

Name: _____

Genetics Practice Problems - Worksheet

1. For each genotype below, indicate whether it is heterozygous (**He**) or homozygous (**Ho**)

AA _____	Ee _____	Ii _____	Mm _____
Bb _____	ff _____	Jj _____	nn _____
Cc _____	Gg _____	kk _____	oo _____
DD _____	HH _____	LL _____	Pp _____

2. For each of the **genotypes** below determine what **phenotypes** would be possible.

Purple flowers are dominant to white flowers. Brown eyes are dominant to blue eyes.

PP _____

Pp _____

pp _____

Round seeds are dominant to wrinkled seeds.

RR _____

Rr _____

rr _____

BB _____

Bb _____

bb _____

Bobtails in cats are recessive.

TT _____

Tt _____

tt _____

Name: _____

3. For each **phenotype** below, list the **genotypes** (remember to use the letter of the dominant trait)

Straight hair is dominant to curly.

_____ straight

_____ straight

_____ curly

Pointed heads are dominant to round heads.

_____ pointed

_____ pointed

_____ round

4. Set up the Punnet squares for each of the crosses listed below. *Round seeds are dominant to wrinkled seeds.*

Rr x
rr

What percentage of the offspring will be round? _____

RR x
rr

What percentage of the offspring will be round? _____

RR x
Rr

What percentage of the offspring will be round? _____

Rr x
Rr

What percentage of the offspring will be round? _____

Practice with Crosses. SHOW YOUR PUNNETT SQUARE!

5. A tall plant (TT) is crossed with a short plant (tt).

What percentage of the offspring will be tall? _____

Name: _____

6. A heterozygous tall plant (Tt) is crossed with another heterozygous tall plant (Tt).

What percentage of the offspring will be short? _____

7. A heterozygous round seeded plant (Rr) is crossed with a homozygous round seeded plant (RR).

What percentage of the offspring will be homozygous (RR)? _____

8. A homozygous round seeded plant is crossed with a homozygous wrinkled seeded plant.

What are the genotypes of the parents? _____ × _____

What percentage of the offspring will also be homozygous? _____

9. In pea plants purple flowers are dominant to white flowers.

If two white flowered plants are crossed, what percentage of their offspring will be white flowered? _____

10. A white flowered plant is crossed with a plant that is heterozygous for the trait.

Name: _____

What percentage of the offspring will have purple flowers? _____

11. Two plants, both heterozygous for the gene that controls flower color are crossed.

What percentage of their offspring will have purple flowers?

What percentage will have white flowers? _____

12. In guinea pigs, the **allele for short hair is dominant**.

What genotype would a heterozygous short haired guinea pig have?

What genotype would a pure breeding short haired guinea pig have?

What genotype would a long haired guinea pig have? _____

13. Show the cross for a pure breeding short haired guinea pig and a long haired guinea pig.

What percentage of the offspring will have short hair? _____

14. Show the cross for two heterozygous guinea pigs.

Name: _____

What percentage of the offspring will have short hair? _____

What percentage of the offspring will have long hair? _____

15. Two short haired guinea pigs are mated several times. Out of 100 offspring, 25 of them have long hair. What are the probable genotypes of the parents?

_____ x _____ **Show the cross to prove it!**

16. A cross between a purebred variety with red flowers (RR) and a purebred variety with white flowers (rr) results in a plant with pink flowers (Rr). Using a Punnett square, show the genotypes and phenotypes of the offspring.

If 120 flowers are produced from crossing the hybrid offspring, predict how many will have the genotype:

RR _____ Rr _____ rr _____

17. Draw a Punnett square showing a cross between a father with genotype A_o and a mother with genotype AB.

What percentage of the offspring will have blood Type A? _____

What percentage of the offspring will have blood Type B? _____

18. In a cross between a white-eyed female fruit fly and red-eyed male, what percent of the female offspring will have white eyes? (White eyes are X-linked, recessive) Show your Punnett square!

Name: _____

19. A white-eyed female fruit fly is crossed with a red-eyed male. Red eyes are dominant, and X-linked. What are the expected phenotypes of the offspring?