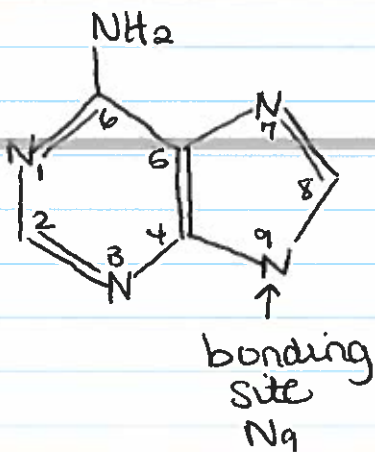


5/10/19 nucleosides, nucleotides & nucleic acids

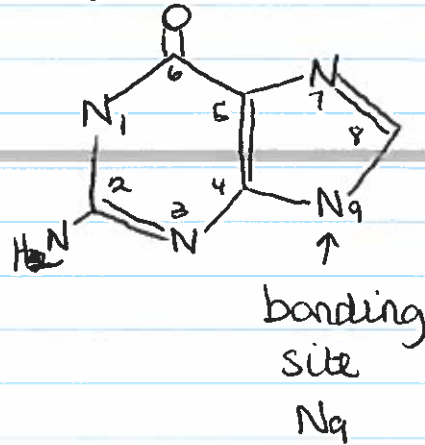
nucleoside = base + sugar * linked by a glycosidic bond

Purines (Pure as gold)

Adenine



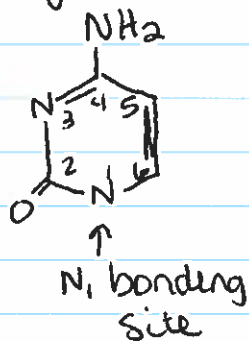
Guanine



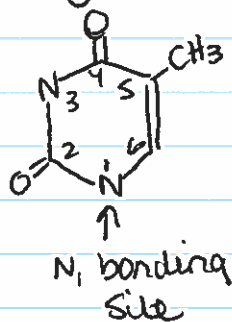
the glycosidic bond will form between N₉ of the base and C₁ of the sugar

Pyrimidines

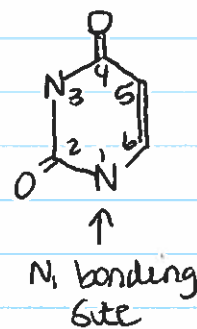
Cytosine



Thymine



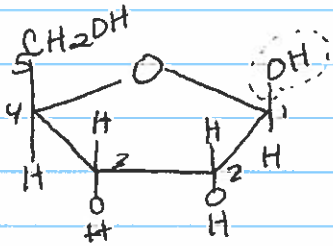
Uracil



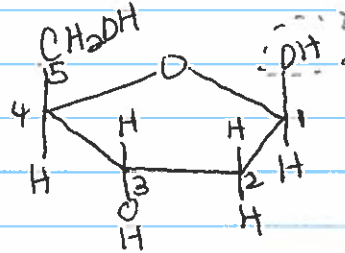
glycosidic bond N₁ to C₁

Sugars

β -D-ribose



β -D-deoxyribose



Nucleosides:

D {
 N {
 A {
 C

R {
 N {
 A {
 C

Nucleotide = $\underbrace{\text{sugar} + \text{base}}_{\text{nucleoside}} + \text{phosphoric acid}$

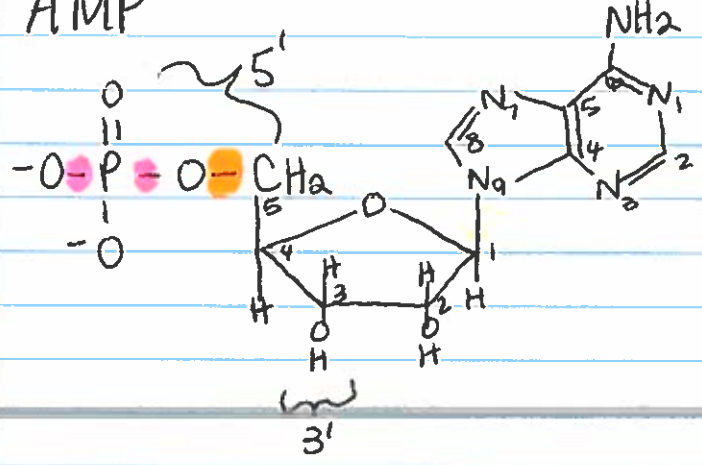
* linked by a phosphodiester bond between the 3' or 5' OH of sugar and oxygen of phosphate.

D {
 N {
 A {

R {
 N {
 A {

Illustration of a nucleotide

AMP

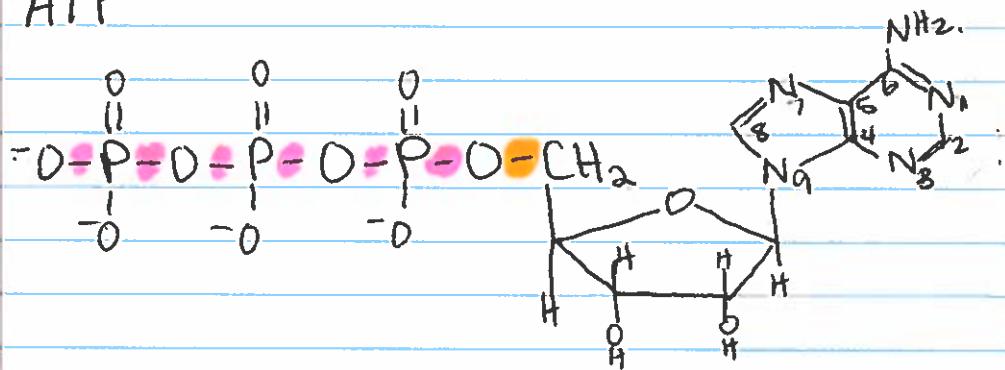


- glycosidic bond
(C₁-N₉ or C₁-N₁)

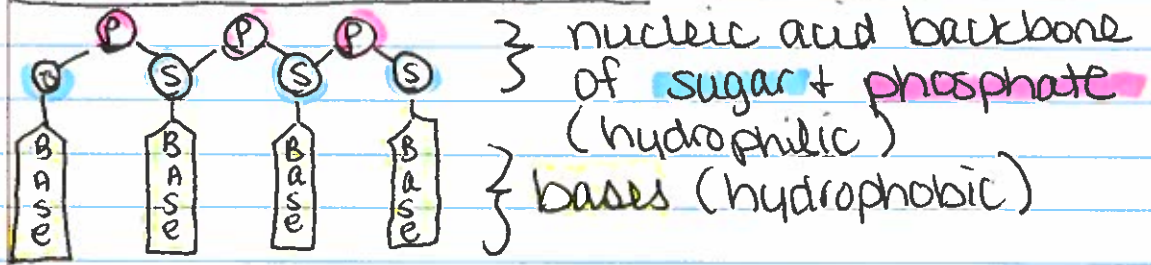
- ester bond (-O-CH₂)

- phosphodiester (-O-P-O-)

ATP



Structure of DNA ≠ RNA



The resulting unbranched chain has polarity w/ the 5' free phosphate and the 3' hydroxyl.

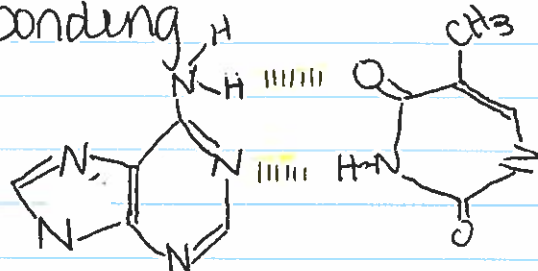
The base pairs turn inward creating the 2° structure of DNA, then forming the double helix when the base pairs form hydrogen bonds. The double helix will now have major & minor grooves.

DNA coils around proteins called histones forming units called nucleosomes

When nucleosomes condense chromatin is formed followed by loops of superstructures called chromosomes

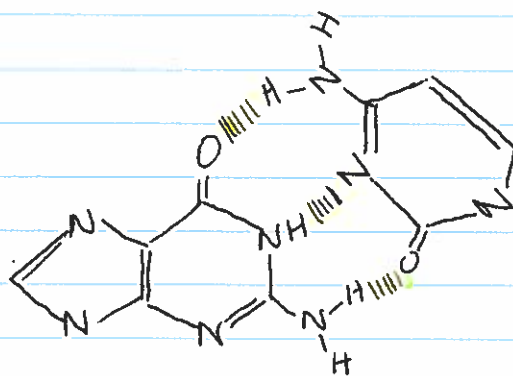
Hydrogen bonding

A = T
(2 H bonds)



||||| - H bond

C ≡ G
(3 H bonds)



5

nucleic strand (DNA)

