DNA Deoxribose
1. 1st nucleus of the cell
2. mitochondrial DNA
   t-RNA → mRNA
3. The sequence of codons in mRNA that specifies the amino acids order for the synthesis of proteins
4. A change in the DNA base sequence that alters the formation of a protein in a cell.
RNA
RNA Andeosin
RNA  Guanosine

Guanine
RNA

Uridine
17.1D

Purines
Pyrimidines
Adenine
Adenosine
Ribosome
17.1 A.

DNA  A, G, C, T
RNA  A, G, C, U
2. DNA deoxyribose
   RNA ribose
17.1B

a. Cytosine
   pyrimidine

b. Adenine
   purine

c. Guanine
   purine

d. Thymine
   pyrimidine
Nucleotides - from when the C 5' - OH group of the ribose or deoxyribose in a nucleoside forms a phosphate ester.
DNA Four nucleotides

- deoxyadenosine 5' monophosphate (dAMP)
- deoxythymidine 5' monophosphate (dTMP)
- deoxycytidine 5' monophosphate (dCMP)
- deoxyguanosine 5' monophosphate (dGMP)
RNA Four nucleotides

- adenosine 5' monophosphate (AMP)
- uridine 5' monophosphate (UMP)
- cytidine 5' monophosphate (CMP)
- guanosine 5' monophosphate (GMP)
Nucleotides are held together in a nucleic acid chain by phosphodiester bonds between the 3' -OH of sugar (ribose or deoxyribose) and a phosphate group on the 5' - carbon of another sugar.
DNA

Amount of purines = Amount of Pyrimides

A = T
G = C
3' ends

5' ends
### Relative Proportion (%) of Bases in DNA

<table>
<thead>
<tr>
<th>Organism</th>
<th>A</th>
<th>T</th>
<th>G</th>
<th>C</th>
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<tr>
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<td>30.9</td>
<td>29.4</td>
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<td>32.1</td>
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<td>17.3</td>
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<tr>
<td>Wheat</td>
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<td>27.1</td>
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<td>Yeast</td>
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<td>32.9</td>
<td>18.7</td>
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<tr>
<td>E. Coli</td>
<td>24.7</td>
<td>23.6</td>
<td>26.0</td>
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</table>
17.2B

1. Adenine, Guanine, Uracil, Cytosine

2. Adenine 5' monophosphate

3. Cytosine 3' monophosphate
17.3A

1. Double helix
2. 3' to 5'
3. A-T  G-C
4. complementary
17.3B

1. ATGCTTTGGCCTCC
   TACGAAACCGAGG

2. HW

3. HW
DNA $\rightarrow$ mRNA $\downarrow$
   $\rightarrow$ rRNA $\downarrow$
   $\rightarrow$ tRNA
DNA is found

1) Eukaryotic cells
   for animals and plants

2) Prokaryotic cells
   for bacteria
DNA Replication

- a strand of DNA separates.
- the strand acts as a template.
- DNA polymerase catalyzes the formation of the phosphodiester bonds between nucleotides.
- Process form a daughter DNA from the parent DNA.
- DNA polymerase moves in the opposite direction along the strands of DNA.
RNA

1) The sugar is ribose
2) The nitrogen base uracil replaces thymine
3) RNA molecules are single stranded.
4) RNA molecules are smaller than DNA.
Messenger RNA (mRNA) carries genetic information from DNA in the nucleus to the ribosomes in the cytoplasm for protein synthesis. (Transcription)
Transfer RNA (tRNA), the smallest of the RNA molecules, interprets the genetic information of mRNA and brings specific amino acids to the ribosomes for protein synthesis. (translation)

There are one or more t-RNAs for each of the amino acids.

Each tRNA contains an anticodon which is a series of bases on a mRNA.
Ribosomal RNA (rRNA) is contained in the ribosomes. Ribosomes are sites for protein synthesis. Cells that synthesize large# of proteins have thousands of ribosomes in their cells.
Test

#9. TAACGTGG
mRNA AUUGGACC

① \[ \frac{150}{3} = 50 \]

② DNA -ATA- GCC-TTT-GGC -AAC
mRNA-UAA-CCA-AAA-CCG-UUG

Protein Tyr-Arg-Lys-Pro-Leu
1st nucleus

2nd mitochondrial DNA (mtDNA) is found outside the nucleus and is inherited solely by the mother.
Up to 17.3B
Lipid WS

1. 34-35

2. Draw an acid

3. What makes an acid naturally occurring?

4. Order acids by boiling pts.

5. #20

6. Draw the steroid ring
Amino acid WS
(Given the amino acids)
1. P, N, A, B
2. Draw the protein given 4 amino acids
3. Given the drawing find amino acid sequence.
4. Star the chiral carbons given the drawn amino acids.
17.43

1. Nucleus

2. one (it separates)

4. \( \text{DNA} \rightarrow \text{mRNA} \)
   
   - \( G \rightarrow C \)
   - \( A \rightarrow U \)
   - \( T \rightarrow A \)
   - \( C \rightarrow G \)
Codons come in three

DNA  AAT
RNA  UUA
Amino Acid made: Leu
17.5 C

\[
\frac{270}{3} = 90 \text{ amino acids}
\]
21 – 25

21. Make complementary DNA (B)
22. mRNA goes to ribosomes (E)
23. tRNA picks up amino acids (D)
24. tRNA assembles amino acids (A)
25. Protein is formed and breaks away. (C)
for the sugars which is used for the RNA and DNA. (Drawing or name)
RNA