Name: _____

DNA PAPER MODELS PROCEDURE

Introduction:

Imagine DNA as a twisted ladder. The outside of the ladder is made up of alternating sugar and phosphate molecules. The sugar is called deoxyribose. The rungs of the ladder are made of a pair of molecules called bases. There are four bases in DNA: adenine, guanine, cytosine, and thymine. Because of the chemical structures of the bases, adenine only pairs with thymine and cytosine only pairs with guanine to form a rung.

Procedure:

1. Copy the DNA sequence your group was given below. Then write the complementary DNA sequence below it.

_____

_____

2. Decide how many sugars, phosphates and bases (of each type) that you will need and get them from the baskets on the back table.

3. Cut out any detail that you need to fit the pieces together and correctly arrange them on the table. HAVE THIS CHECKED BEFORE YOU TAPE THEM TOGETHER!

3. Tape them together and write your group's initials on the back.

4. As a whole class, we will assemble them into more complete DNA strands.

Answer the questions below:

Connections:

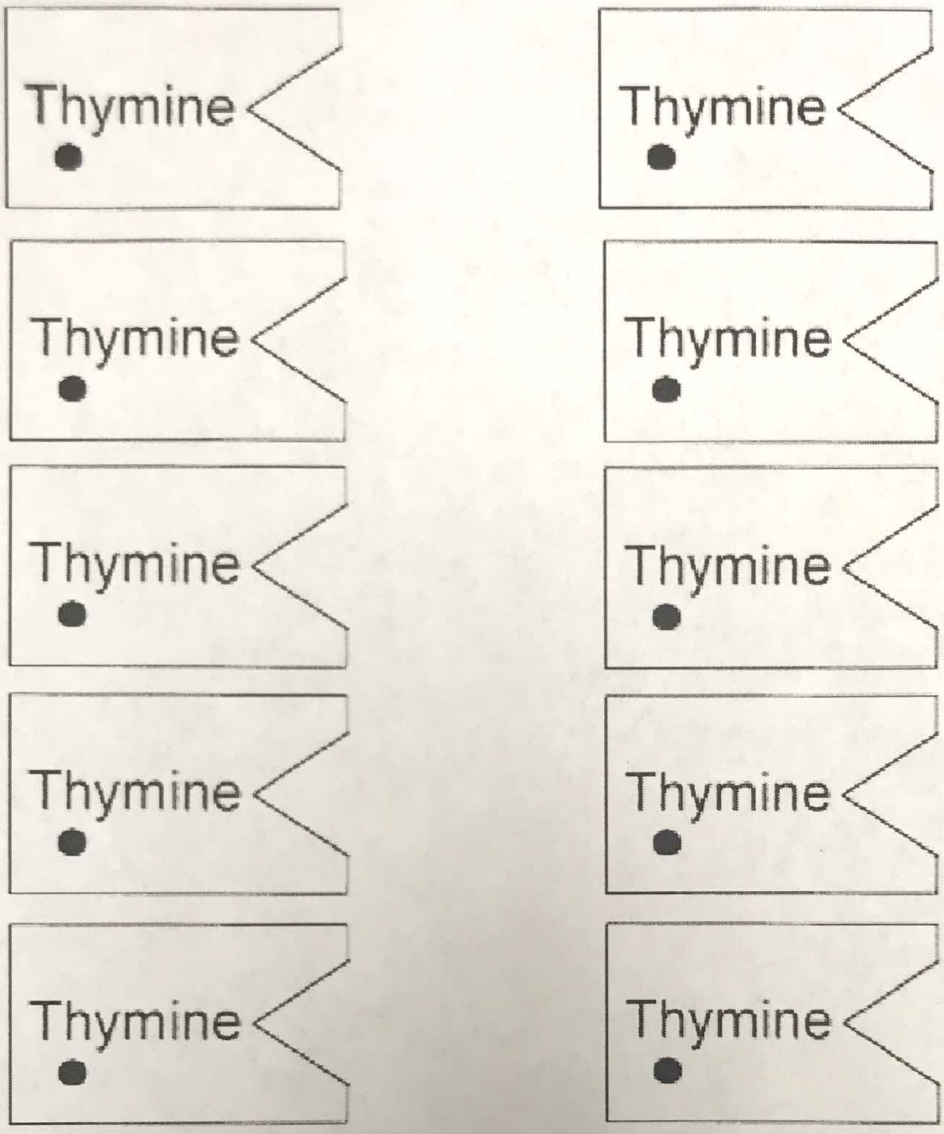
1. What are the three components of a nucleotide? (HINT: What were the three components used in putting the model together? Remember that Adenine, Guanine, Cytosine, and Thymine are all Nitrogen Bases!) Refer to your DNA article if you are still unsure.

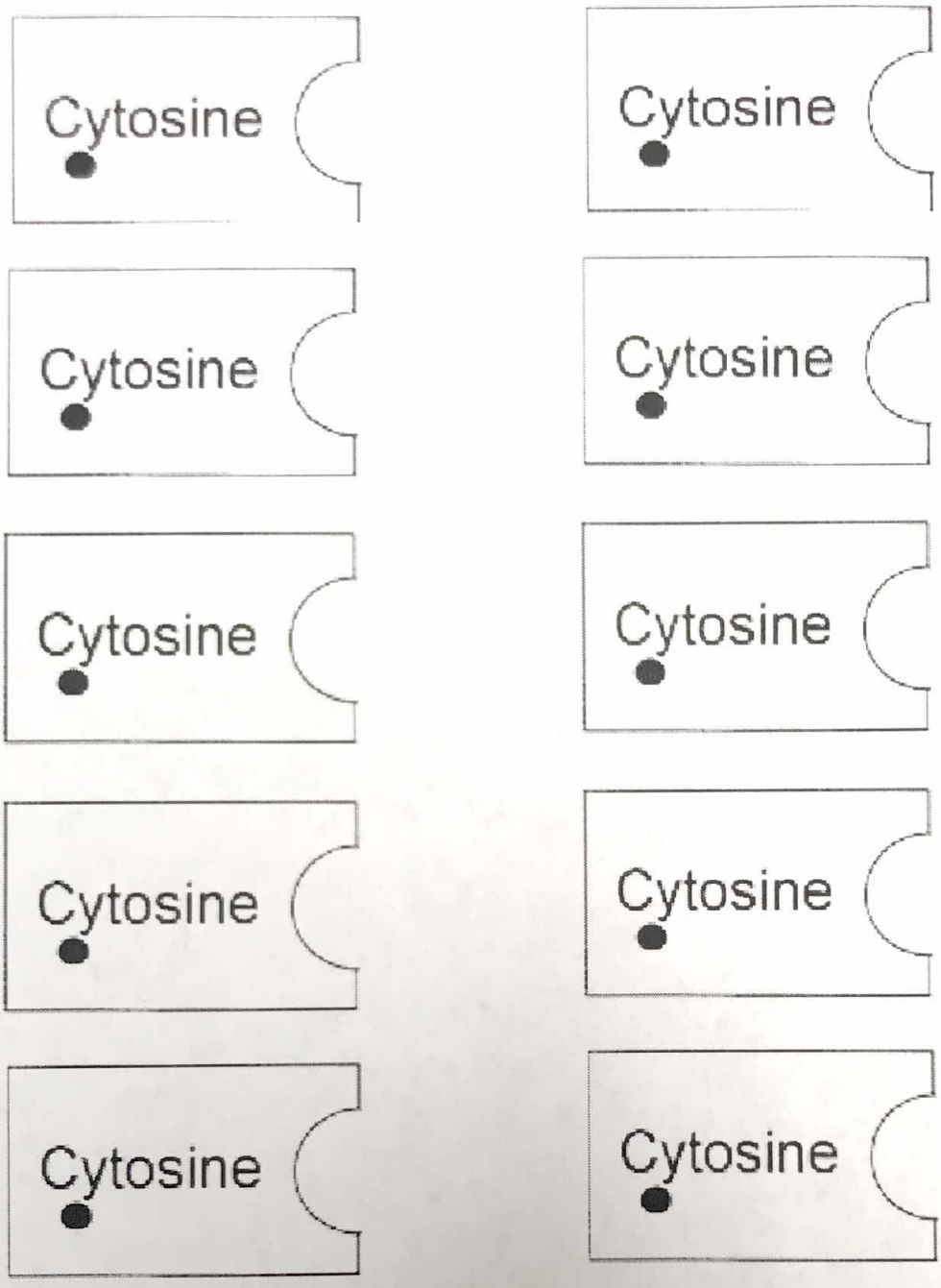
2. What is the name of the sugar molecule in the DNA helix?

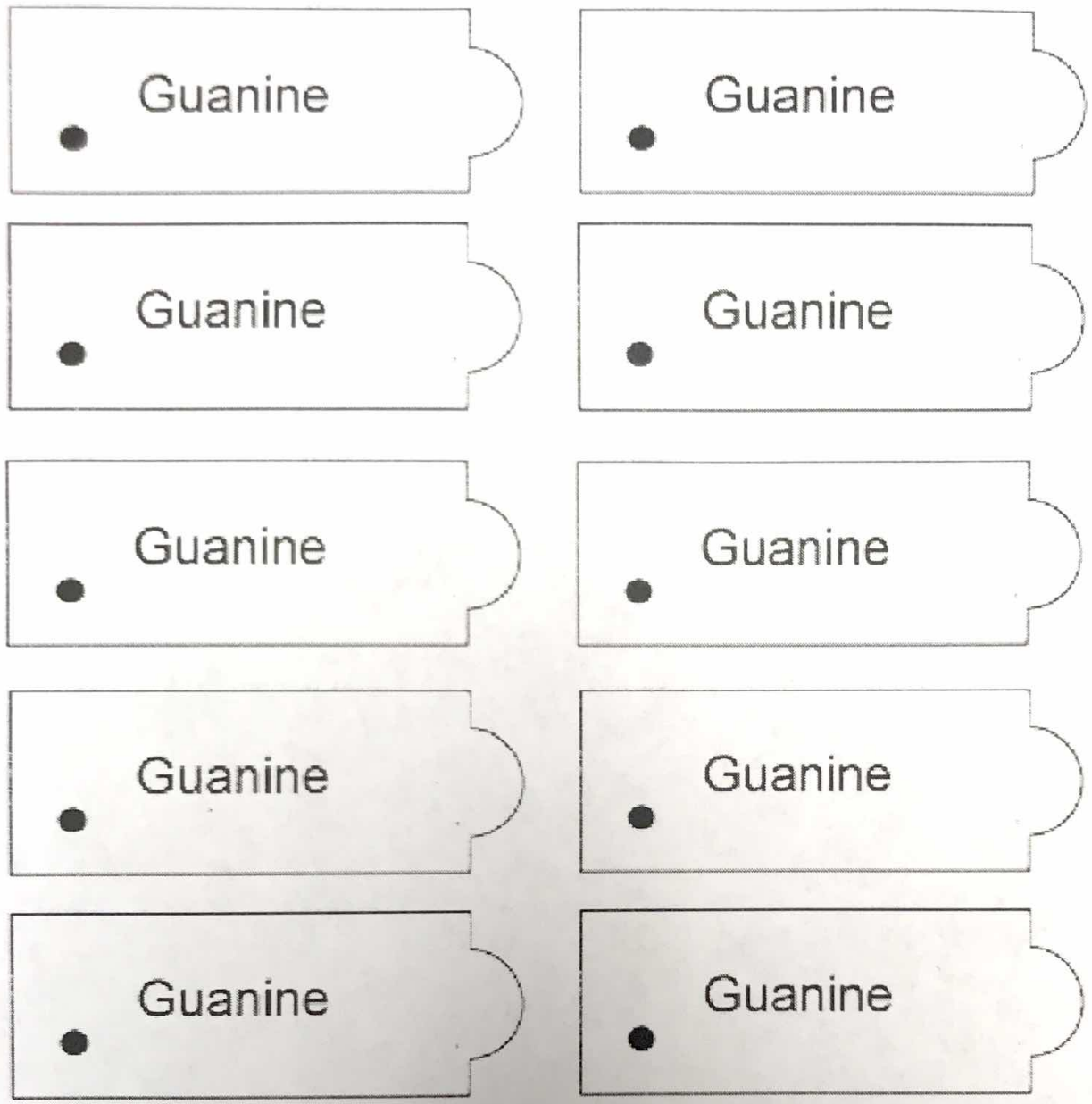
3. Suppose you know that the sequence of bases on one DNA strand (one side of the DNA ladder) is AGCTCAG. What is the sequence of the bases on the opposite strand?

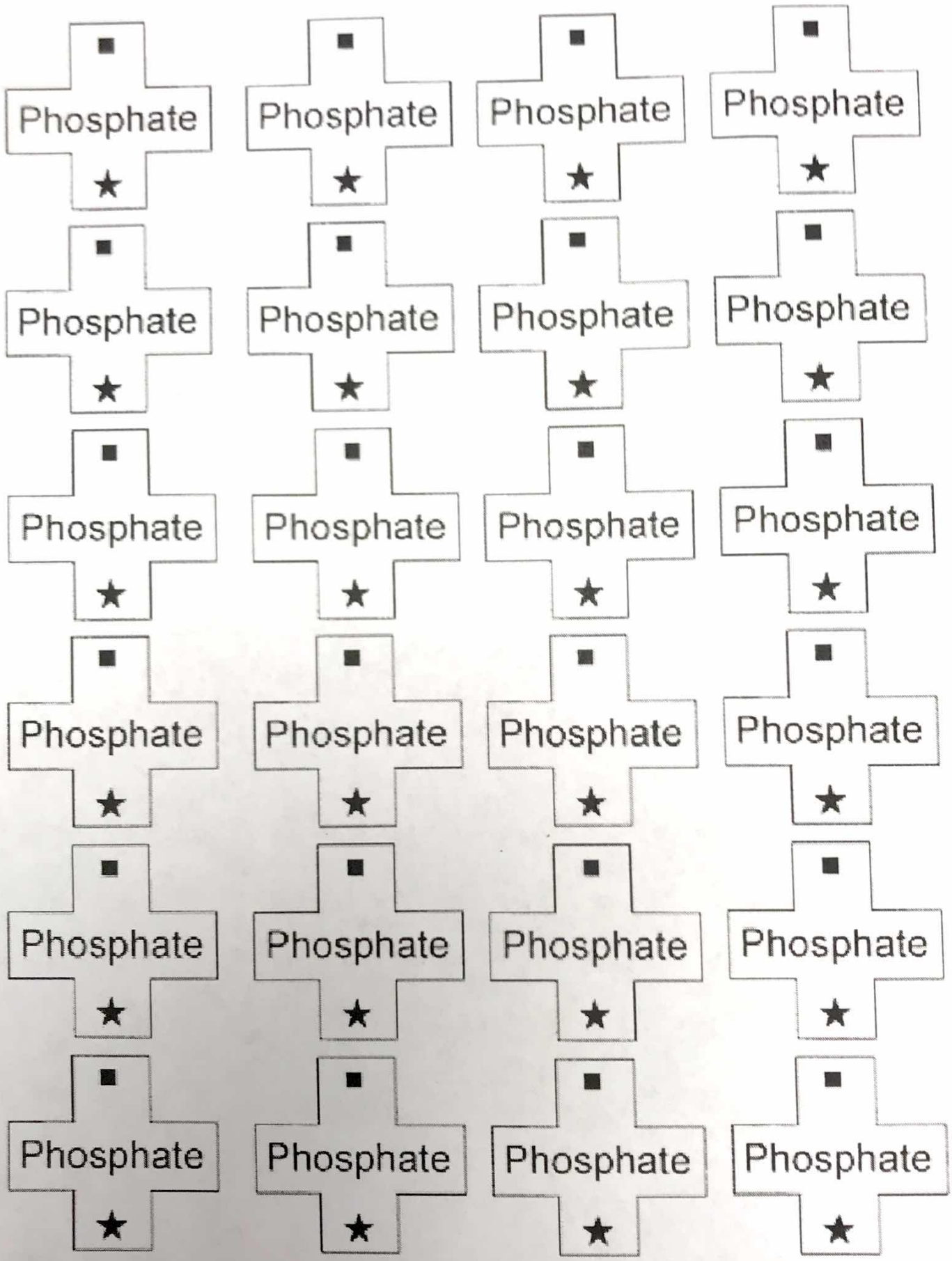
4. Assume that a 100-bair pair DNA double helix contains 45 cytosines. How many adenines are there?

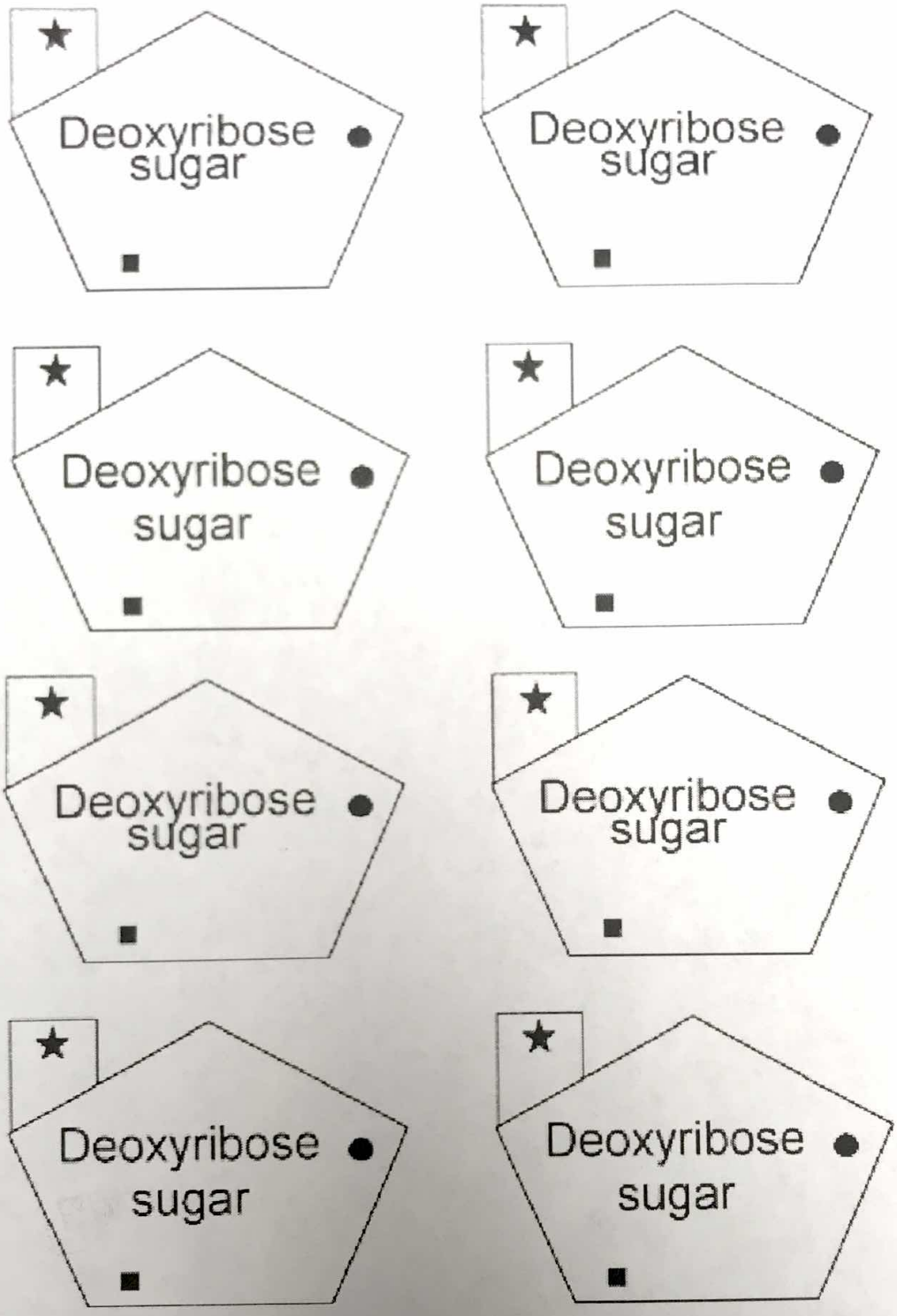
Conclusion: Write a summary of the structure of DNA that (at least) includes the terms: base, sugar, phosphate, nucleotide, (base) pair, and helix. You can use the back of this paper for this.


Thymine
Thymine
Thymine
Thymine
Thymine
Thymine
Thymine
Thymine
Thymine
Thymine


Cytosine
Cytosine
Cytosine
Cytosine
Cytosine
Cytosine
Cytosine
Cytosine
Cytosine
Cytosine


Guanine
Guanine
Guanine
Guanine
Guanine
Guanine
Guanine
Guanine
Guanine
Guanine


Phosphate


Deoxyribose sugar
Deoxyribose sugar
Deoxyribose sugar
Deoxyribose sugar
Deoxyribose sugar
Deoxyribose sugar
Deoxyribose sugar
Deoxyribose sugar