

Monohybrid Cross Worksheet

Name _____

Period _____

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 |

Below each of the following words are choices. Circle the choices that are examples of each of those words.

6. Dominant allele

D e k L N n R S

7. Recessive allele

M n d F G r k P

8. Homozygous dominant

AA Gg KK mm uu Rr TT

9. Homozygous recessive

ee Ff HH Oo qq Uu ww

10. Genotypes in which dominant gene must show

AA Dd EE ff Jj RR Ss

11. Genotypes in which recessive gene must show

aa Gg Ff KK rr Oo Tt

Part B: Punnett Squares

12. 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

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

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

15. In corn plants, normal height, N , is dominant to short height, n . Complete these four Punnett squares showing different crosses. Then, shade red all the homozygous dominant offspring. Shade green 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		

16. 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 - Show your work.

17. 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 first generation?

P_1

F₁

18. 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 would be the genotypes and phenotypes of the P₁ and F₁ generations?

P₁

F₁

19. If two of the F₁ generation from the above cross were mated, what would be the genotypes and phenotypes of the F₂?

F₁

F₂

20. In humans, being a tongue roller (R) is dominant over non-roller (r). A man who is a non-roller has children with 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? _____

21. In pea plants a purple flower is dominant over a white flower. A purple flowered plant (P₁) whose parent was white flowered is bred with a purple flowered plant (P₂) whose parent had white flowers.

What is the probability that the plant offspring will have white flowers? _____

22. in pea plants, yellow seeds (Y) are dominant and green seeds are recessive (r). In a cross a yellow seeded plant was crossed with another yellow seeded plant and it produced offspring of which about 25% were green seeded plants. What are the genotypes of both parents?

23. In fruit flies normal wings (W) is dominant over vestigial wings (w). The results of a cross, of two fruit flies, give the following results:

Normal wing 793

Vestigial wing 811

What are the genotypes of the parents of the F1 generation offspring? Use a Punnett square to prove your answer.

24. The result of a cross is 3 purple flowers and 1 white flower. What are the genotypes of the parents? (show your evidence)

For all of the following questions, use these facts: the trait is fur color (f). Black fur is dominant over gray fur.

1. Write the letter of the dominant allele. _____
2. Write the letter of the recessive allele. _____
3. Write out the homozygous dominant genotype (2 alleles). _____
4. Write out the heterozygous genotype (2 alleles). _____
5. Write out the homozygous recessive genotype. _____

6. Write the genotype for gray fur. _____
 7. Write the genotype for Black fur. _____ or _____
 8. Write the phenotype for #3. _____
 9. Write the phenotype for #4. _____
- Write the phenotype for #5. _____