Name: _____ Period: _____

Punnett Square Practice

Part A: Vocabulary - Match the definitions on the left with the terms on the right.

_____ 1. genotypes made of the same alleles
_____ 2. different forms of genes for a single trait
_____ 3. gene that is always expressed
_____ 4. gene that is expressed only in the homozygous state
_____ 5. genotypes made of two different alleles

A. alleles
B. dominant
C. heterozygous
D. homozygous
E. recessive

Circle the choices that are examples of each of those vocabulary words.

6. **Homozygous dominant** AA Gg KK mm uu Rr TT

7. **Homozygous recessive** ee Ff HH Oo qq Uu ww

8. Genotypes in which **dominant gene** must show

AA Dd EE ff Jj RR Ss

9. Genotypes in which **recessive gene** must show

aa Gg Ff KK rr Oo Tt

Part B: Punnett Squares

10. Examine the following Punnett squares and circle those that are correct.

	D	d
d	Dd	dd
d	Dd	dd

	D	D
d	Dd	DD
d	Dd	Dd

	A	a
A	AA	aa
a	Aa	Aa

	A	a
a	Aa	aa
a	Aa	aa

11. What do the letters on the outside of the Punnett square stand for?

12. What do the letters on the inside of the Punnett square stand for?

13. In corn plants, normal height, N, is dominant to short height, n. **Complete these four Punnett squares showing different crosses. Then, circle all of the homozygous dominant offspring. Put an X through all the heterozygous offspring. Leave all the homozygous recessive offspring unshaded.**

	N	N
n		
n		

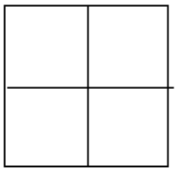
	N	n
N		
N		

	N	n
N		
n		

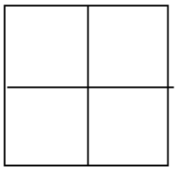
	N	n
n		
n		

14. In guinea pigs, short hair, S, is dominant to long hair, s. **Complete the following Punnett squares according to the directions given. Then, fill in the blanks beside each Punnett square with the correct numbers.**

a. One guinea pig is Ss and one is ss.
Expected number of offspring:
_____ Short hair (SS or Ss)
_____ Long hair (ss)



b. Both guinea pigs are heterozygous for short hair.
Expected number of offspring:
_____ Short hair
_____ Long hair



Part C: Monohybrid Cross Problems – Make a Punnett Square to show your work.

15. Hornless (H) in cattle is dominant over horned (h). A homozygous hornless bull is mated with a homozygous horned cow. **What will be the genotype and phenotype of the offspring?**

Genotype

Phenotype

16. In tomatoes, red fruit (R) is dominant over yellow fruit (r). A plant that is homozygous for red fruit is crossed with a plant that has yellow fruit. **What will be the genotype and phenotype of the offspring?**

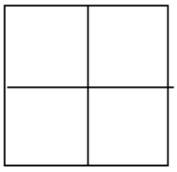
Genotype

Phenotype

17. In humans, being a tongue roller (R) is dominant over non-roller (r). A man who is a non-roller marries a woman who is heterozygous for tongue rolling.

Father's phenotype _____ Mother's phenotype _____

Father's genotype _____ Mother's genotype _____



What is the probability of this couple having a child who is a tongue roller?

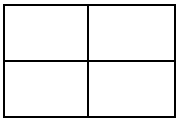
_____

18. Brown eyes in humans are dominant to blue eyes. A brown-eyed man, whose mother was blue-eyed, marries a brown-eyed woman whose father had blue eyes.

What is the probability that this couple will have a blue-eyed child? _____

Answer the following questions by completing the Punnett Square.

19. In pea plants, round (R) is dominant to wrinkled (r). A heterozygous female is crossed with a wrinkled male. **Make a Punnett Square to determine the possible offspring.**



a. What are the possible genotypes of the offspring?

b. What are the possible phenotypes of the offspring?

c. What is the probability of having an offspring that is round?

d. What is the probability of having an offspring that is homozygous?