

Punnett Square Practice Worksheet

Name _____

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

- | | |
|--|-----------------|
| _____ 1. genotypes made of the same alleles | A. alleles |
| _____ 2. different forms of genes for a single trait | B. dominant |
| _____ 3. gene that is always expressed | C. heterozygous |
| _____ 4. gene that is expressed only in the homozygous state | D. homozygous |
| _____ 5. genotypes made of two different alleles | E. recessive |

Circle the choices that are examples of each of those 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, A, is dominant to long hair, a. 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 Aa and one is aa.

Expected number of offspring:

- _____ Short hair (AA or Aa)
_____ Long hair (aa)

b. Both guinea pigs are heterozygous for short hair.

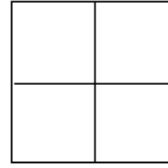
Expected number of offspring:

- _____ Short hair (AA or Aa)
_____ Long hair (aa)

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 genotypes and phenotypes of the offspring?

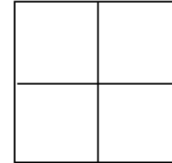
a. What are the possible genotypes and percentages?



b. What are the possible phenotypes and percentages?

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 is heterozygous for red fruit. What will be the genotypes and phenotypes of the offspring?

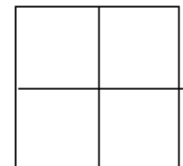
a. What are the possible genotypes and percentages?



b. What are the possible phenotypes and percentages?

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.

a. Father's genotype _____ Mother's genotype _____



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

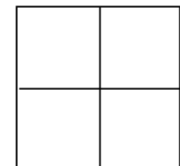
18. In pea plants, round (R) is dominant to wrinkled (r). A heterozygous round female is crossed with a heterozygous round male. Make a Punnett Square to determine the possible offspring.

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?



19. In dogs, there is a hereditary deafness caused by a recessive gene, "d." A kennel owner has a male dog (Gilbert) that she wants to use for breeding purposes if possible. The dog can hear.

a. What are the two possible genotypes of Gilbert? _____ and _____

b. If the dog's genotype is **Dd**, the owner does not wish to use him for breeding so that the deafness gene will not be passed on, but if the dog's genotype is **DD** she will use him for breeding. This can be tested by breeding the dog to a deaf female (dd). Draw two Punnett squares to illustrate these two possible crosses. How will she know with certainty if she can use Gilbert for breeding?