

Genetics Notes



Terms to know

- 1. **Homozygous**- contains 2 _____ alleles for the same trait, AA, BB, cc
- 2. **Heterozygous**- contains 2 _____ alleles for the same trait, Aa, bB, Cc
- 3. **Phenotype**- _____ appearance of a trait, coat color, blood type.
- 4. **Genotype**- _____ makeup AA, Aa, aa. Letters
- 4. _____ - Codes for a trait.
- 5. _____ - Specific gene for specific trait.
- 6. F1 = First cross offspring mating. _____ Punnett Square.
- 7. F2 = Second cross offspring

Dominant VS Recessive:

The _____ gene is the one that expresses itself – it shows!

These hide the recessive gene if there is complete dominance.

The _____ gene is overshadowed by a dominant gene – _____ by dominant. Recessive genes can only express themselves when there are _____ (aa)

Mendel's Laws

• Law of Segregation

- During meiosis _____ from each other
- Alleles for a trait are then "recombined" at fertilization

• Law of Independent Assortment

- Alleles for *different* _____ are distributed to offspring _____ of one another.
- Red hair and freckles does not travel together!

NO TWO TRAITS TRAVEL TOGETHER! These laws are why siblings look different even though they have the same parents!

How to Work Genetics Problems:

The dominant trait is black fur, the recessive is white.

Refer to the steps below when working your squares:

No-Fail steps to working a Punnett square!

1. Make a key of genotypes
2. Add phenotypes
3. Draw Punnett square
4. Get parent cross
5. Work square. 😊

Problem - Dominance: In cats, long tails are dominant over short tails. Cross one heterozygous long tailed cat with a short tailed cat. What is the chance there will be a short tailed cat born?

- Step One and Two: Make a key and add phenotypes:

- Step Three and Four: Get parent cross and work square

Parent cross = _____ X _____

(heterozygous long X short)

What is the chance there will be a short tailed cat born? _____

Determine the parent crosses for the following:

Homozygous short tail male with a homozygous long tail female: _____ X _____

Heterozygous Long tail male and female: _____ X _____

Two short tailed cats: _____ X _____

Challenge: Two long tailed cats that can have a short tailed kitten: _____ X _____