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.