

### CHAPTER 10.1: Mendel

1. In what way did the "blending hypothesis" for the transmission of traits differ from observable patterns of inheritance?

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2. Why was Mendel's genetics research so much more valuable than his predecessors?

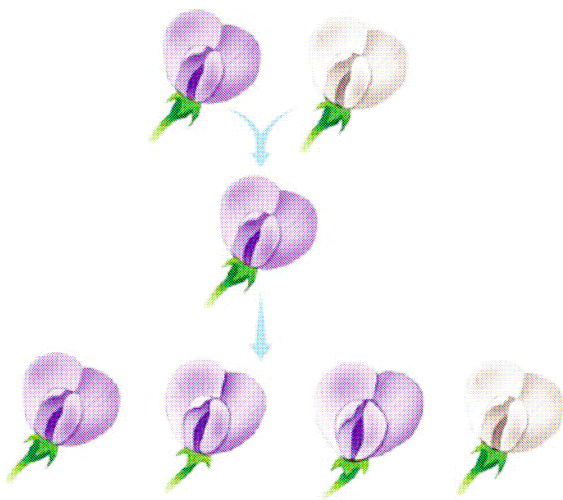
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3. List a few of the advantages of Mendel's choice of the garden pea as a model organism.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

4. Use the diagram to label the generations: P, F1, F2, pure, hybrid, and make notes of Mendel's observations. Complete a Punnett square for each of the crosses.





Name: \_\_\_\_\_

Note Set 24

5. What is the difference between an allele, a gene and a locus?

a. allele \_\_\_\_\_

\_\_\_\_\_

b. gene \_\_\_\_\_

\_\_\_\_\_

c. locus \_\_\_\_\_

\_\_\_\_\_

6. Briefly define the following terms:

a. homozygous - \_\_\_\_\_

b. heterozygous - \_\_\_\_\_

c. phenotype - \_\_\_\_\_

d. genotype - \_\_\_\_\_

7. Explain Mendel's First Law of Heredity, the Law of Segregation.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. Using the diagram in Question 4, describe how the Law of Segregation applies to the F1 and to the F2 generations.

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\_\_\_\_\_

\_\_\_\_\_

9. When does the segregation of alleles occur? \_\_\_\_\_

10. What is the purpose of a test cross?

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11. Explain Mendel's Second Law of Heredity, the Law of Independent Assortment. In other words, when two traits are on different (non-homologous) chromosomes, how are they inherited?

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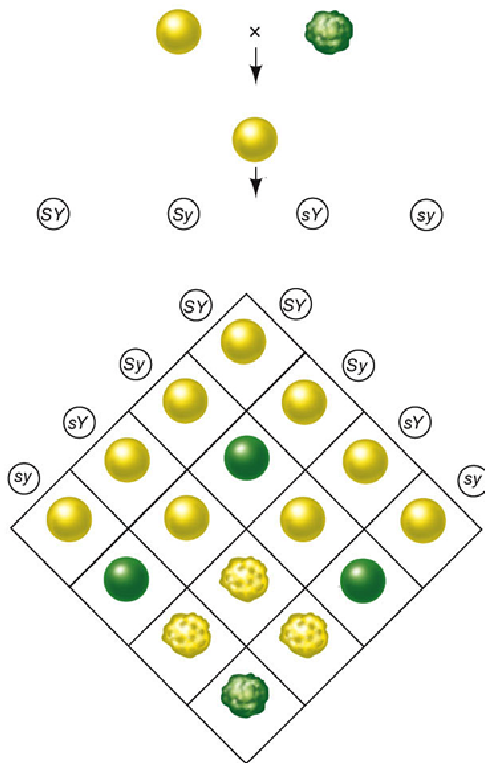


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12. Indicate the phenotypic ratios that result in the F2 from the F1 cross (dihybrid cross).




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13. Use the rules of probability to determine the expected ratio of offspring showing two recessive traits in the trihybrid cross (PpYyRr X Ppyyrr).