

Directed Reading A

Section: Mendel and His Peas

1. What is heredity?

2. Give one example of something about yourself that has to do with heredity.

WHO WAS GREGOR MENDEL?

_____ 3. Gregor Mendel was born in
a. the United States. c. Germany.
b. Austria. d. Italy.

_____ 4. Gregor Mendel did his research
a. in a laboratory.
b. at a university.
c. at a monastery.
d. on a farm.

UNRAVELING THE MYSTERY

_____ 5. In Mendel's work, first and second generation mean
a. parents and offspring.
b. plants and animals.
c. peas and peapods.
d. one kind of organism.

6. Both male and female reproductive structures are found in
_____ plants.

7. The offspring of _____ plants all have the same traits
as the parent.

8. Because pea plants can _____, one plant is able to
fertilize another.

Directed Reading A *continued*

9. List two ways that a plant can cross-pollinate.

10. Peas can both cross-pollinate and self-pollinate. Why was this a key factor in Mendel's work?

11. In a population, a(n) _____ is a feature that has different forms.

12. Different forms of characteristics are called _____.

13. Why was it important to Mendel's work that peas were true breeding?

14. How did Mendel make sure that some plants cross-pollinated?

Directed Reading A *continued*

MENDEL'S FIRST EXPERIMENTS

Match the correct definition with the correct term. Write the letter in the space provided.

- | | |
|--|-----------------------------------|
| _____ 15. seen in the second generation | a. dominant trait |
| _____ 16. offspring from the first cross | b. first-generation plants |
| _____ 17. seen in the first generation | c. recessive trait |

MENDEL'S SECOND EXPERIMENTS

- _____ 18. What results did Mendel get when he allowed the first-generation plants to self-pollinate?
- a.** half purple and half white offspring
 - b.** every fourth plant had white flowers
 - c.** every fourth plant had purple flowers
 - d.** offspring with all purple flowers
- _____ 19. When a relationship between two different things is shown in a fraction, it is
- a.** a ratio.
 - b.** a problem.
 - c.** a dominant trait
 - d.** a recessive trait.
- _____ 20. Gregor Mendel realized the only explanation for his results was that
- a.** the traits were appearing at random.
 - b.** the male traits were always the dominant ones.
 - c.** each trait had two sets of instructions, one from each parent.
 - d.** his important research would open the door to modern genetics.
- _____ 21. Mendel was recognized for his discovery
- a.** five years after he finished his work.
 - b.** in 1865 when he published his work.
 - c.** about ten years ago.
 - d.** more than 30 years later.

Section Review

Mendel and His Peas

USING KEY TERMS

1. Use each of the following terms in a separate sentence: *heredity*, *dominant trait*, and *recessive trait*.

UNDERSTANDING KEY IDEAS

- _____ 2. A plant that has both male and female reproductive structures is able to
- a. self-replicate.
 - b. self-pollinate.
 - c. change colors.
 - d. None of the above

3. Explain the difference between self-pollination and cross-pollination.

4. What is the difference between a trait and a characteristic? Give one example of each.

5. Describe Mendel's first set of experiments.

6. Describe Mendel's second set of experiments.

Section Review *continued*

MATH SKILLS

- 7.** In a bag of chocolate candies there are 21 brown candies and 6 green candies. What is the ratio of brown to green? What is the ratio of green to brown? Show your work below.

CRITICAL THINKING

- 8. Predicting Consequences** Gregor Mendel used only true-breeding plants. If he had used plants that were not true breeding, do you think he would have discovered dominant and recessive traits? Explain.

- 9. Applying Concepts** In cats, there are two types of ears: normal and curly. A curly eared cat mated with a normal eared cat and all of the kittens had curly ears. Are curly ears a dominant or recessive trait? Explain.

- 10. Identifying Relationships** List three other fields of study that use ratios.
