Chapter 12 Reading Guide (p. 342-349)

Define the following words (You may have to look some up):

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| **Nucleotide –** **Deoxyribonucleic Acid –** **Nitrogenous Base –** **Purine –** **Pyrimidine –** **Base-Pairing Rules –** **Complementary Base Pair –** **Base Sequence –**  |

What is the role of DNA in heredity?

Storing information : the genetic material \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ needed by every living cell.

Copying information: Before a cell divides, its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ information must be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Transmitting information: When a cell divides, each \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cell must receive a complete \_\_\_\_\_\_\_\_\_\_\_ of the genetic information.

What are the chemical components of DNA?

List the three parts of a nucleotide.

DNA has four kinds of nitrogenous bases: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Draw and label a picture of a nucleotide

Who was the Austrian – American biochemist that discovered that percentages of A and T bases are almost equal in any sample of DNA?

Which scientist used a technique called X-ray diffraction to get information about the struce of the DNA molecule?

What does the term HELIX refer to in biochemistry?

The clues in Franklin’s X-ray pattern enabled \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to build a model that explained the specific structure and properties of DNA.

One of the surprising aspects of the double-helix model is that the two strands of DNA run in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ directions.

List the four full names (and letters) of the bases in DNA.

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1. The nitrogenous base Adenine can pair with \_\_\_\_\_.

a. Adenine

b. Cytosine

c. Guanine

d. Thymine

2. DNA strands run \_\_\_\_\_ in relation to each other.

a. antiparallel

b. parallel

c. perpendicular

d. both a and b

3. A nucleotide in DNA is composed of \_\_\_\_\_.

a. a deoxyribose sugar, a phosphate, and a nitrogen base

b. only a deoxyribose sugar and a nitrogen base

c. only a deoxyribose sugar and a phosphate

d. none of the above

4. Between the two strands of a DNA segment the nitrogen bases are held together by \_\_\_\_\_.

a. covalent bonds

b. hydrogen bonds

c. ionic bonds

d. metallic bonds

5. Nitrogen bases pair with bases that are \_\_\_\_\_.

a. available

b. complimentary

c. identical

d. both b and c

6. Below is a segment of DNA that is ready to be replicated. DRAW AND LABEL the processes that the

segment will go through during replication. Make sure to include the names of the

enzymes that are involved.



