Name:_____

The RNA world
Chapter 4 worksheet Biology11

1. What are the two requirements for “life”

   a. _____

   b. _____

2. Life started as a _____ molecule and later become enclosed by a _____.

3. Draw the basic structure of a nucleotide

4. What is the difference between a ribonucleotide and a deoxyribonucleotide.

5. There are two problems which the chemical evolution theory can not explain. Briefly describe these to problems.

   a. _____

   b. _____

6. When polymerization reactions occur the _____ hydroxyl attacks the _____ phosphate forming a _____ bond. All polymerization reactions occur in the _____ to _____ direction
7. Why does the building of DNA or RNA require dNTPs or NTPs

8. Discuss the energetics of polymerization reactions

9. What were the three pieces of information the Watson and Crick knew while they were trying to solve DNA structure. When you list the X-ray crystallography data include a brief discussion of what the number mean.

   a. _____

   b. _____

   c. _____

10. What is the reason the purines and only pair with pyrimidines. What is the reason that A must base pair with T, and G must base pair with C

11. Is DNA structure organized in such a way to allow replication? What is the template strand?

12. Why is DNA so stable as a molecule compared to RNA

13. How does RNA structure differ from DNA structure

14. List the reactions that RNA can catalyze.

15. Read section 4.4 in your text and discuss this experiment.