Comparison of DNA and RNA

Key Points	DNA	RNA
Structure		
Abbreviations	DNA stands for DEOXYRIBONUCLEIC ACID	RNA stands for RIBONUCLEIC ACID
Functions	It is responsible for the storage of genetic code long term	It is responsible for transportation of genetic information from DNA to the cells where proteins are prepared
Strands	DNA is double stranded except some viruses which have single stranded DNA	RNA is single stranded except few viruses which have double stranded RNA
Sugar	DNA have Deoxyribose sugar	RNA contains Ribose sugar
Bases	It contains bases i.e., adenine, guanine, cytosine and thiamine	It contains bases i.e., adenine, guanine, cytosine and uracil
Pairing	Adenine paired with Thiamine	Adenine paired with Uracil
Chargaff's Rule	Purine is equal to Pyrimidine so obey rule	Purine is not equal to Pyrimidines so not obey the rule
Genetic Material	DNA is the genetic material in all living organisms	RNA is the genetic material in few viruses
Length	DNA contains millions of nucleotides	RNA contains only few thousand nucleotides
Types	DNA have only single form in which it is present in organisms	RNA has three types mRNA, rRNA, tRNA
Presence	Present in Nucleus, Nucleolus and the extrachromosomal DNA in Chloroplast and Mitochondria	mRNA is present Nucleolus tRNA and rRNA is present in Cytoplasm
Replication	It can replicate itself	It can not replicate but formed by DNA
Modification	Bases are not modified	Bases are modified
Hydrolysis by Alkalis	It cannot be hydrolyzed easily by alkalis because of stability	It can be easily hydrolyzed because of its instability
Life time	It is long lived	It is short lived
Catalytic	Not any natural DNA is catalytic	It is catalytic
Hydrogen Bonds	Hydrogen bonds are present between the complementary bases of the opposite strands such as AT CG	Bases pairing through hydrogen bonds occurs during coil formation
Quantity	Its quantity is fixed	Its quantity is variable for cell
Prone	More prone to the UV damage	Less prone to the UV damage
Read	It can be read by polymerase	It can be read by ribosomes
Direction	Read **3'→5'**	Formed **5'→3'**