Honors Biology
Protein Synthesis (and DNA, etc) Review

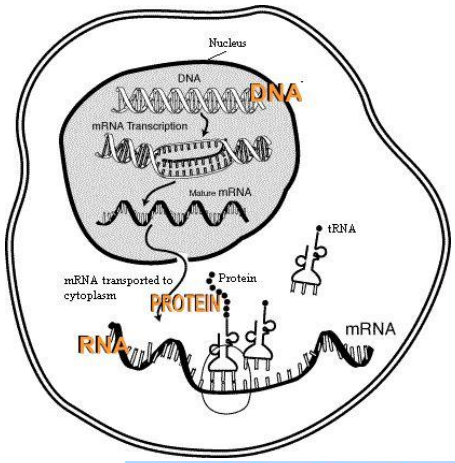
Name_____ Date_____

1. Use the base-pairing rule to complete the other side of the DNA molecule.
   DNA: TAC/GGG/CCC/ACA/TAT/GTG/AGA/ATT
   DNA:

2. Use the base-pairing rule to make an RNA strand from the DNA template.
   DNA: TAC/GGG/CCC/ACA/TAT/GTG/AGA/ATT

   mRNA:

3. Using the amino acid chart, determine the amino acid sequence from the mRNA strand you deciphered in question #2.



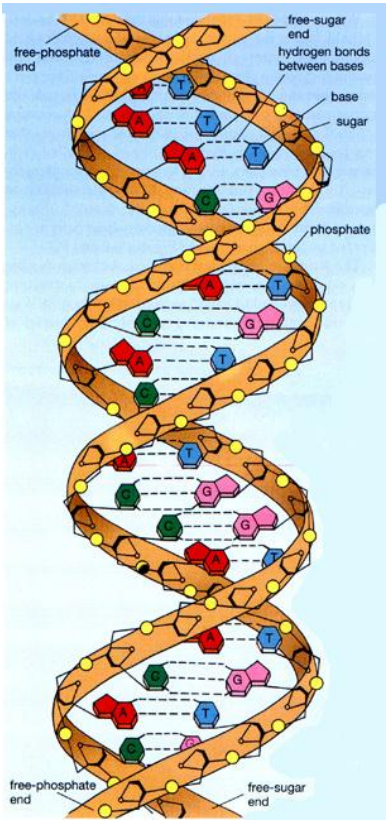
4. What is the process in #2 called?

   a. Where does it occur in the cell?

5. What is the process in #3 called?

   a. Where does it occur in the cell?

6. What is the purpose of tRNA (transfer RNA)?



Matching

a. Strong covalent bonds
b. Weak hydrogen bonds
c. Watson & Crick
d. Rosalind Franklin
e. Nitrogen bases (A, T, G, C)
f. Phosphates

7. Discovered structure of DNA _____
8. Alternates with sugars to make up backbone of DNA _____
9. Make up inside steps of DNA ladder _____
10. Nitrogen bases held together with these bonds _____
11. Backbone of DNA (outside) held together by _____

12. Which step in the protein synthesis process are amino acids important? What would happen if the amino acid was not available?

13. What's the difference between a gene and an allele?

14. What is the relationship between DNA, genes, and chromosomes?

15. Complete the following:

    DNA template: T A C T T A C A G C C G C T C G A T A T C

    mRNA strand: _____

    Amino acid sequence: _____

16. Using #15 as your reference, complete the following and identify mutations taking place.

    DNA strand: T A C T T A C A A C C G C T C G A T A T C

    mRNA strand: _____

    Amino acid sequence: _____

    Will the mutation be noticeable in the phenotype? Why or why not?

17. Using #15 as your reference, complete the following and identify mutations taking place.

    DNA strand: T A C T T A C A G C C G A T C G A T A T C

    mRNA strand: _____

    Amino acid sequence: _____

    Will the mutation be noticeable in the phenotype? Why or why not?

18. What does Francis Crick's famous quote mean?
" The central dogma of modern biology is DNA ⟶ RNA ⟶ Protein"