

Biology 1
DNA Structure & Replication Practice

Name:
Date:

1. What will pair up with each of the following in DNA Replication?

G - T - A - C -

2. When looking at a nucleotide, what does each of the following stand for?

G - T - A - C -

3. If I have 14 guanine and 37 thymine, how many adenine will I have?

4. If there are 12 cytosine and 15 thymine, how many guanine will I have?

5. If a sample of DNA contains 32 % cytosine, what percent of the sample is guanine?

6. If a sample of DNA contains 26 % cytosine, what percent of the sample is adenine?

7. For each of the following complete the missing line:

DNA: TAAGCGTAGCTG

Comp DNA:

DNA: GCCGATATGCAACGCGCCTTAA

Comp DNA:

DNA: CAAAATGCGTGTAATTTGCTTAACGGG

Comp DNA:

DNA: ACTCTCGTGTGAAAATGCTCTCTCCCGGGG

Comp DNA:

8. Explain what the role of DNA helicase is.

9. Explain both roles of DNA polymerase.

10. During what phase of the cell cycle is DNA replicated?

11. What are the 3 parts of a nucleotide?

12. What combines with phosphate to make up the backbone of DNA? (Be specific.)

Biology 1

Transcription & Translation Practice

Original DNA Strand: **TACCCGATACTAAAATGAGAGCGCATT**
Original mRNA Strand: **AUGGGCUAUGAUUUUACUCUCGCGUAA**
Original amino acid sequence: Methionine, Glycine, Tyrosine, Aspartic Acid, Phenylalanine, Threonine, Leucine, Alanine, STOP

Transcribe the mutated DNA into a molecule of mRNA, then translate the mRNA into a sequence of amino acids.

TACCCGATACTAAATGAGAGCGCATT

1. mRNA strand: _____
amino acid sequence: _____

TACCCGATACTAAAATGAGAGGGCATT

2. mRNA strand: _____
amino acid sequence: _____

TACCCGATAAATCAATGAGAGCGCATT

3. mRNA strand: _____
amino acid sequence: _____

TACGAGCGCCCGATACTAAAATGAATT

4. mRNA strand: _____
amino acid sequence: _____

TACCCGATACTAAAATTGAGAGCGCATT

5. mRNA strand: _____
amino acid sequence: _____

TACCCGATACTACTACTAAAATGAGAGCGCATT

6. mRNA strand: _____
amino acid sequence: _____

7. CONCLUSION: How does a mutation affect a protein?