Nucleic Acids

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| **Monomer:** | Nucleotide |
| **Polymer:** | Polynucleotide |
| **Nucleotide Structure:** | **1)**Pentose  -Ribose: RNA  -Deoxyribose: DNA  **2)**Nitrogenous base  -Purines (2 rings): Adenine, Guanine  -Pyramidines (1 ring): Cytosine, Thymine (DNA),  Uracil (RNA)  **3)**Phosphate Group |
| **Reaction type to form Polymer:** | Dehydration synthesis |
| **Bond Formed:** | Phosphodiester Linkage |
| **Composition of Backbone:** | Sugar-Phosphate |
| **5' and 3' ends** | 5': Phosphate group at pentose C-5  3': Hydroxyl group at pentose C-3 |
| **DNA:** | **RNA:** |
| **Pentose:** deoxyribose | **Pentose:** ribose |
| **Bases and Pairing:** A-T G-C | **Bases and Pairing:** A-U G-C |
| **Structure:** two antiparallel and complementary strands, double helix, held together by H-bonding between complementary base pairs on the opposing strands | **Structure:** single stranded, may bind to self or other RNA molecules at complementary sections, this orients the molecule for proper functionality |
| **Function:**  Holds genetic code for RNA synthesis and therefore polypeptide synthesis, self-replicating, passes genetic code between parent cells and daughter cells and to offspring | **Function:**  mRNA brings code for polypeptide synthesis to ribosome  tRNA brings proper amino acids to ribosome based on mRNA sequence |