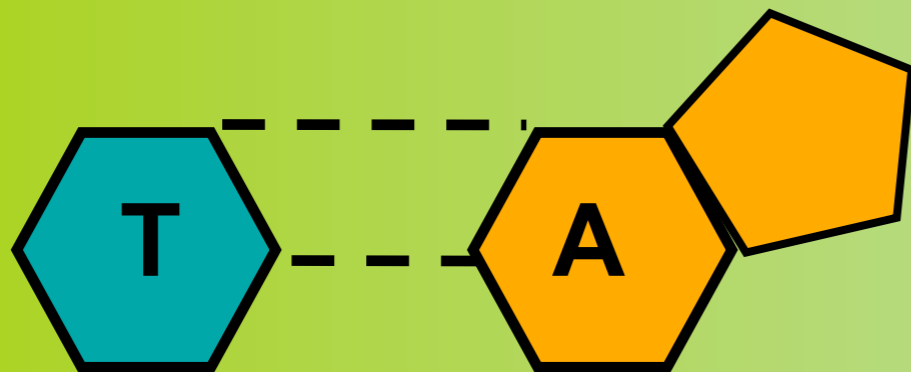
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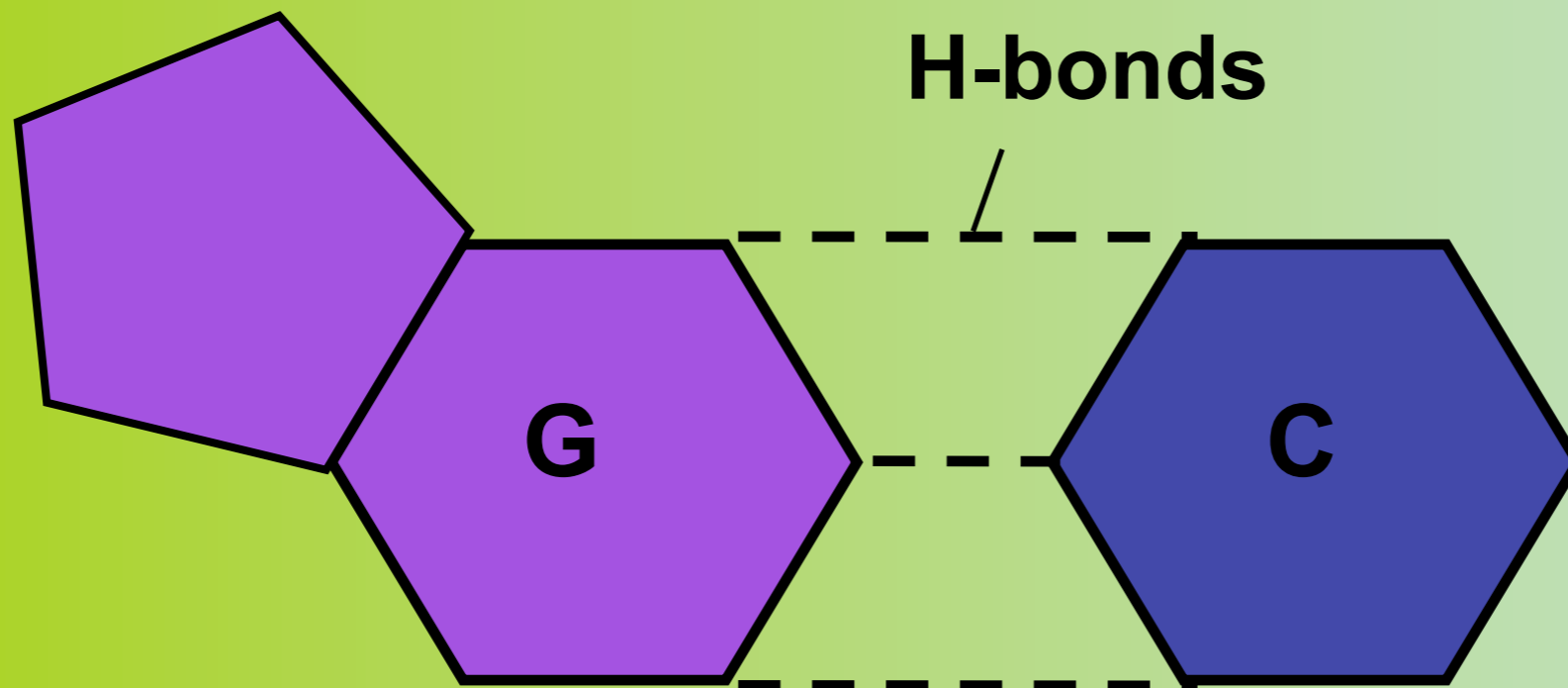
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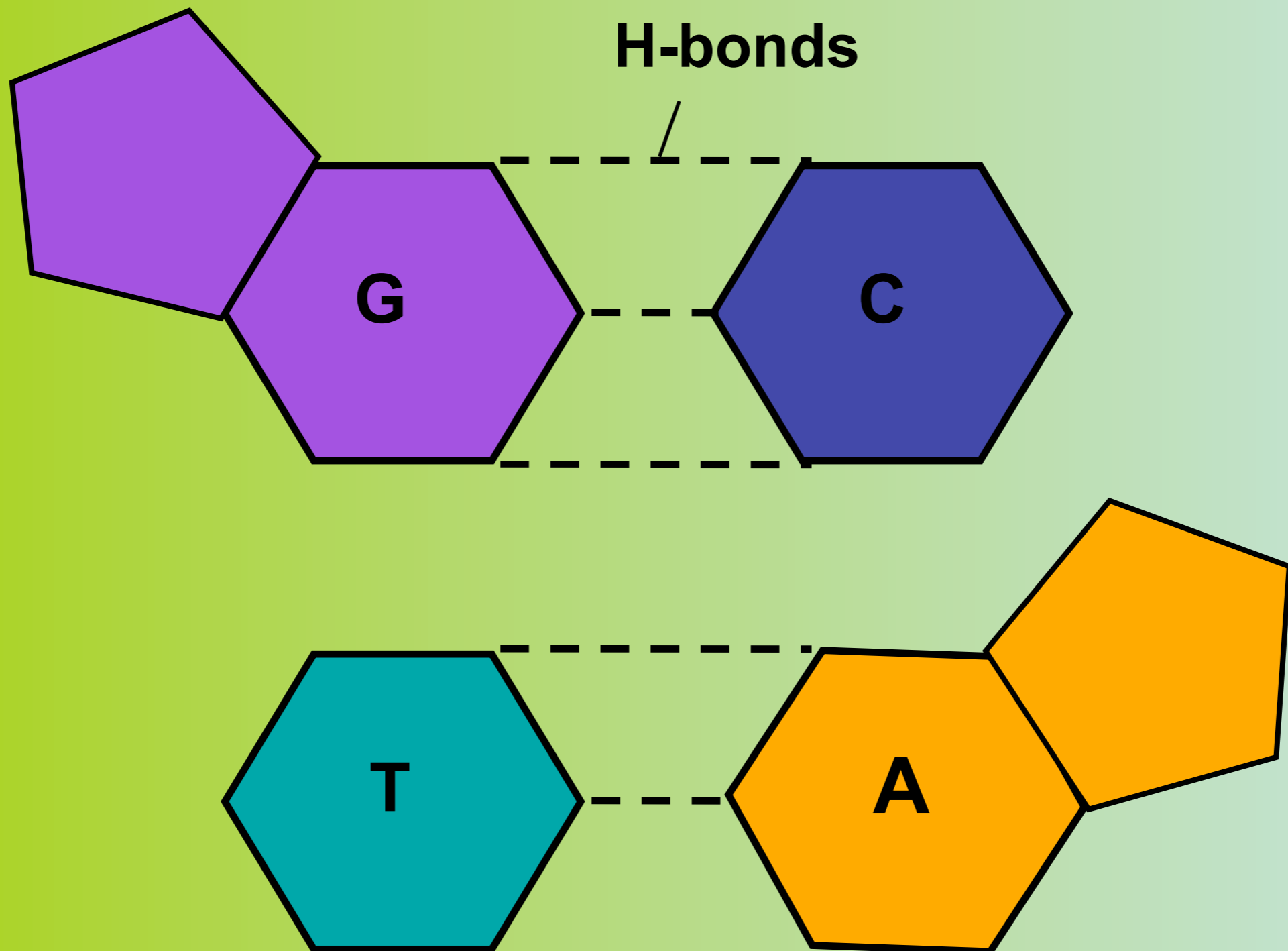


# BASE-PAIRINGS

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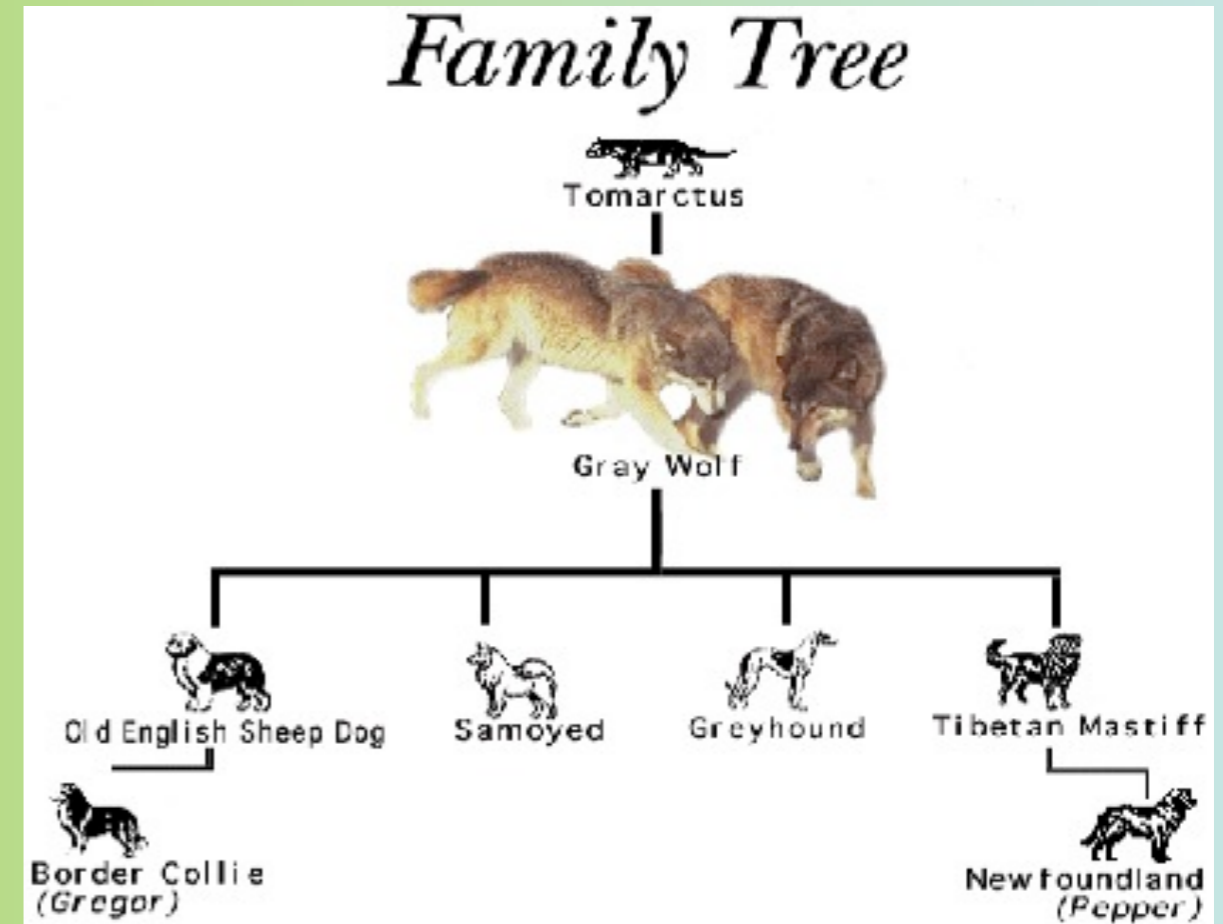


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- Different arrangements of **NUCLEOTIDES** in a nucleic acid (DNA) provides the key to **DIVERSITY** among living organisms.

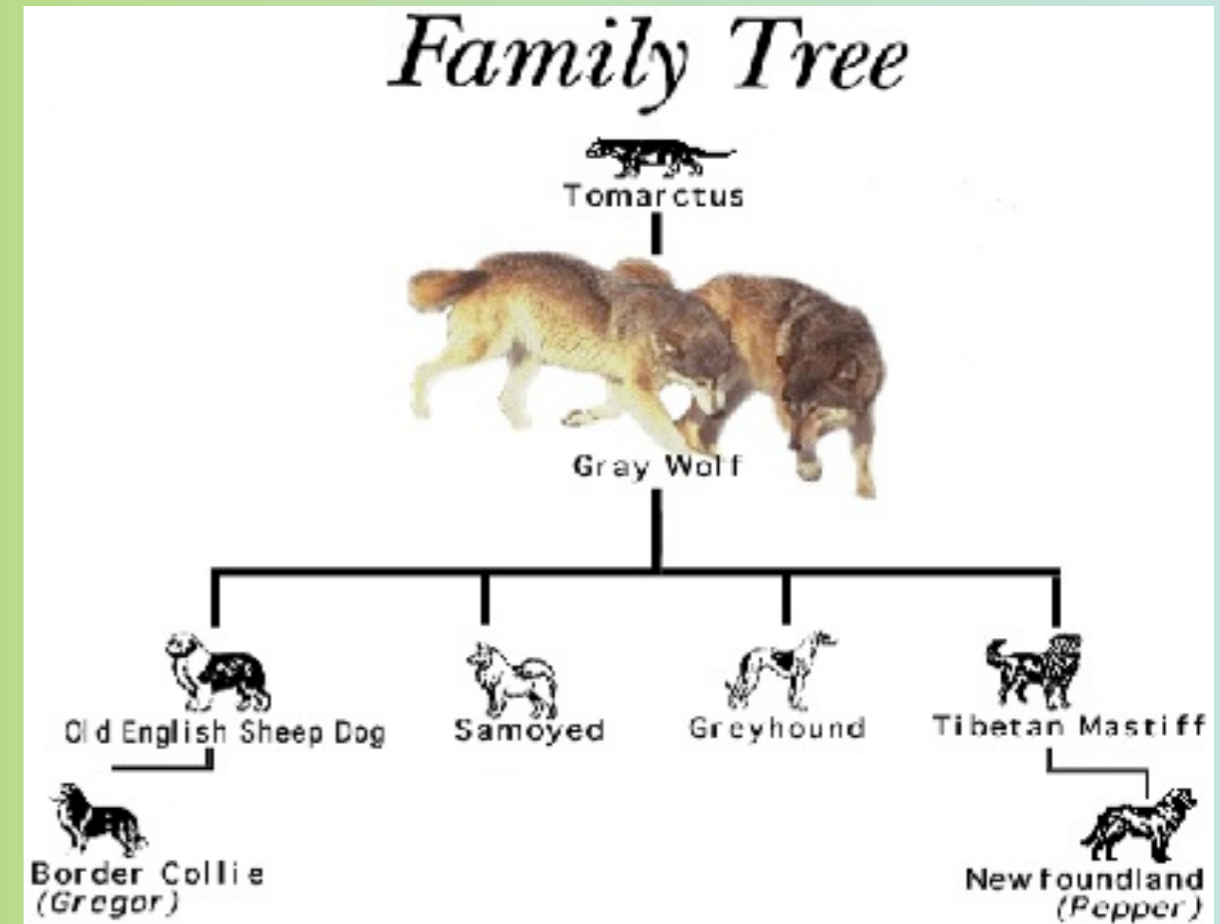
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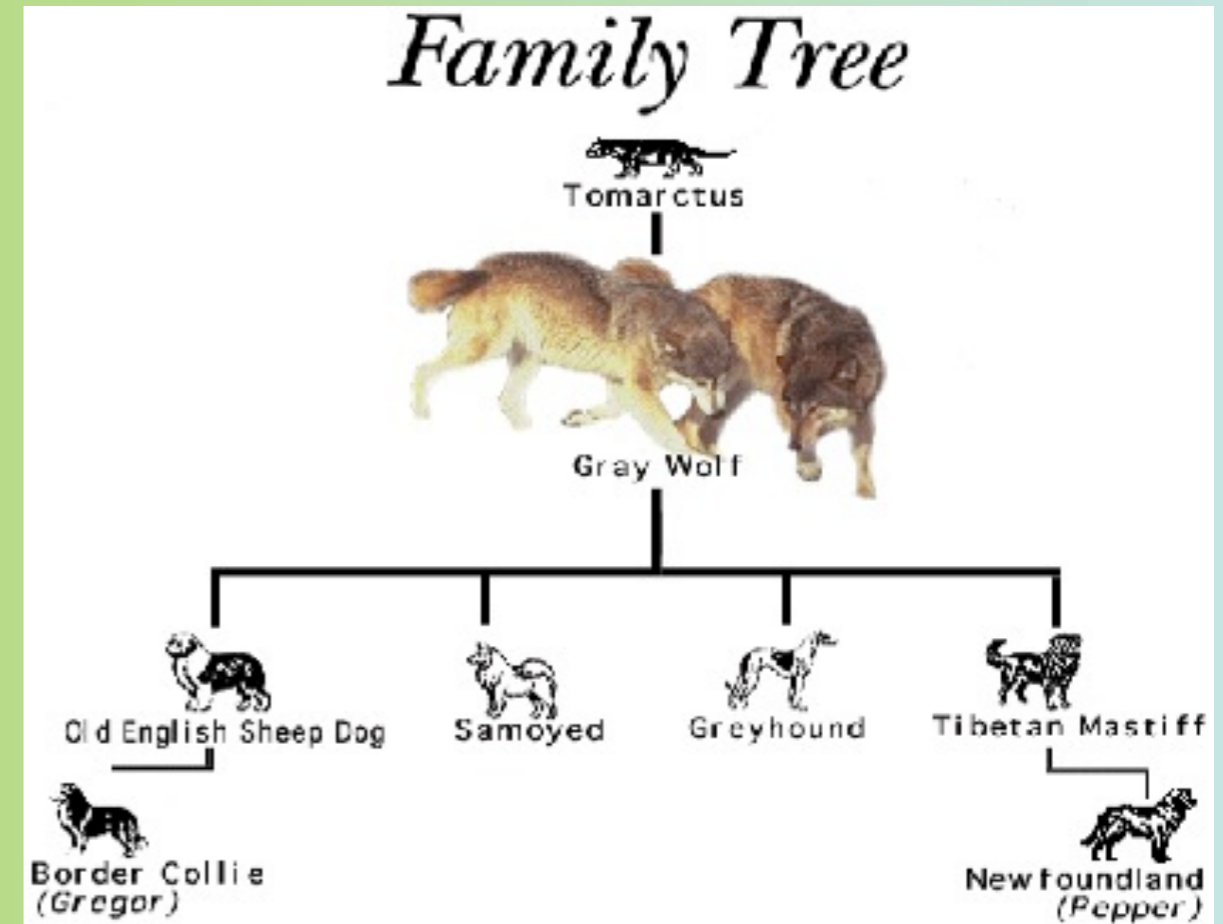
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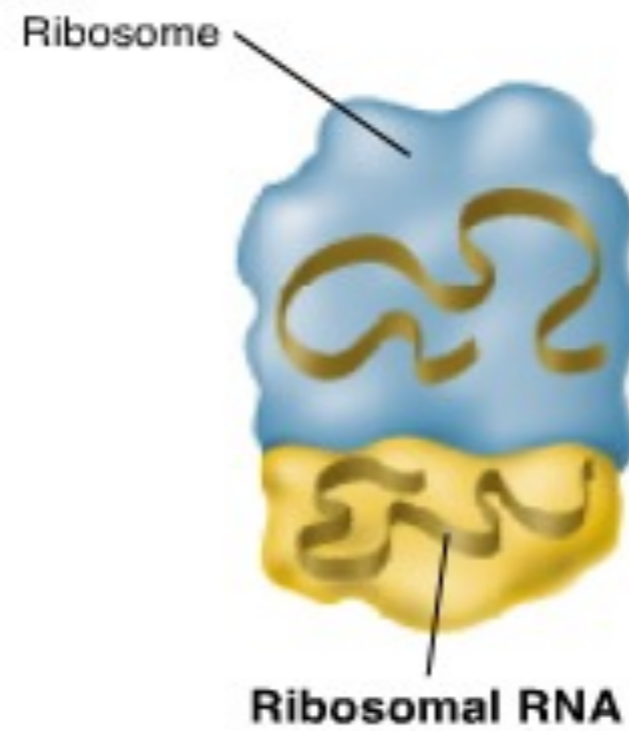
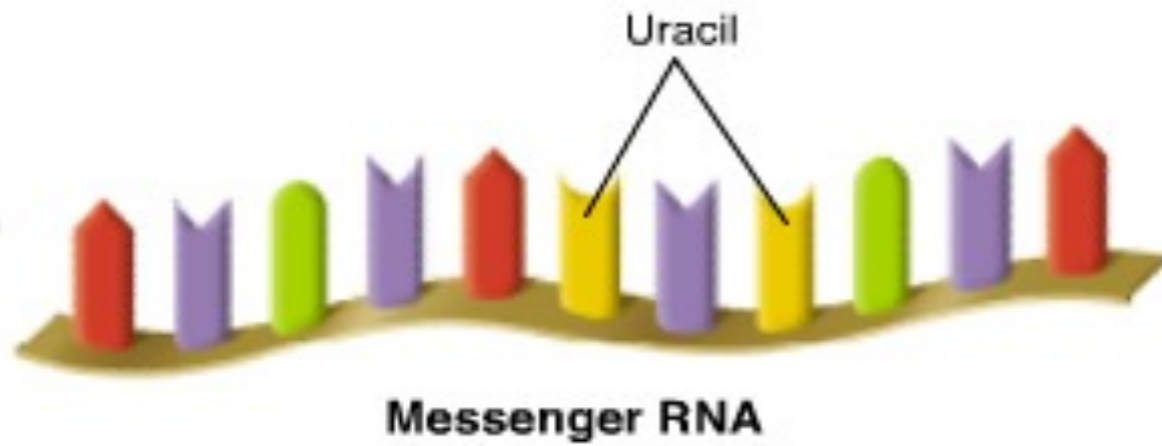
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  - Sugar = ribose

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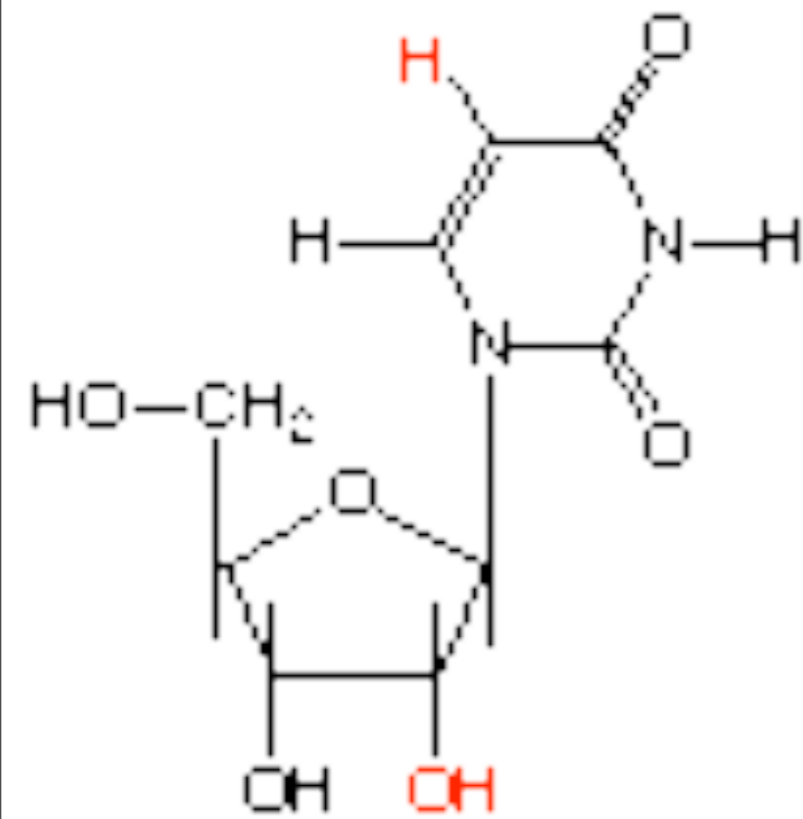
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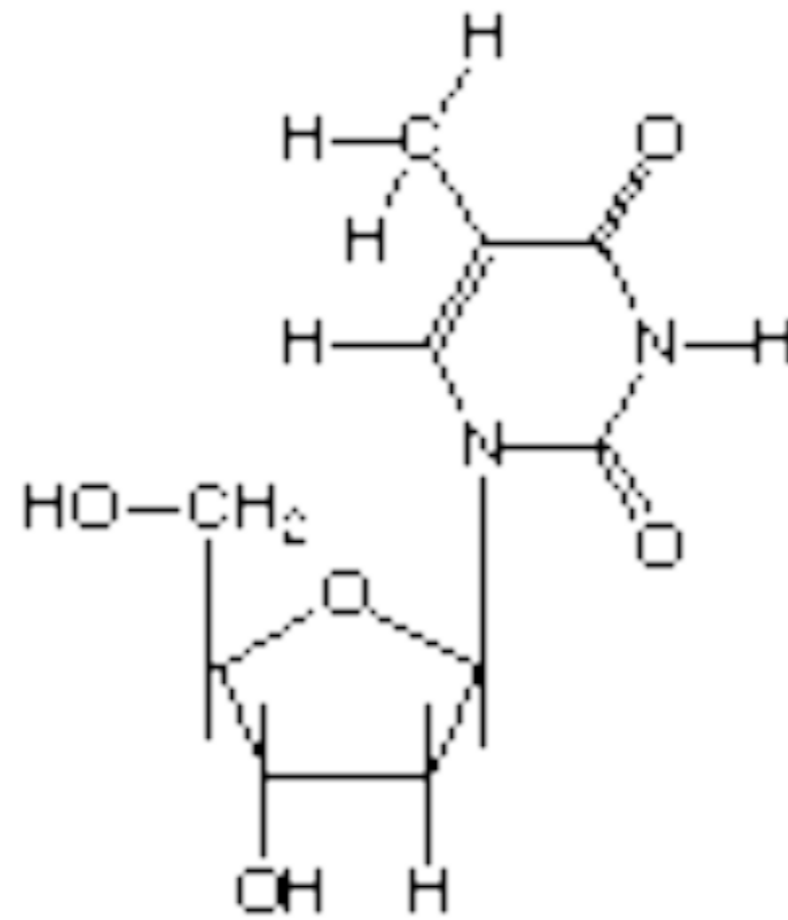
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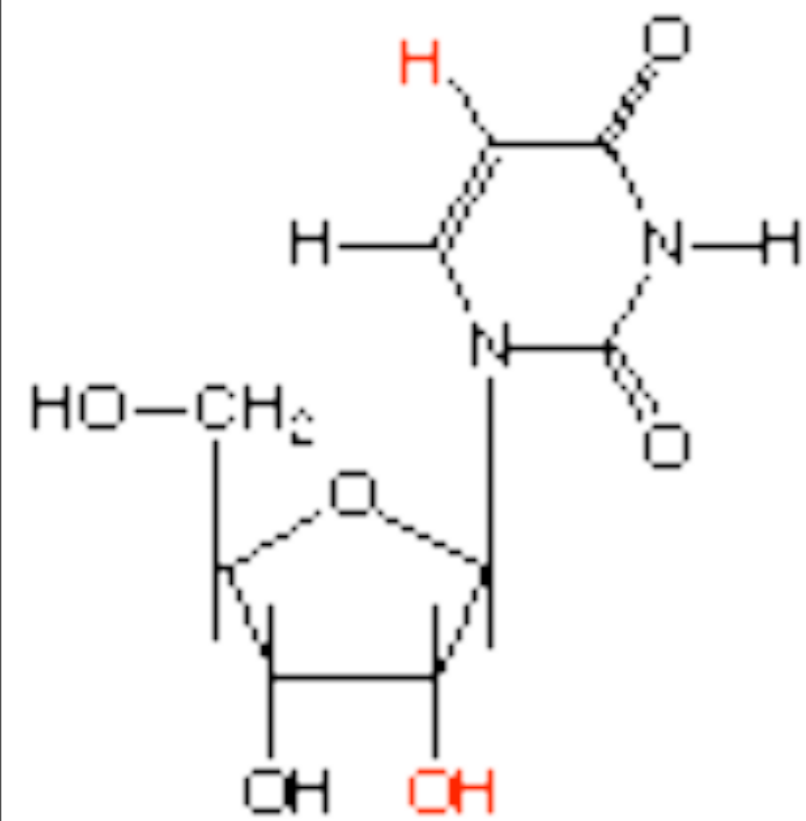




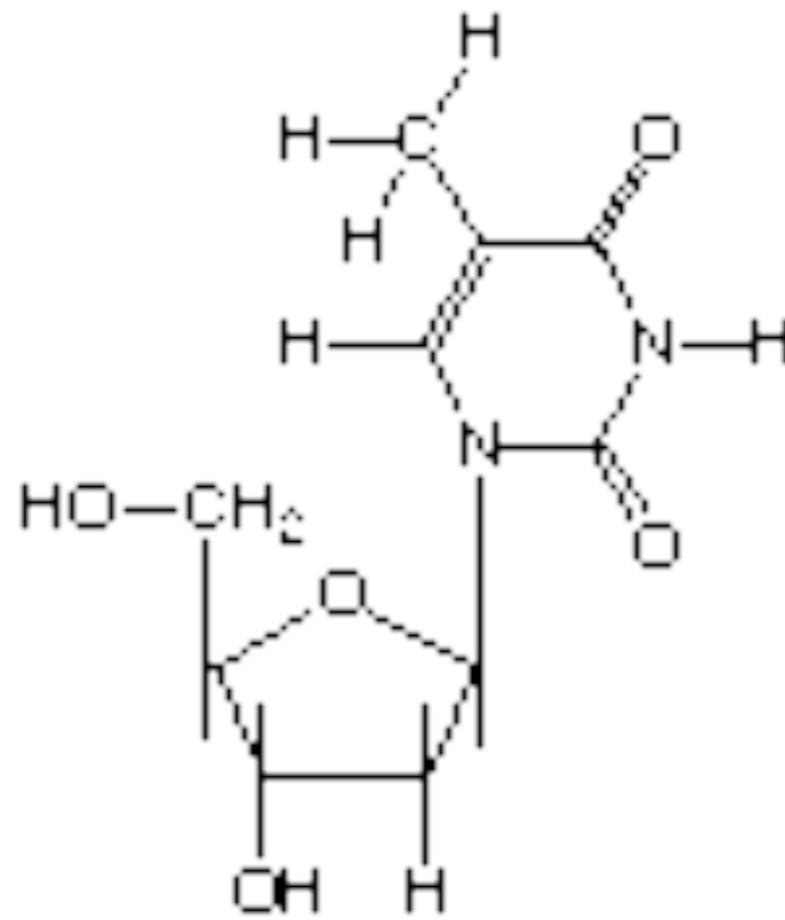
uracil (RNA)



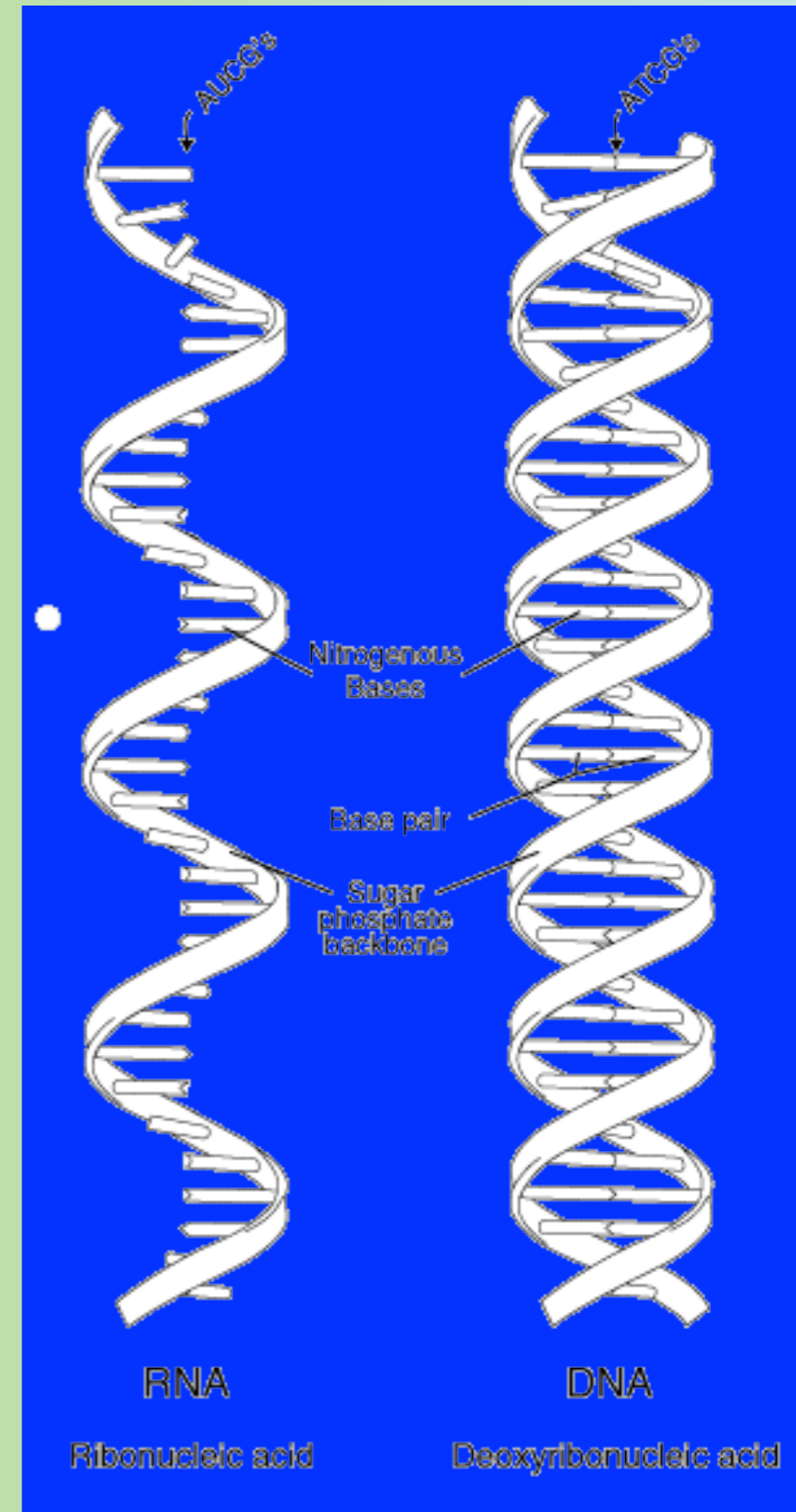
thymine (DNA)



uracil (RNA)



thymine (DNA)



RNA

Ribonucleic acid

DNA

Deoxyribonucleic acid

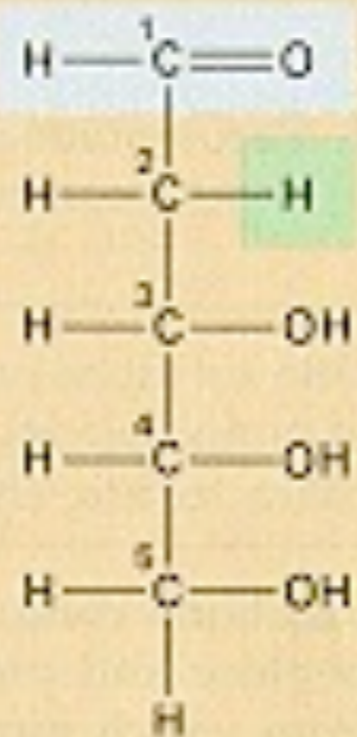
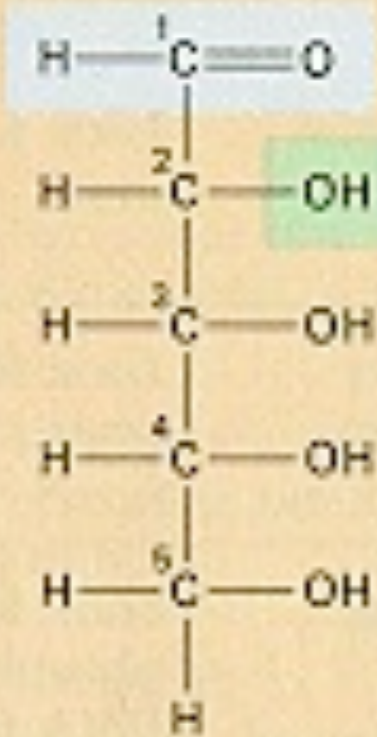


# Ribose vs. Deoxyribose

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# Ribose vs. Deoxyribose



$\alpha$ -Ribose ( $C_5H_{10}O_5$ )

(the sugar component of RNA)

Deoxyribose ( $C_5H_{10}O_4$ )

(the sugar component of DNA)

(b) Pentose sugars (5-carbon sugars)

# Ribose vs. Deoxyribose

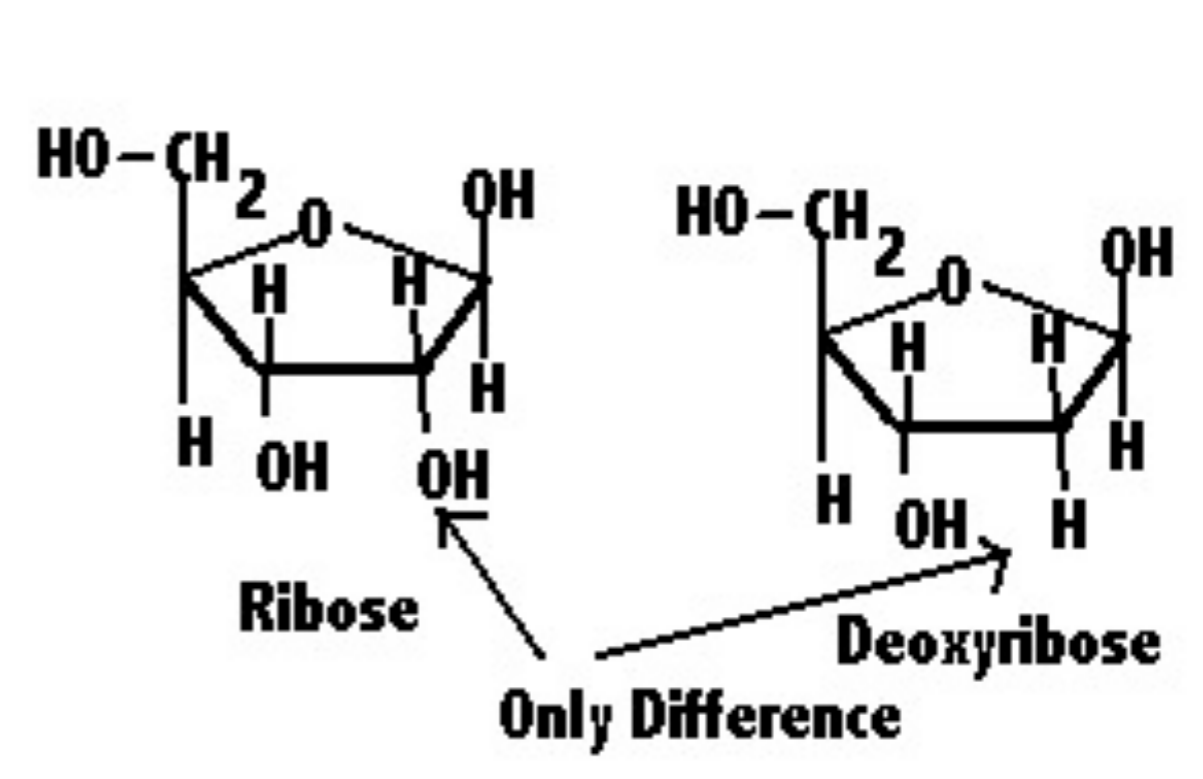
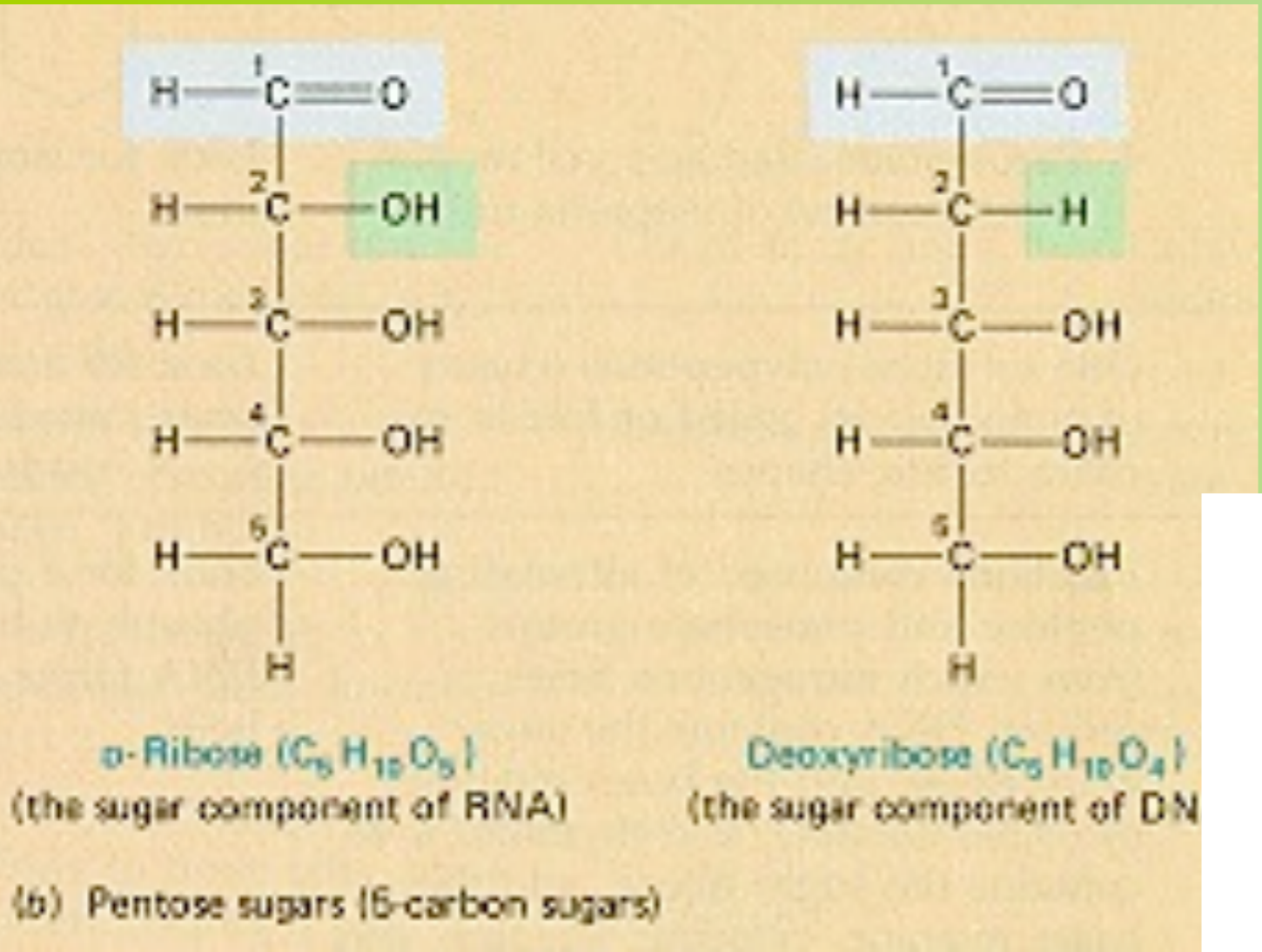


Fig 2- Ribose and Deoxyribose