

Print Name _____ Period _____ Date _____

Unit 4 Worksheet 4 DNA and RNA

DNA

1. Give the complementary base sequence of the following DNA strand.

Original strand: T T A C G G T C A C C A A G C G T G

2. List three characteristics of the DNA molecule.

3. List three characteristics of the RNA molecule.

4. What is the purpose of DNA in an organism's body?

5. List the steps of DNA replication.

| |
|----|
| a. |
| b. |
| c. |
| d. |

6. Explain how a single DNA molecule produces two identical molecules?

7. What are the DNA base pairing rules?

8. What are the main forms of RNA?

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9. How does each form of RNA function in the cell?

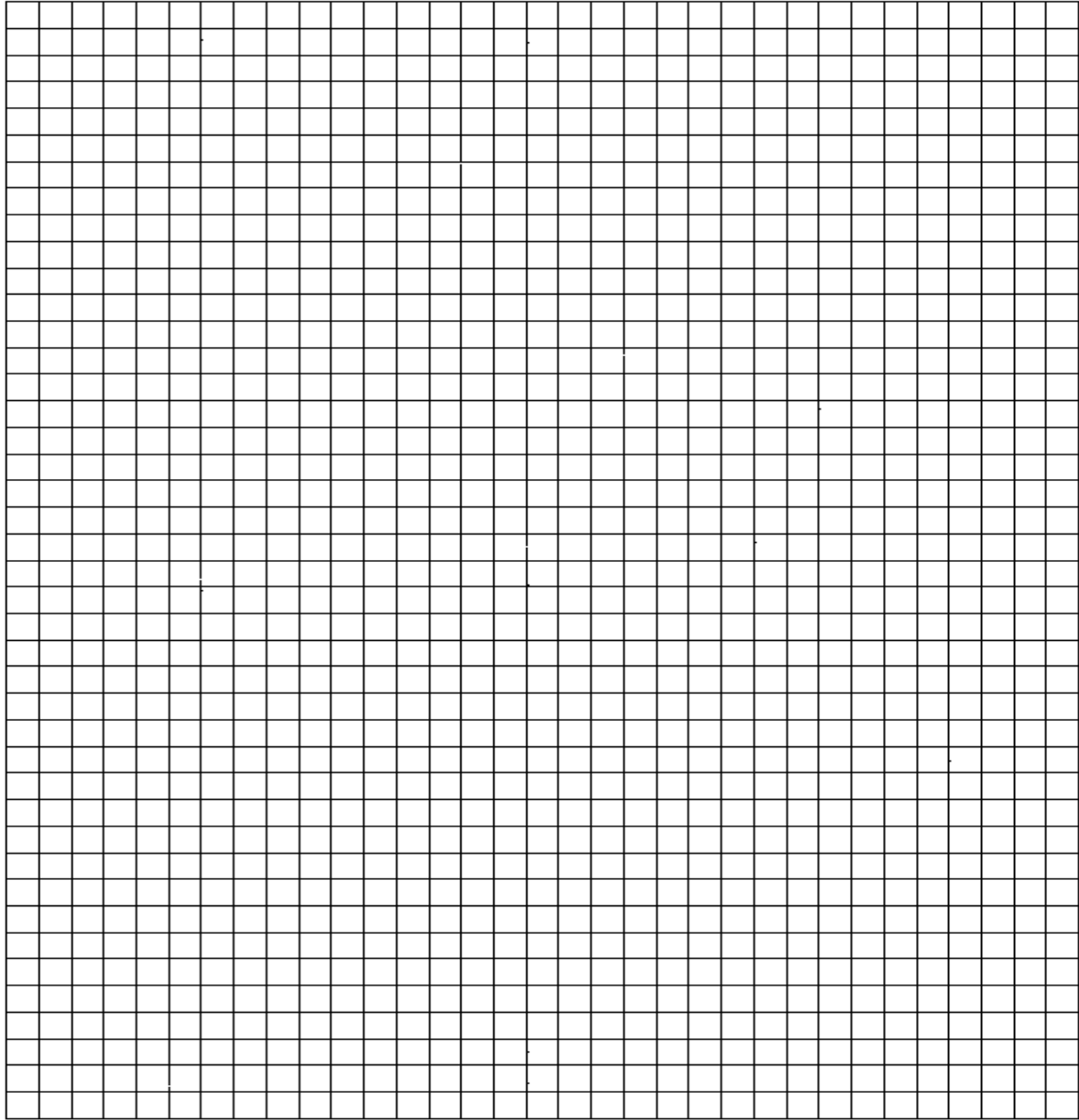
When DNA is bombarded with ultraviolet light, a chemical reaction occurs between two adjoining thymine molecules. The TT complex forms a structure called a thymine dimer (T-T). This dimer will cause a bulge in the structure of the DNA molecule. If it is not repaired it may cause serious damage to the protein that will be produced as a result of translation. Most of these dimers are recognized and repaired by the cell before they can cause such damage. Below you will find data collected from an experiment trying to prove the hypothesis that age as an affect on the development of these dimers. Graph the following data and answer the questions that follow.

| Age in Years | Number of Dimers/ 2000 Nucleotides |
|--------------|------------------------------------|
| 5 | 10 |
| 10 | 15 |
| 20 | 20 |
| 35 | 45 |
| 55 | 60 |
| 75 | 100 |

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Graph Title: _____



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1. What is a dimer? _____.

2. Why are they important to the health of the DNA in the cell?

3. What does the above data indicate concerning, the general well being of, the subjects DNA?

4. Does the collected data support the experimenter's hypothesis? _____

