

Worksheet 2: DNA, RNA, and Protein Synthesis

HONORS BIOLOGY: UNIT 5

Directions: Use your notes and book to answer the following questions concerning Replication, Transcription, and Protein Synthesis.

1. Break the following DNA sequence into **triplets**. (Draw a line to separate triplets)

GCGTTACCCGATATGTCAGCGCTAACGATT

2. If the above code showed the bases on one strand of DNA, what would the **complementary strand** read?

3. What would the code in problem #1 be **transcribed** into (What would the mRNA sequence be?)

4. What would the **amino acid sequence** be translated from the mRNA sequence in problem #3? (Use the Genetic Code table below to translate)

Codons Found in Messenger RNA

| | | <i>Second Base</i> | | | | |
|-------------------|---|--------------------|-----|------|------|-------------------|
| | | U | C | A | G | |
| <i>First Base</i> | U | Phe | Ser | Tyr | Cys | <i>Third Base</i> |
| | | Phe | Ser | Tyr | Cys | |
| | | Leu | Ser | Stop | Stop | |
| | | Leu | Ser | Stop | Trp | |
| | C | Leu | Pro | His | Arg | |
| | | Leu | Pro | His | Arg | |
| | | Leu | Pro | Gln | Arg | |
| | | Leu | Pro | Gln | Arg | |
| | A | Ile | Thr | Asn | Ser | |
| | | Ile | Thr | Asn | Ser | |
| | | Ile | Thr | Lys | Arg | |
| | | Met | Thr | Lys | Arg | |
| | G | Val | Ala | Asp | Gly | |
| | | Val | Ala | Asp | Gly | |
| | | Val | Ala | Glu | Gly | |
| | | Val | Ala | Glu | Gly | |