

### Protein Synthesis Worksheet

1. In DNA, adenine binds with \_\_\_\_\_ and guanine binds with \_\_\_\_\_.
2. In RNA, adenine binds with \_\_\_\_\_ and guanine binds with \_\_\_\_\_.
3. Transcription takes place in the \_\_\_\_\_; translation takes place in the \_\_\_\_\_.
4. The monomers (building blocks) of nucleic acids are \_\_\_\_\_.
5. The enzyme responsible for “unzipping” the DNA molecule in preparation for copying is called \_\_\_\_\_.
6. \_\_\_\_\_-RNA is formed from one side of the DNA in a process called \_\_\_\_\_.
7. When this “string” of RNA leaves the nucleus through a nuclear pore, it goes into the cytoplasm and binds to another player, \_\_\_\_\_-RNA (the “site of protein synthesis”).
8. The \_\_\_\_\_-RNA code is “read” and a protein is assembled in a process called \_\_\_\_\_.
9. The monomers (building blocks) of proteins are \_\_\_\_\_, so another form of RNA is necessary to deliver those building blocks to the site of protein synthesis. This is \_\_\_\_\_RNA.
10. The 3 nitrogen bases of DNA are called \_\_\_\_\_; the 3 nitrogen bases of \_\_\_\_\_ are called anticodons; the 3 nitrogen bases of \_\_\_\_\_ are called codons.
11. All of the above steps take place during what PHASE of the cell cycle? \_\_\_\_\_
12. Know these steps in order, and be sure to learn the associated vocabulary.
13. Chromatin is \_\_\_\_\_.
14. A chromosome is \_\_\_\_\_.
15. A gene is \_\_\_\_\_.
16. The genome is \_\_\_\_\_.

The following is the base sequence on one strand of a DNA molecule:

T A G A C T T G C C A A A A C G T A A T T G A C T A T T C C T T A T C C G C A A T G

17. What is the base sequence of the complementary DNA strand?
18. What is the base sequence of the mRNA read from the original DNA strand?
19. Using the mRNA codon chart on the back, determine the order of the amino acids in the protein fragment that would be made? Note: usually only the first 3 letters are used as an abbreviation.