Name _____ **Period** _____

Ms. Foglia **Date** _____

AP: CHAPTER 14: MENDEL AND THE GENE IDEA

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

_____

_____

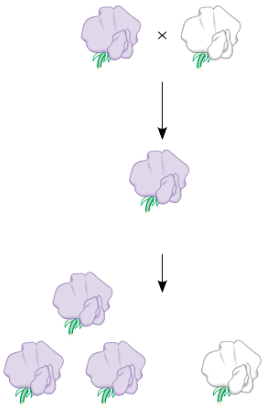
2. List a few of the advantages of Mendel's choice of the garden pea as a model organism.

_____

_____

_____

3. Use the diagram to label the generations: P, F1, F2, pure, hybrid, and make notes of Mendel's observations.



4. Define the Law of Segregation.

_____

_____

_____

5. Using the diagram in Question 3, describe how the Law of Segregation applies to the F1 and to the F2 generations.

_____

_____

6. When does the segregation of alleles occur? _____

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

   a. allele _____

   _____

   b. gene _____

   _____

8. Briefly define the following terms:

   a. homozygous _____

   b. heterozygous _____

   c. phenotype _____

   d. genotype _____

9. What is the purpose of a test cross? _____

_____

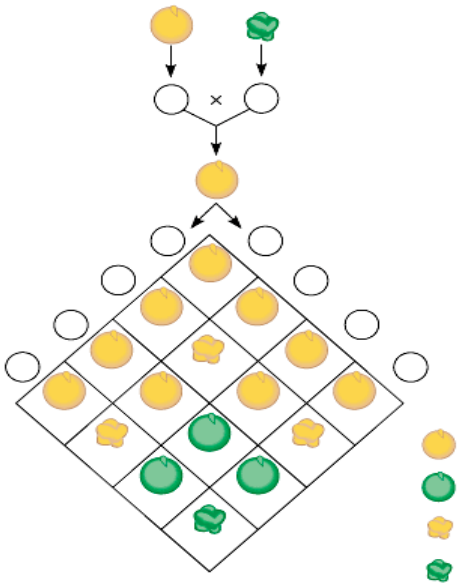
_____

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

_____

_____

a. Indicate the phenotypic ratios that result in the F2 from the F1 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. _____

_____

_____

13. How does codominance compare to incomplete dominance? _____

_____

_____

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

_____

_____

15. Define and give an example of pleiotropy. _____

_____

16. Define and give an example of epistasis. _____

_____

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?

_____