

**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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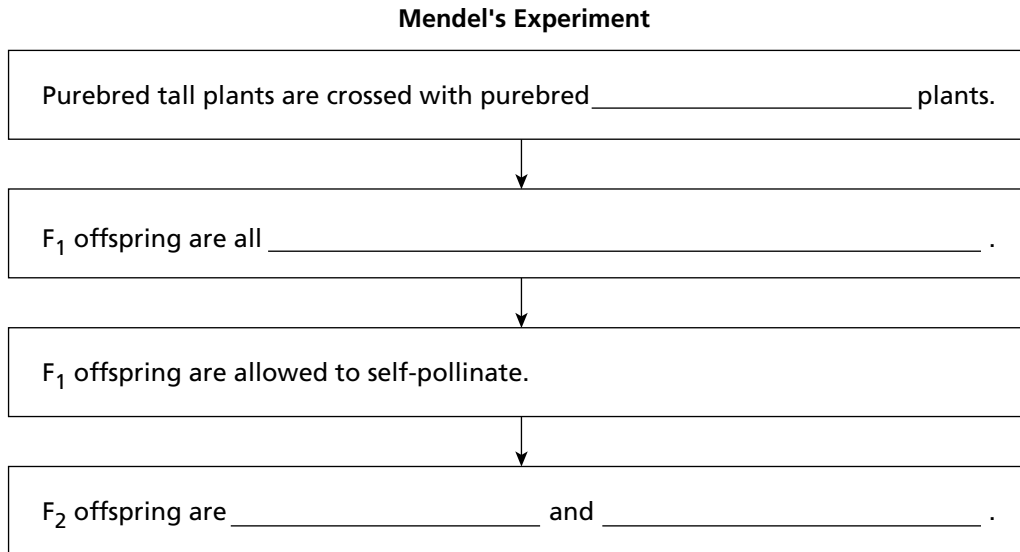


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**Mendel's Work** *(continued)*

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. Dominant alleles always show 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 would 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.

\_\_\_\_\_