**DNA vs RNA**

|  | **DNA** | **RNA** |
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| **Stands for:** | DeoxyriboNucleicAcid | RiboNucleicAcid |
| **Definition:** | A nucleic acid that contains the genetic instructions used in the development and functioning of all modern living organisms(scientists believe that RNA may have been the main genetic material in primitive life forms). | A single-stranded chain of alternating phosphate and ribose units with the bases Adenine, Guanine, Cytosine, and Uracil bonded to the ribose. RNA molecules are involved in protein synthesis and sometimes in the transmission of genetic information. |
| **Job/Role:** | Medium of long-term storage and transmission of genetic information | Transfer the genetic code needed for the creation of proteins from the nucleus to the ribosome. |
| **Unique Features:** | The helix geometry of DNA is of B-Form. DNA is completely protected by the body, i.e., the body destroys enzymes that cleave DNA. DNA can be damaged by exposure to Ultra-violet rays | The helix geometry of RNA is of A-Form. RNA strands are continually made, broken down and reused. RNA is more resistant to damage by Ultra-violet rays. |
| **Predominant Structure:** | Double- stranded molecule with a long chain of nucleotides | A single-stranded molecule in most of its biological roles and has a shorter chain of nucleotides |
| **Bases & Sugars:** | Deoxyribose sugar; phosphate backbone; Four bases: adenine, guanine, cytosine and thymine | Ribose sugar; phosphate backbone. Four bases: adenine, guanine,cytosine, and uracil |
| **Pairing of Bases:** | A-T(Adenine-Thymine), G-C(Guanine-Cytosine) | A-U(Adenine-Uracil), G-C(Guanine-Cytosine) |
| **Stability:** | Deoxyribose sugar in DNA is less reactive because of C-H bonds. Stable in alkaline conditions. DNA has smaller grooves, which makes it harder for enzymes to "attack" DNA. | Ribose sugar is more reactive because of C-OH (hydroxyl) bonds. Not stable in alkaline conditions. RNA has larger grooves, which makes it easier to be attacked by enzymes. |
| **Propagation:** | DNA is self-replicating. | RNA is synthesized from DNA when needed. |