

Genetics: The Science of Heredity ▪ *Guided Reading and Study*

Mendel's Work

This section describes how Gregor Mendel identified the method by which characteristics are passed from parents to their offspring.

Use Target Reading Skills

As you read, complete the outline about Mendel's work. Use the red headings for the main idea and the blue headings for the supporting ideas.

I. Mendel's experiments

A. crossing pea plants

B.

C.

D.

II.

A.

B.

C.

D.

Introduction

- Gregor Mendel experimented with hundreds of pea plants to understand the process of _____.

Match the term with its definition.

Term	Definition
___ 2. heredity	a. The scientific study of heredity
___ 3. genetics	b. Physical characteristics
___ 4. traits	c. The passing of traits from parents to offspring

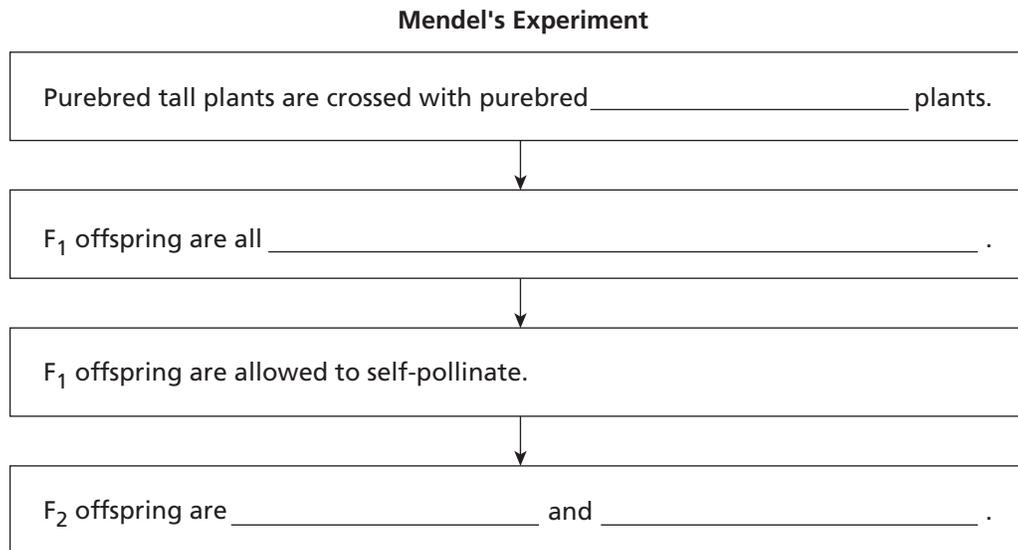
Mendel's Experiments

- In a flower, the female sex cells, or eggs, are produced by the _____. Pollen, which contains the male sex cells, is produced by the _____.
- What are purebred organisms?

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Mendel's Work *(continued)*

7. Complete the flowchart below, which summarizes Mendel's first experiment with pea plants.



8. Circle the letter of other traits in garden peas that Mendel studied.
- a. seed size, seed shape, seed color
 - b. seed color, pod color, flower shape
 - c. flower size, pod shape, seed coat color
 - d. pod color, seed shape, flower position
9. Two forms of the trait of seed shape in pea plants are _____ and _____.

Dominant and Recessive Alleles

10. Circle the letter of each sentence that is true about alleles.
- a. Recessive alleles are never present when dominant alleles are present.
 - b. Alleles are different forms of a gene.
 - c. A trait controlled by a dominant allele always shows up in the organism when the allele is present.
 - d. Recessive alleles hide dominant alleles.
11. Is the following sentence true or false? Only pea plants that have two recessive alleles for short stems will be short. _____

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Match the pea plant with its combination of alleles.

- | Pea Plant | Combination of Alleles |
|-------------------------|---|
| ____ 12. purebred short | a. Two alleles for tall stems |
| ____ 13. purebred tall | b. One allele for tall stems and one allele for short stems |
| ____ 14. hybrid tall | c. Two alleles for short stems |
15. A dominant allele is represented by a(n) _____ letter.
16. A recessive allele is represented by a(n) _____ letter.
17. How might a geneticist write the alleles to show that a tall pea plant has one allele for tall stems and one allele for short stems?

18. Is the following sentence true or false? Some scientists during Mendel's time thought Mendel should be called the Father of Genetics.
