

Name \_\_\_\_\_

**AP Biology**

**TEXT: *Biology, Campbell and Reece***

**7<sup>th</sup> Edition**

**Chapter 14**

**Experiments of Gregor Mendel  
Thematic Review Guide**

1. How does the “blending hypothesis” differ from the “particulate hypothesis” for the transmission of traits?

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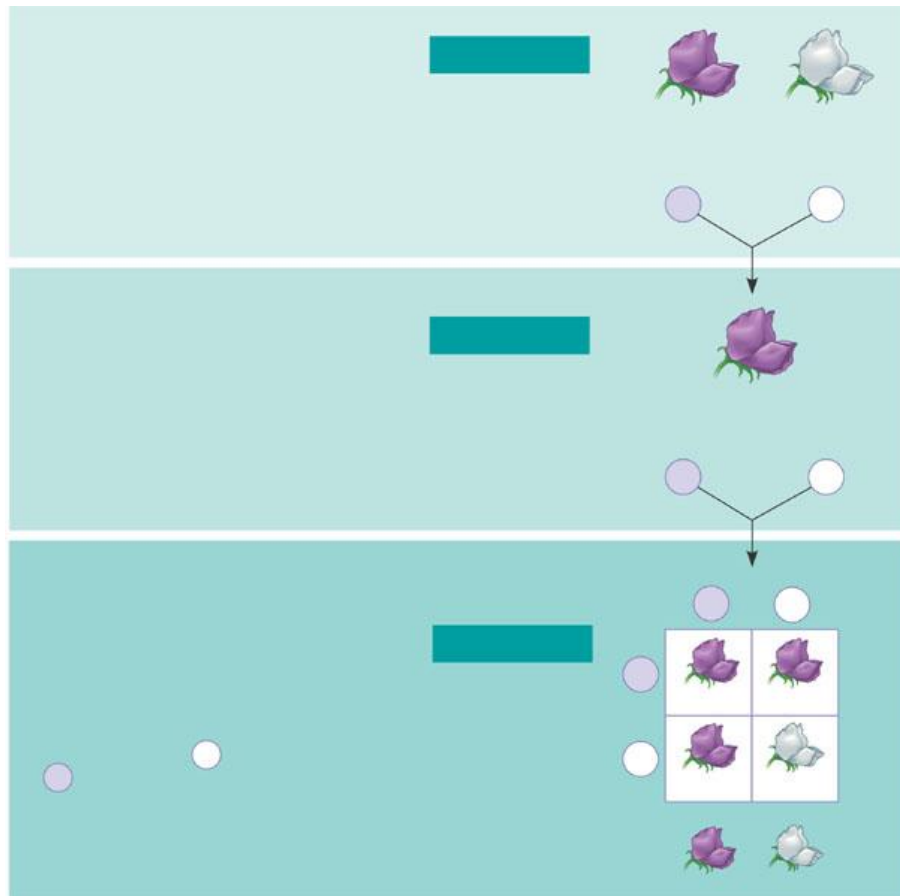
2. List a few of the advantages of Mendel’s choice of the garden pea as a model organism.

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3. Use the diagram to label the generations: P, F<sub>1</sub>, F<sub>2</sub>, pure, hybrid, and make notes of Mendel’s observations.



Adapted from the review packets of K. Foglia

4. Define the Law of Segregation.

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

6. What is the difference between an allele and a gene?

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

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

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7. Briefly define the following terms:

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

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

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

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

8. What is the purpose of a test cross? \_\_\_\_\_

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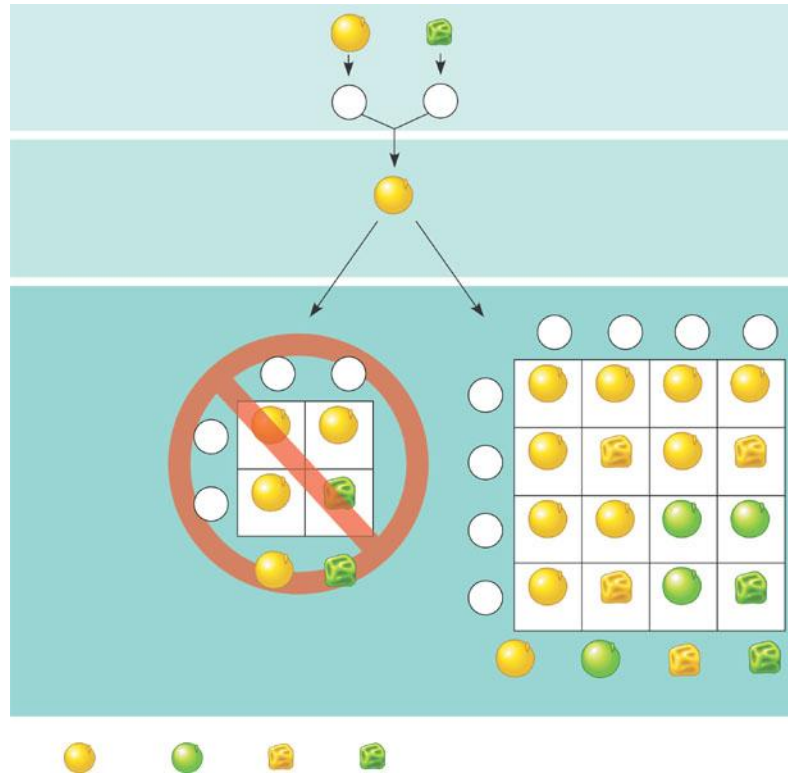
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9. When two traits are on different (non-homologous) chromosomes, how are they inherited?

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10. Indicate the phenotypic ratios that result in the F<sub>2</sub> from the F<sub>1</sub> cross (dihybrid cross).



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

12. Describe and give an example of incomplete dominance. \_\_\_\_\_

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13. How does codominance compare to incomplete dominance? \_\_\_\_\_

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14. How is blood type an example of multiple alleles? \_\_\_\_\_

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15. Define and give an example of pleiotropy. \_\_\_\_\_

\_\_\_\_\_

16. Define and give an example of epistasis. \_\_\_\_\_

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17. What is observed when traits are polygenic? \_\_\_\_\_

\_\_\_\_\_

18. The expression of phenotypes is often a result of both \_\_\_\_\_

\_\_\_\_\_

19. Briefly describe each of the following genetic disorders:

a. Cystic fibrosis \_\_\_\_\_

\_\_\_\_\_

b. Tay-Sachs \_\_\_\_\_

\_\_\_\_\_

c. Sickle cell anemia \_\_\_\_\_

\_\_\_\_\_

d. Achondroplasia \_\_\_\_\_

\_\_\_\_\_

e. Huntington's disease \_\_\_\_\_

\_\_\_\_\_

20. How can a parent learn the risks of having a child with a genetic disorder?

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