Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lecture Review: Chapter 12.2

**The Components of DNA**

*For Questions 1–5, complete each statement by writing in the correct word or words.*

1. The building blocks of DNA are .
2. Nucleotides in DNA are made of three basic components: a sugar called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and a nitrogenous\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. DNA contains four kinds of nitrogenous bases: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. In DNA, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_can be joined in any order.
5. The nucleotides in DNA are joined by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds.

Follow the directions.

**1.** In the diagram below, the sequence of nucleotides has the code AGCT. Color the diagram using this key:

deoxyribose: red

phosphate group: blue

adenine: yellow

cytosine: green

guanine: orange

thymine: black

**2.** Circle one complete nucleotide.

*Answer the questions.*

**3.** What two parts do all nucleotides have in common? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4.** Each nucleotide is connected to the next nucleotide. The connection is found between

**A.** sugar of one nucleotide and phosphate of another

**B.** base of one nucleotide and sugar of another

**C.** phosphate groups of two nucleotides

**5.** What are the parts of a DNA nucleotide?

*Follow the directions.*

**1.** Write the missing letter to complete each base pair. The first two have been done for you.



|  |
| --- |
| **Key** |
| A = AdenineC = CytosineG = GuanineT = Thymine |

*Answer the questions.*

**2.** What nucleotide is always paired with thymine?

**3.** What nucleotide is always paired with guanine?

**4.** Whose rule does base pairing prove?

**5.** Suppose a strand of DNA has the following code on one side.

A G T C C A G T A

What would be the matching other side of a DNA strand?

* 1. Complete the table by estimating the percentages of each using Chargaff’s rules.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **DNA sample** | **Percent of adenine** | **Percent of thymine** | **Percent of guanine** | **Percent of cytosine** |
| 1 | 31.5 |  |  |  |
| 2 |  | 30 | 20 |  |
| 3 |  |  |  | 17 |