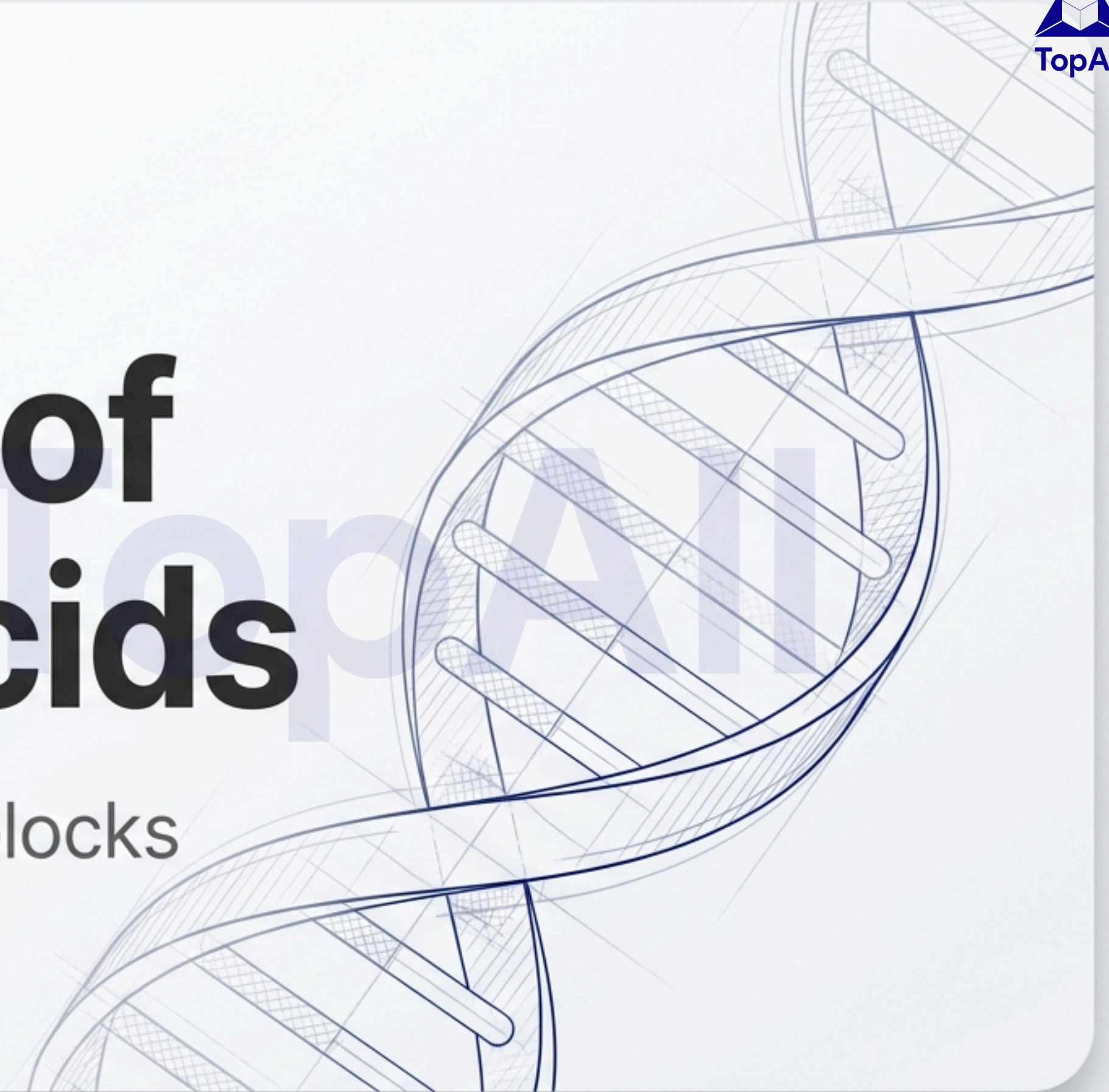


UNIT 10 • BIOMOLECULES

Structure of Nucleic Acids

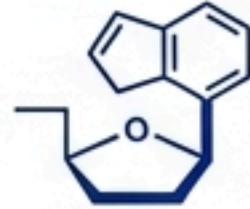
From molecular building blocks to the double helix.



Key Vocabulary Component Library

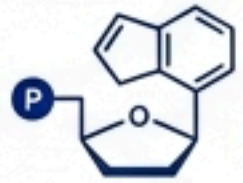
Nucleoside

The base monomer
(Base + Sugar)



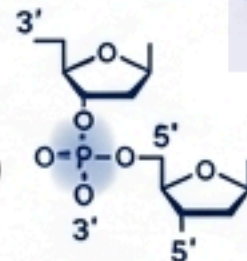
Nucleotide

The activated monomer
(Base + Sugar + Phosphate)



Phosphodiester Linkage

The polymer glue
(3' to 5' connection)

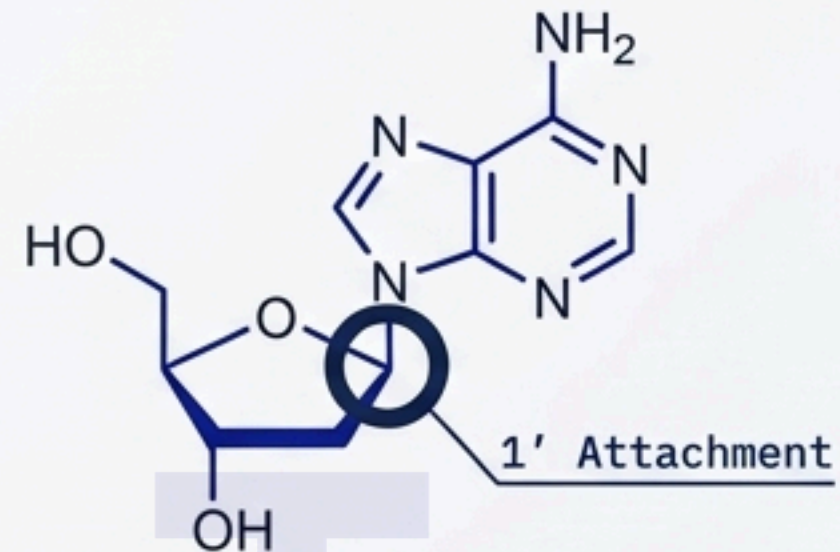
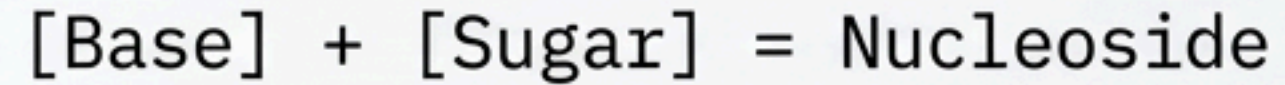


Complementary Base Pairing

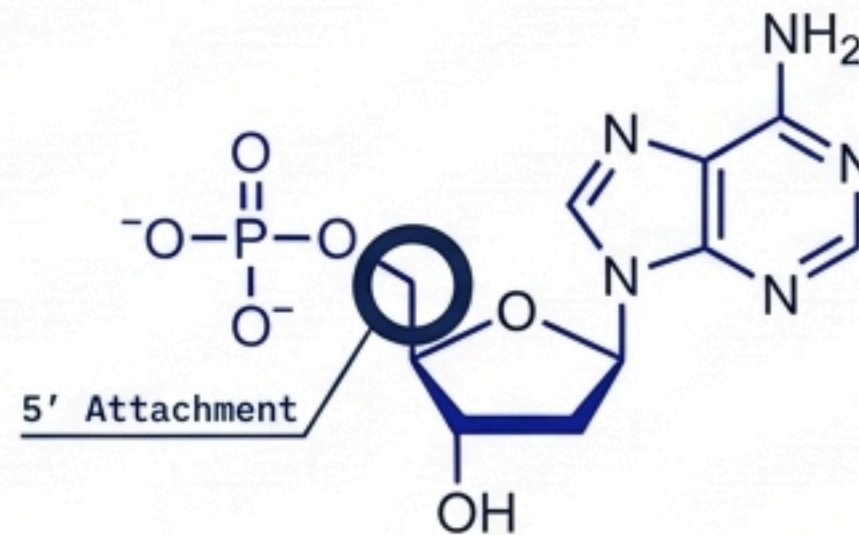
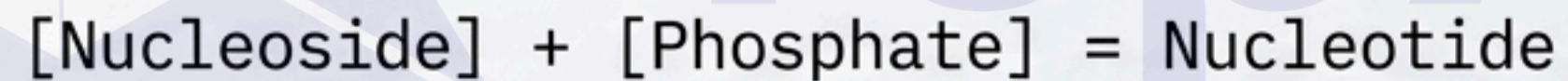
The structural lock
(A-T, C-G)



Step 1: The Base Monomer



Step 2: The Activated Monomer





You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



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Practice Now



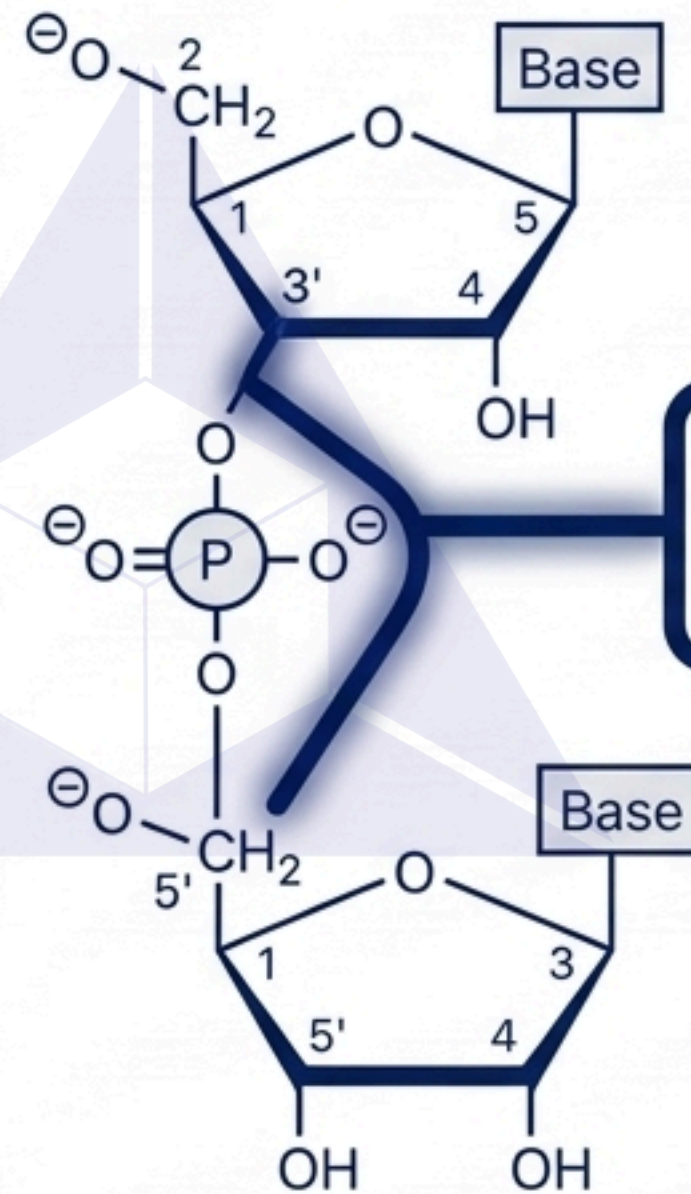
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- » Track Your Performance Smarter



Dinucleotide sleepprint



Phosphodiester Linkage :
Connects 5' and 3' carbons



The Pairing Matrix (Watson & Crick)

Strands are complementary, held together by specific hydrogen bonds.

[A = T]

(Adenine pairs with Thymine via 2 H-bonds)

[C ≡ G]

(Cytosine pairs with Guanine via 3 H-bonds)

RNA Types & Functions

Single-stranded functional diversity

mRNA

(Messenger)

Carries genetic
code.

rRNA

(Ribosomal)

Builds cell
proteins.

tRNA

(Transfer)

Delivers amino
acids.

Watch for this common trap...

Nucleoside

= [Sugar]
+ [Base]



Nucleotide

= [Sugar]
+ [Base]
+ **[PHOSPHATE]**

One phosphate group is the ENTIRE difference.

Key Takeaways

- ✓ Nucleic acids (DNA/RNA) are polymers built from **nucleotides** (Base + Sugar + Phosphate) joined by **3'-5' phosphodiester linkages**.
- ✓ DNA exists as a double helix stabilized by **complementary base pairing** ($A=T$, $C\equiv G$), while RNA is primarily single-stranded with three functional types (mRNA, rRNA, tRNA).



You've Learned the Theory.

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