

II. DNA → Protein

A. RNA

STRUCTURE:  
Monomer:  
nucleotide

TYPES:  
1. messenger - mRNA  
-transmits info from DNA to protein syn.  
2. transfer - tRNA  
-bonds to 1 specific AA  
3. ribosomal - rRNA  
-component of ribosome

Ribose  
5 C Sugar

Phosphate  
Group

Nitrogen Base  
C ↔ G  
A ↔ U  
-NO T IN RNA

B. PROTEIN SYNTHESIS:  
DNA → TRANSCRIPTION → RNA → TRANSLATION → PROTEIN

TRANSCRIPTION  
1. DNA is unzipped by RNA polymerase  
2. RNA polymerase adds complementary bases  
DNA ACT GAA  
mRNA UGA CUU  
3. Once complete the mRNA is edited (only exons are kept)  
4. mRNA leaves the nucleus, enters the ribosome, heading for a ribosome

RNA  
-mRNA must be read in groups of 3  
n. bases  
= 1 codon =  
Amino Acid  
- start codon =  
AUG = Methionine  
- stop codon =  
UAA, UAG, UGA

TRANSLATION  
-translates mRNA  
codons → AA → polypeptide  
1. mRNA attaches to the ribosome.  
2. Start codon (AUG) is read and tRNA w/ complementary anticodon matches up bringing 1st amino acid.  
3. Process continues with amino acids bonding together w/ peptide bonds until stop codon is read.  
4. Protein detaches  
5. mRNA determines the a.acid  
6. tRNA transports a.a. they can be reused