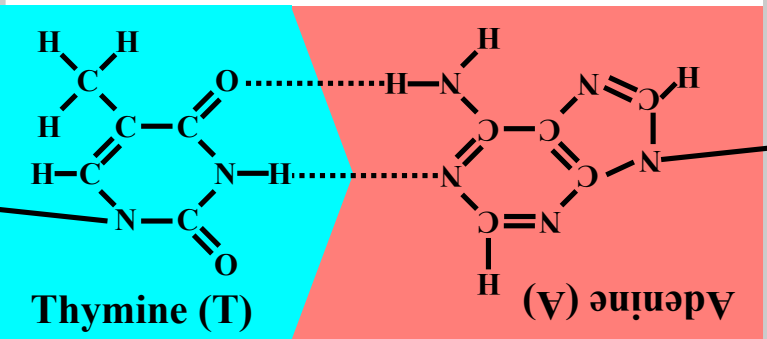
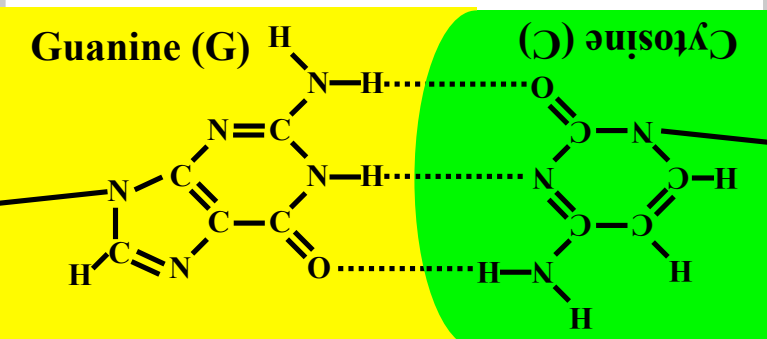
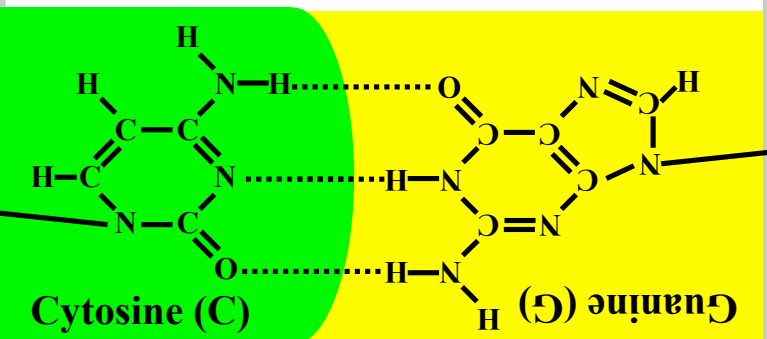
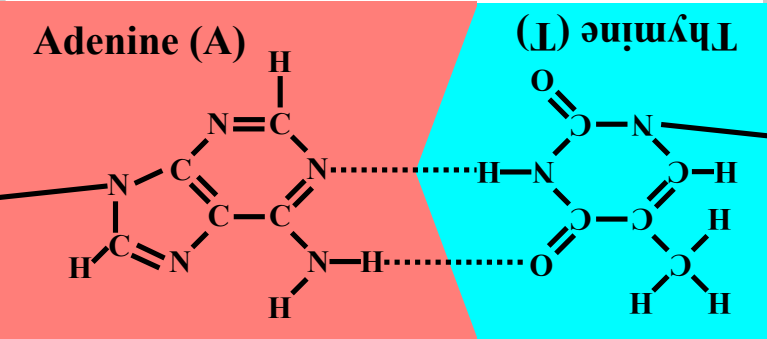
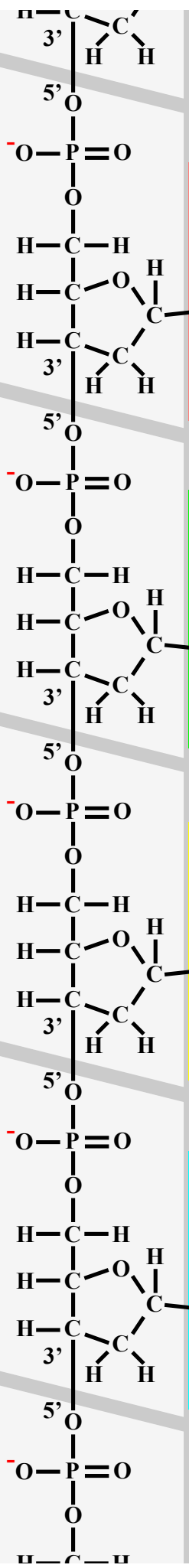
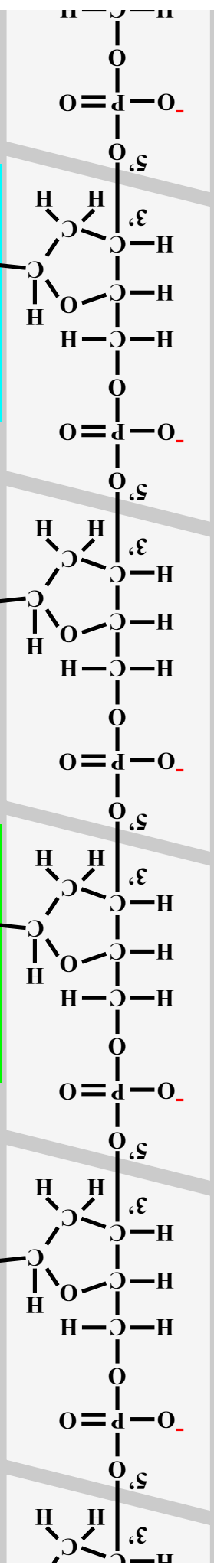
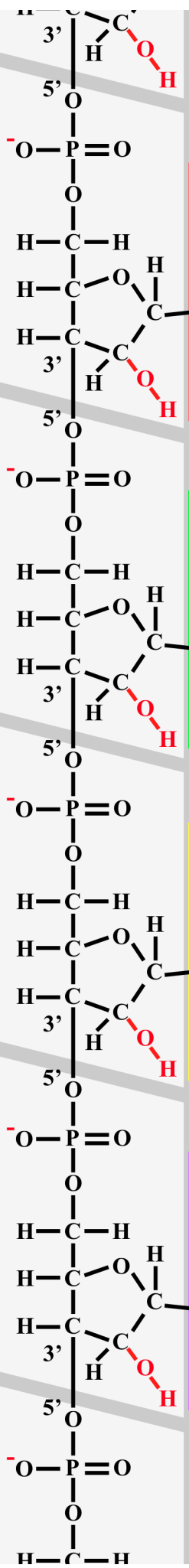


DNA strand

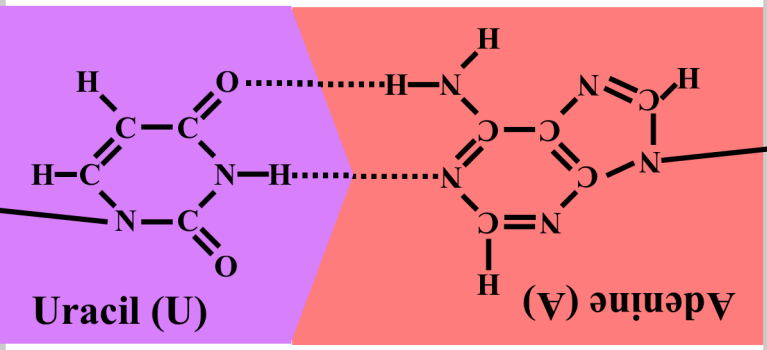
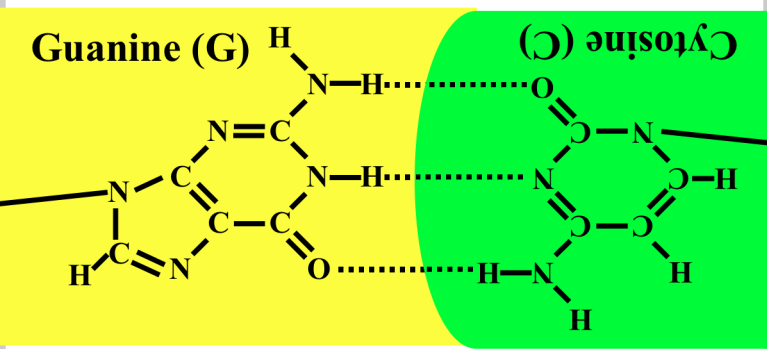
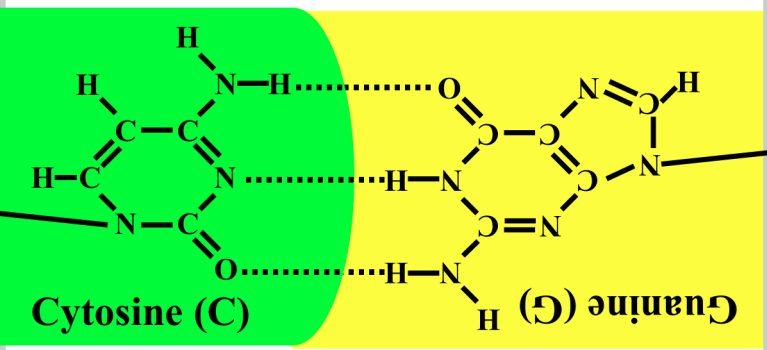
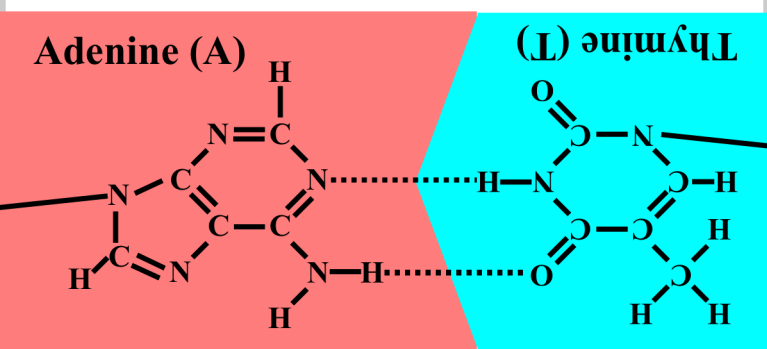


DNA strand

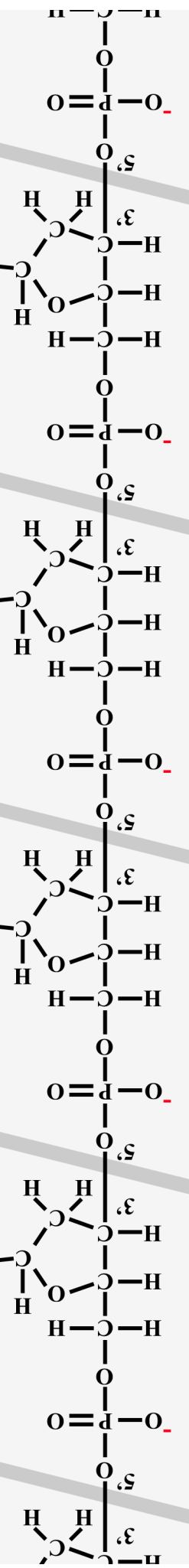




**RNA strand**



**DNA strand**



## Genetic code

		Second base					
		U	C	A	G		
First base	U	UUU } <b>Phe (F)</b> UUC } UUA } <b>Leu (L)</b> UUG }	UCU } UCC } <b>Ser (S)</b> UCA } UCG }	UAU } <b>Tyr (Y)</b> UAC } UAA } <b>Stop (*)</b> UAG }	UGU } <b>Cys (C)</b> UGC } UGA } <b>Stop (*)</b> UGG } <b>Trp (W)</b>	U C A G	
	C	CUU } CUC } <b>Leu (L)</b> CUA } CUG }	CCU } CCC } <b>Pro (P)</b> CCA } CCG }	CAU } <b>His (H)</b> CAC } CAA } <b>Gln (Q)</b> CAG }	CGU } CGC } <b>Arg (R)</b> CGA } CGG }	U C A G	
	A	AUU } AUC } <b>Ile (I)</b> AUA } AUG } <b>Met (M)</b>	ACU } ACC } <b>Thr (T)</b> ACA } ACG }	AAU } <b>Asn (N)</b> AAC } AAA } <b>Lys (K)</b> AAG }	AGU } <b>Ser (S)</b> AGC } AGA } <b>Arg (R)</b> AGG }	U C A G	
	G	GUU } GUC } <b>Val (V)</b> GUA } GUG }	GCU } GCC } <b>Ala (A)</b> GCA } GCG }	GAU } <b>Asp (D)</b> GAC } GAA } <b>Glu (E)</b> GAG }	GGU } GGC } <b>Gly (G)</b> GGA } GGG }	U C A G	

## Genetic code

		Second base					
		U	C	A	G		
First base	U	UUU } <b>Phe (F)</b> UUC } UUA } <b>Leu (L)</b> UUG }	UCU } UCC } <b>Ser (S)</b> UCA } UCG }	UAU } <b>Tyr (Y)</b> UAC } UAA } <b>Stop (*)</b> UAG }	UGU } <b>Cys (C)</b> UGC } UGA } <b>Stop (*)</b> UGG } <b>Trp (W)</b>	U C A G	
	C	CUU } CUC } <b>Leu (L)</b> CUA } CUG }	CCU } CCC } <b>Pro (P)</b> CCA } CCG }	CAU } <b>His (H)</b> CAC } CAA } <b>Gln (Q)</b> CAG }	CGU } CGC } <b>Arg (R)</b> CGA } CGG }	U C A G	
	A	AUU } AUC } <b>Ile (I)</b> AUA } AUG } <b>Met (M)</b>	ACU } ACC } <b>Thr (T)</b> ACA } ACG }	AAU } <b>Asn (N)</b> AAC } AAA } <b>Lys (K)</b> AAG }	AGU } <b>Ser (S)</b> AGC } AGA } <b>Arg (R)</b> AGG }	U C A G	
	G	GUU } GUC } <b>Val (V)</b> GUA } GUG }	GCU } GCC } <b>Ala (A)</b> GCA } GCG }	GAU } <b>Asp (D)</b> GAC } GAA } <b>Glu (E)</b> GAG }	GGU } GGC } <b>Gly (G)</b> GGA } GGG }	U C A G	

<p><b>Glutamate</b> (Glu or E)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \\   \\ \text{O} = \text{C} - \text{OH} \end{array}$	<p><b>Isoleucine</b> (Ile or I)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{H}_3\text{C} - \text{CH} \\   \\ \text{CH}_2 \\   \\ \text{CH}_3 \end{array}$	<p><b>Glutamine</b> (Gln or Q)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \\   \\ \text{O} = \text{C} - \text{NH}_2 \end{array}$	<p><b>Leucine</b> (Leu or L)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{H}_3\text{C} - \text{CH} \\   \\ \text{CH}_3 \end{array}$	<p><b>Tryptophan</b> (Trp or W)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{Indole ring} \end{array}$	<p><b>Phenylalanine</b> (Phe or F)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{Benzene ring} \end{array}$	
<p><b>Aspartate</b> (Asp or D)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{O} = \text{C} - \text{OH} \end{array}$	<p><b>Threonine</b> (Thr or T)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{HO} - \text{CH} \\   \\ \text{CH}_3 \end{array}$	<p><b>Asparagine</b> (Asn or N)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{O} = \text{C} - \text{NH}_2 \end{array}$	<p><b>Cysteine</b> (Cys or C)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{SH} \end{array}$	<p><b>Proline</b> (Pro or P)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \quad   \\ \text{H}_2\text{C} \quad \text{CH}_2 \\   \quad   \\ \text{C} \\   \\ \text{H}_2 \end{array}$	<p><b>Serine</b> (Ser or S)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{OH} \end{array}$	
<p><b>Arginine</b> (Arg or R)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \\   \\ \text{NH} \\   \\ \text{H}_2\text{N}^+ = \text{C} - \text{N}^+\text{H}_2 \end{array}$	<p><b>Lysine</b> (Lys or K)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \\   \\ \text{N}^+\text{H}_3 \end{array}$	<p><b>Methionine</b> (Met or M)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \\   \\ \text{S} \\   \\ \text{CH}_3 \end{array}$	<p><b>Tyrosine</b> (Tyr or Y)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{Benzene ring} \\   \\ \text{OH} \end{array}$	<p><b>Histidine</b> (His or H)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_2 \\   \\ \text{Imidazole ring} \end{array}$	<p><b>Glycine</b> (Gly or G)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{H} \end{array}$	
<p><b>Valine</b> (Val or V)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{H}_3\text{C} - \text{CH} \\   \\ \text{CH}_3 \end{array}$	<p><b>Amino terminus</b> (N)</p> <p>H —</p>	<p><b>Carboxyl terminus</b> (C)</p> <p>— OH</p>	<p><b>Amino terminus</b> (N)</p> <p>H —</p>	<p><b>Carboxyl terminus</b> (C)</p> <p>— OH</p>	<p><b>Amino terminus</b> (N)</p> <p>H —</p>	<p><b>Carboxyl terminus</b> (C)</p> <p>— OH</p>
					<p><b>Alanine</b> (Ala or A)</p> $\begin{array}{c} \text{H} \quad \text{H} \quad \text{O} \\   \quad   \quad    \\ \text{N} - \text{C} - \text{C} \\   \\ \text{CH}_3 \end{array}$	