Biology

GENETIC INFORMATION & TRANSCRIPTION

DNA

- carries genetics intructions
- consists two strands coiled into a double helix
- made up of nucleotides

Structure

-double helix

Functions

-Stores genetic information for growth

Significance

-holds the instructions to build proteins

RNA

- single-stranded molecule
- key role in synthesis of proteins
- convert genetic information in DNA into proteins.

Structure

-single-stranded

Functions

-as a template for protein synthesis

Significance

-facilities the expression of genetic information from DNA

mRNA

- carries genetic information from DNA
- template for protein synthesis
- act as messenger in synthesizes proteins

Structure

-single strand of RNA

Functions

-transcribes genetic information from DNA

-carries it to ribosomes

Significance

-messenger between genetic code in DNA

Transcription process

Structure

- DNA, RNA polymerase, promoter and terminator

Functions

-Convert DNA into mRNA

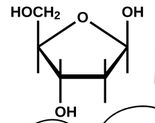
Significance

-Essential for protein production

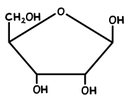
Why Genetic Information Is Transcribed from DNA to RNA

- Protection of DNA
- Efficient Regulation

- Initiation
- Elongation
- Termination



COMPARE DNA & RNA



DNA	RNA
• Double-stranded, with deoxyribose sugar in its backbone. • It uses the nitrogenous bases adenine (A), thymine (T), cytosine (C), and guanine (G). • Serves as the genetic blueprint for all cellular activities. It stores genetic information necessary for growth, and reproduction.	• Single-stranded, with ribose sugar in its backbone. • It has adenine (A), cytosine (C), guanine (G), and uses uracil (U) instead of thymine. • Functions mainly in protein synthesis and gene expression. It transfers genetic information from DNA to ribosomes.

IMPORTANCE OF mRNA IN TRANSMITTING GENETIC INFORMATION

1. Bridge between DNA & Protein synthesis
2. Process of Transcription
3. Regulation of Gene Expression