

Biology 1

8.2 Guided Reading

Please read pages 230-233 and answer the questions below on your own paper using complete sentences.

1. What are the small units (monomers) that make up DNA called?
2. List the three parts that make up a nucleotide.
3. Draw a picture of a nucleotide using the visual vocab. In your book.
4. How many nucleotides does one molecule of DNA contain?
5. How many types of nucleotides are there in DNA?
6. How do nucleotides differ from one another?
7. Name the four nitrogen bases that are found in DNA.
8. What discovery did Erwin Chargaff make regarding DNA?
9. What did Watson and Crick hypothesize about the structure of DNA?
10. Who concluded with X-ray evidence that DNA is a helix?

11. What did Watson and Crick discover about nitrogen base pairs?

12. Describe the double helix model of DNA.

13. Which type of bond connects the sugar of one nucleotide to the phosphate of the next nucleotide?

14. What connects the bases together down the middle of a double helix?

15. What do the base pairing rules describe?

16. What sequence of bases would pair with the sequence TGACTA?

17. Which part of a DNA molecule carries the genetic instructions that are unique for each individual: the sugar-phosphate backbone or the nitrogen-containing bases? Explain.

SECTION

8.2

STRUCTURE OF DNA

Study Guide

KEY CONCEPT

DNA structure is the same in all organisms.

VOCABULARY

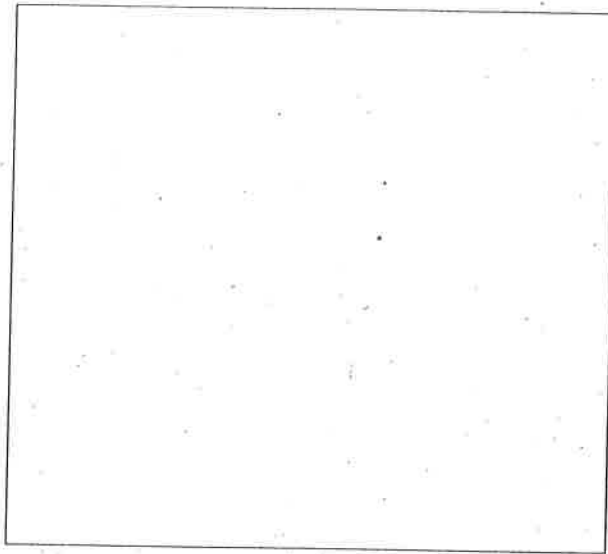
nucleotide

base pairing rules

double helix

MAIN IDEA: DNA is composed of four types of nucleotides.

In the space below, draw a nucleotide and label its three parts using words and arrows.



1. How many types of nucleotides are present in DNA?

2. Which parts are the same in all nucleotides? Which part is different?

MAIN IDEA: Watson and Crick developed an accurate model of DNA's three-dimensional structure.

3. What did Franklin's data reveal about the structure of DNA?

4. How did Watson and Crick determine the three-dimensional shape of DNA?

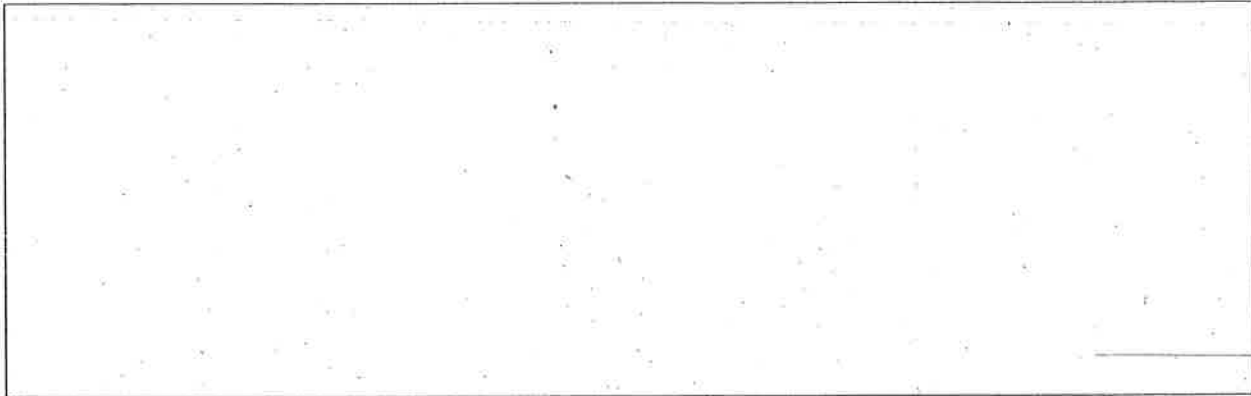
STUDY GUIDE, CONTINUED

5. How does DNA base pairing result in a molecule that has a uniform width?

MAIN IDEA: Nucleotides always pair in the same way.

6. What nucleotide pairs with T? with C?

In the space below, draw a DNA double helix. Label the sugar-phosphate backbone, the nitrogen-containing bases, and the hydrogen bonds.

**Vocabulary Check**

7. Explain how the DNA double helix is similar to a spiral staircase.

8. How do the base pairing rules relate to Chargaff's rules?
