

Teacher Guide & Answers (continued)

- Mendel discovered the basic tenets of heredity by doing experiments on pea plants. By breeding and crossbreeding thousands of pea plants, he was able to ascertain which traits were dominant and which were recessive. By combining plants that had specific dominant traits with those carrying recessive traits, he was able to control which traits were passed along. Published in 1866, his work and conclusions went unnoticed for almost 40 years.

Answers to Student Worksheet

1. Answers will vary. Possibilities include flower color, height, or the position of buds.
2. You do so to combine the desirable traits in the next generations. Other examples include crossbreeding high-yield food plants with drought resistant varieties.

Teaching Transparency (page 43)

DNA's Structure

Section 1

Transparency Teaching Tips

- Explain to the students how the sides of the ladder-shaped spiral hold the rungs, which hold all the genetic information.
- Explain how babies, human and most animals, inherit half their DNA from their mother and half from their father. They can end up with some of the characteristics of each parent.

Reteaching Suggestion

- Have students go back and reread the information in the textbook on life's code.

Extensions

Research: Put the students in pairs and have them research how DNA copies itself. Have them write a paper explaining what they found.

Challenge: In small groups, have students construct a DNA molecule using modeling clay or some other material.

Answers to Student Worksheet

1. The information for all of your body's characteristics and processes.
2. deoxyribonucleic acid
3. the nuclei of all cells
4. shaped like a twisted ladder
5. The rungs are formed by paired bases.
6. Answers will vary. Possibilities include hair color, eye color, nose shape, size, and how you digest food.

Assessment Transparency (page 45)

The Role of Genes in Inheritance

Section 2

Answers

1. **B.** This question requires students to be familiar with the sequence of events in mitosis, in which one cell doubles its DNA and splits into two identical cells.
2. **H.** This question requires students to be familiar with the sequence of events in meiosis, in which one cells doubles its DNA and splits two times to produce four cells with half the original DNA.
3. **D.** This question asks students to compare the two processes and identify the major difference between them.

Test-Taking Tip

Suggest to students that they should use context clues if they find an unfamiliar vocabulary word in a question.