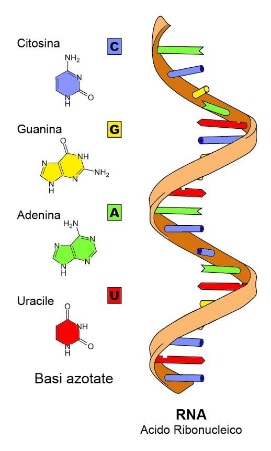
**CLASSES OF ORGANIC MOLECULES**

Biology 12

Sec. 2.8

Pg40-41

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

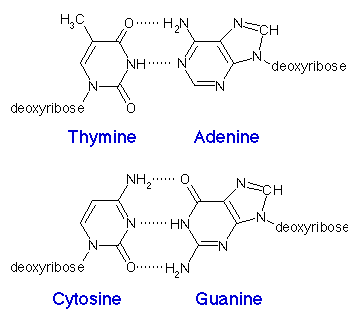
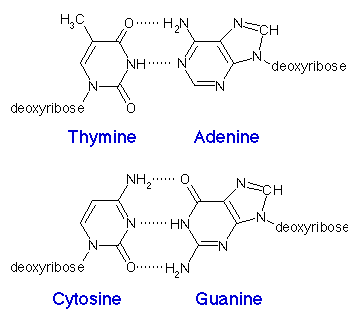
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IV. NUCLEIC ACIDS

|  |  |  |
| --- | --- | --- |
| **Nucleic Acids (DNA & RNA)** | | |
| **Function** | ***Nucleic Acids help store, transmit and help express hereditary information***  **D**eoxyribo**n**ucleic **A**cid: **R**ibo**n**ucleic **A**cid: | |
| **General structure of the monomer:** | | **Types of Bases** |
|  | | C:\Users\e17532\Desktop\nucleobase-6dbb1f04-4bf8-4aeb-b0e0-d790fdeff5e-resize-750.jpg  Purines:  C:\Users\e17532\Desktop\nucleobase-6dbb1f04-4bf8-4aeb-b0e0-d790fdeff5e-resize-750.jpgC:\Users\e17532\Desktop\nucleobase-6dbb1f04-4bf8-4aeb-b0e0-d790fdeff5e-resize-750.jpgC:\Users\e17532\Desktop\nucleobase-6dbb1f04-4bf8-4aeb-b0e0-d790fdeff5e-resize-750.jpg  Pyrimidines:  **Complementary base pairing** occurs when purines form \_\_\_\_\_\_\_\_\_ bonds with pyrimidines |
| **General structure of a polymer:** | | **DNA Structure vs. RNA Structure** |
| The phosphate group of one nucleotide joins the sugar of another nucleotide through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_to form the **sugar-phosphate backbone** of the polymer  **C:\Users\e17532\Desktop\2000px-RNA-Nucleobases.svg.png C:\Users\e17532\Desktop\double-stranded-dna_med.jpeg**  (\*A single molecule of **DNA** can contain millions of **base pairs**.) | |  |
| **Adenosine Triphosphate (ATP) pg 41** | | |
| **Structure:**  **Adenosine** = adenine + ribose (sugar)  **ATP** = Adenosine + 3 phosphates  (instead of 1 like in nucleotides)  C:\Users\e17532\Desktop\blog-header-ATP-molecular-600x338.png  (ATP created from the breakdown of glucose in food) | | **Function:**  Energy carrier in cells (supplies energy for chemical reactions in cells, ex. synthesis of macromolecules, contractions in muscle cells)  Related image  The bond between the last 2 phosphates is unstable and a high energy bond that is easily broken by \_\_\_\_\_\_\_\_\_ to release energy. |

1. What is the monomer of nucleic acids? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ What is it composed of? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Label the nucleobases in the diagram below as purines or pyrimidines. What type of bond allows for complementary base pairing? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ How does the pairing differ for each set of base pairs? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Explain what is meant by the term antiparallel. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What type of bond joins nucleotides? Name and describe it. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Compare and contrast the structure of DNA to RNA (# of strands, shape, sugars, and bases)
4. Why is ATP called the “energy currency” of cells? (p.41) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_