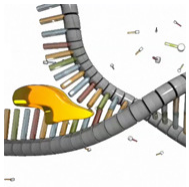
Transcription & Translation

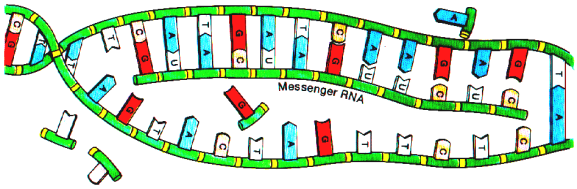
Name _____
Date _____
Block _____

Transcription (in the nucleus)

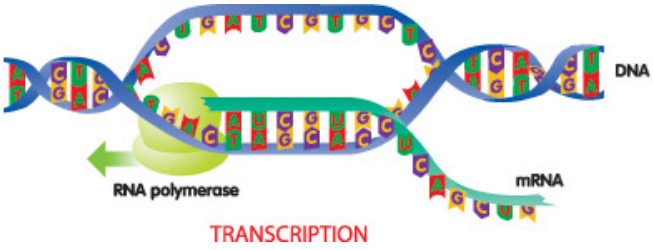
1. _____ (each strand serves as a template for transcription).



2. _____ is formed (basically replication, but an RNA strand is formed as opposed to a DNA strand).



3. _____ (DNA rewinds itself (back into a double helix).



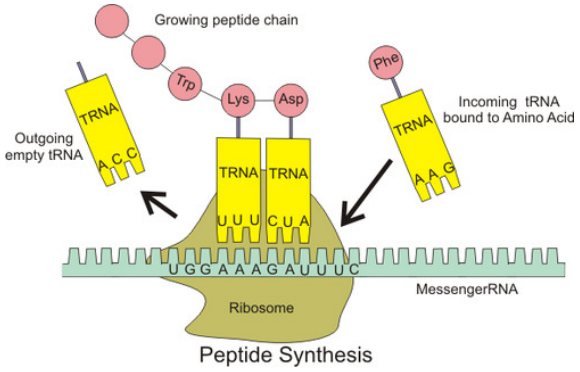
4. mRNA _____.

Translation (in the cytoplasm)

1. _____ (which are made of rRNA) ~ ribosomes are the site of protein synthesis.

2. _____.
   - tRNA has 3 nitrogenous bases (that are collectively called an _____).
   - Anticodon (on tRNA) pairs up with 3 complementary nitrogenous bases (collectively called a codon) on the mRNA.

3. tRNA "drops off" the aa and the _____ _____.



From DNA to Proteins

Scientists have created a chart that allows us to determine the sequence of amino acids in a protein. The chart lists the mRNA codons and their corresponding aa (even though tRNA carries the aa).

Universal Genetic Code Chart

Messenger RNA Codons and Amino Acids for Which They Code

First base	Second base: U	Second base: C	Second base: A	Second base: G	Third base
U	UUU, UUC: PHE UUA, UUG: LEU	UCU, UCC, UCA, UCG: SER	UAU, UAC: TYR UAA, UAG: STOP	UGU, UGC: CYS UGA: STOP UGG: TRP	U C A G
C	CUU, CUC, CUA, CUG: LEU	CCU, CCC, CCA, CCG: PRO	CAU, CAC: HIS CAA, CAG: GLN	CGU, CGC, CGA, CGG: ARG	U C A G
A	AUU, AUC, AUA: ILE AUG: MET or START	ACU, ACC, ACA, ACG: THR	AAU, AAC: ASN AAA, AAG: LYS	AGU, AGC: SER AGA, AGG: ARG	U C A G
G	GUU, GUC, GUA, GUG: VAL	GCU, GCC, GCA, GCG: ALA	GAU, GAC: ASP GAA, GAG: GLU	GGU, GGC, GGA, GGG: GLY	U C A G

Odds & Ends

- In order for a protein to be synthesized (i.e. made), tRNA must first read a _____.

- This means that the tRNA will read (and ignore) the mRNA codons until it reads a start codon (i.e. _____). As soon as this is read, _____.

Summary of Transcription & Translation