

**Lesson Outline****LESSON 1****Mendel and His Peas****A. Early Ideas About Heredity**

1. \_\_\_\_\_ is the passing of traits from parents to offspring.
2. In the 1850s, \_\_\_\_\_, an Austrian friar, performed experiments that helped answer questions about how traits are inherited.
3. \_\_\_\_\_ is the study of how traits pass from parents to offspring.

**B. Mendel's Experimental Methods**

1. Pea plants were ideal for genetic studies because they \_\_\_\_\_ quickly; they have easily observed \_\_\_\_\_; and the experimenter can control which pairs of plants \_\_\_\_\_.
2. Mendel controlled which plants \_\_\_\_\_ other plants.
  - a. When a(n) \_\_\_\_\_ plant self-pollinates, it always produces offspring with traits that match the parent.
  - b. By \_\_\_\_\_ plants himself, Mendel was able to select which plants pollinated other plants.
3. With each cross-pollination Mendel did, he recorded the traits that appeared in the \_\_\_\_\_.

**C. Mendel's Results**

1. Mendel's crosses between true-breeding plants with purple flowers produced plants with only \_\_\_\_\_ flowers. Crosses between true-breeding plants with white flowers produced plants with only \_\_\_\_\_ flowers.
2. Crosses between true-breeding plants with purple flowers and true-breeding plants with white flowers produced plants with only \_\_\_\_\_ flowers.
3. The first-generation purple-flowering plants are called \_\_\_\_\_ plants.
4. When Mendel cross-pollinated two hybrid plants, the trait that had disappeared in the first generation always \_\_\_\_\_ in the second generation.

## Lesson Outline continued

5. Mendel analyzed the data from many experiments on seven different \_\_\_\_\_ . He always noted a 3:1 \_\_\_\_\_ ; for example, purple flowers grew from hybrid crosses \_\_\_\_\_ times more often than white flowers.

### D. Mendel's Conclusions

1. After analyzing the results of his experiments, Mendel concluded that two \_\_\_\_\_ control each trait.
2. Mendel also proposed that, when organisms reproduce, each \_\_\_\_\_ , sperm or egg, contributes one factor for each trait.
3. A genetic factor that blocks another genetic factor is \_\_\_\_\_ .
4. A genetic factor that is blocked by the presence of a dominant factor is called \_\_\_\_\_ .
5. For the second generation, Mendel cross-pollinated two hybrids with purple flowers. About \_\_\_\_\_ percent of the second-generation plants had purple flowers. These plants had at least one \_\_\_\_\_ factor. \_\_\_\_\_ percent of the second-generation plants had white flowers. These plants had the same two \_\_\_\_\_ factors.