1. 

**Nucleotide-base, sugar and phosphate**

**Hydrogen Bonds-between N bases**

**5 carbon sugar**

5. DNA replication is semi-conservative because in each new DNA molecule there is one new strand and one old strand.

6. Deoxyribose **sugar, Phosphate group,** and a Nitrogen **base (Thymine, Adenine, Guanine or Cystosine)**

7. U (Uracil)

8. A. A/T and C/G

9. hydrogen bonds

10. mRNA

11. **Correct #1: During transcription, an RNA molecule is formed that is complementary to ONE strand of DNA**

 **Or**

**Correct #2: During DNA replication, a DNA molecule is formed that is complementary to both strands of DNA .**

**12. 9 codons are needed. *Every codon is composed of 3 nucleotides, the codon corresponds to 1 Amino Acid.***

**13. AUG**

**14. A. tRNA C. amino acid**

 **B. anticodon**

**15. Methionine, Threonine, Phenylalanine. *(Use table in text or on Genetic Mutations,Translation, or Transcribe and Translate a Gene link,s found on our REVIEW LINK PAGE on our class website)***

**16. Peptide bonds**

**17. TAC TGC AAA**

**18. tRNA- transfers amino acid to ribosome**

 **mRNA- copies genetic code from DNA in nucleus and carries to cytoplasm at ribosome.**

 **rRNA- structural component of a ribosome where protein synthesis occurs.**

**19. 1. RNA single strand**

 **2. Thymine is replaced by Uracil in RNA**

 **3. RNA backbone contains Ribose Sugar instead of Deoxyribose sugar found in DNA**

**20.** *Remember a protein is composed of the polypeptide chain: If we coded from the beginning of the sequence: CCA TAT GCC TGA ATC*

*The answer would be:* **Proline/Tyrosine/Alanine/STOP**

*If we coded from the start Codon: ATG CCT GAA the answer would be:* **Methionine/Proline/Glutamic Acid/**

**21. Insertion (Frame Shift Mutation)**

**22. Frameshift, By shifting the reading frame, frameshift mutations may change every amino acid that follows the point of the mutation. Frameshift mutations may alter a protein so much that it is unable to perform its normal functions.**

**23. No, most are neutral and have little or no effect on the expression of genes or the functions of the proteins for which they code. EXAMPLE: The golden color on half of a red delicious apple….still yummy!**