Name _____ Date _____ Period _____

CONVERSIONS AND DRAWINGS

1. *Perform* each of the following conversions:

    a. *Convert* `5'-AGCTTCGAT-3'` from DNA to the other strand of DNA. Label the ends of the strands correctly as either 5' or 3'.

    b. *Convert* `5'-AGCTTCGAT-3'` from DNA to mRNA. Label the ends of the strands correctly as either 5' or 3'.

    c. *Convert* `CAAUUGCAUGCCUGAAUUUUGAAGCCCU` from mRNA to protein. Pay attention to the appropriate punctuation marks.

    d. *List* all the individual tRNA *anti-codons* from question c.

2. *Draw* the DNA strands from question 1a. *Use* the appropriate shapes for the sugars, phosphates, and bases. *Label* the hydrogen bonds.

3. *Draw* the process of DNA replication using the strands from question 1a. *Include* helicase, DNA polymerase, ligase, and hydrogen bonds in your drawing. *Label* the ends of the strands correctly as either 5' or 3'. Clearly *indicate* the leading strand and lagging strand.

4. *Draw* the process of transcription using the strands from question 1b. *Include* RNA polymerase and hydrogen bonds in your drawing. *Label* the ends of the strands correctly as either 5' or 3'.

5. *Draw* the process of translation using the mRNA strand from question 1c and the tRNA molecules from questions 1d. *Label* the large ribosomal subunit, small ribosomal subunit, tRNA, anti-codons, hydrogen bonds, mRNA strand, and codons. In your diagram, draw one large ribosome that can hold all of the tRNA's at once even though ribosomes can only actually hold two at a time.