

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

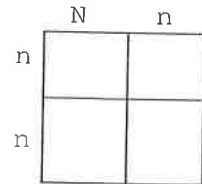
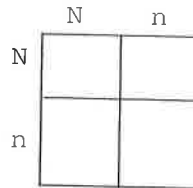
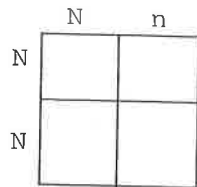
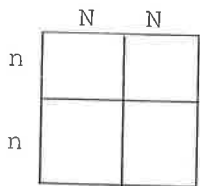
	A	a
A	AA	aa
a	Aa	Aa

	A	a
a	Aa	aa
a	Aa	aa

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

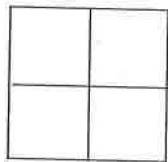
14. What do the letters on the inside of the Punnett square stand for? _____

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.



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 .

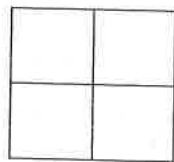


Expected number of offspring:

_____ 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

F_1

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 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? _____

21. 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? _____

Dihybrid Crosses Worksheet

1. How many traits are involved in a monohybrid cross? _____
2. How many boxes are used for a monohybrid Punnett square? _____
3. How many traits are involved in a dihybrid cross? _____
4. How many boxes are used for a dihybrid Punnett Square? _____
5. **Write the genotype for each of the following: brown hair, brown eyes, & dwarfism are dominant. Double dominant dwarfism is lethal.**
 - a. blonde with blue eyes = _____
 - b. heterozygous brunette with heterozygous brown eyes _____
 - c. homozygous brunette / average height = _____
 - d. blue eyes / dwarf = _____
6. Why is dwarfism not often seen in the general population?

Show the Punnett square and give all of the genotypes and phenotypes of the offspring as percentages for each of the crosses below.

7. In birds, brown feathers are dominant over gray colored feathers. Yellow legs are dominant over white. Cross a male bird that is heterozygous brown feathers and has white legs with a female bird that is homozygous brown feathers and heterozygous for leg color.

Choose Symbols:

Feather color

Leg Color

Brown feathers = _____

Yellow legs = _____

Gray feathers = _____

White legs = _____

(Female)

(Male)

Phenotypes:

_____ x _____

Genotypes:

_____ x _____

Possible Gametes:
(sex cells)

_____ x _____

Punnett square:

Phenotype Results:

8. In pea plants, yellow seeds are dominant over green seeds. Round peas are dominant over wrinkled seeds. Cross two pea plants that are heterozygous for both traits.

Choose symbols

Seed color

Seed Texture

Yellow seeds = _____

Round seeds = _____

Green seeds = _____

Wrinkled seeds = _____

(Female)

(Male)

Phenotypes:

_____ x _____

Genotypes:

_____ x _____

Possible Gametes:
(sex cells)

_____ x _____

Punnett square:

Results:

Genotype:

Phenotype: