

Name: _____ Date: _____

Life Science Notes 13 Punnett Squares

Review

- We now know that every offspring has 2 types of genes for any particular trait. We will call these different types of genes

(wh. leel) Alleles

- In Mendel's crosses, one allele was dominant, meaning it covered up another allele. The allele that was covered up was called recessive.

Punnett Squares

- Generally the dominant allele in any cross is given a Capital letter, while the recessive allele is given a lower - case letter.
 - What letter is used usually depends on the dominant allele. For example, if the tall allele is dominant over short allele than the letter T would be used for both the dominant and recessive allele. The only difference would be whether or not it is Capitalized.
 - For the height trait:
 - T = the dominant tall allele
 - t = the recessive short allele

Genotype and Phenotype

- Genotype = an organisms combination of genes for a trait. $\begin{bmatrix} RR \\ Rr \end{bmatrix} rr$
- Phenotype = an organisms physical appearance due to its genotype. $\begin{bmatrix} \text{Red eyes,} \\ \text{brown hair} \end{bmatrix}$
 - In every Punnett Square, you will have to explain the possible genotypes and phenotypes.

other parent

← one parent

↙

| | | |
|----------|----------|----------|
| | <u>I</u> | <u>I</u> |
| <u>t</u> | Tt | Tt |
| <u>t</u> | Tt | Tt |

TT

x

tt

Genotypes of Offspring 100% Tt (Hybrid)

Phenotypes of Offspring 100% Tall

| | | |
|----------|----------|----------|
| | <u>T</u> | <u>t</u> |
| <u>T</u> | TT | Tt |
| <u>t</u> | Tt | tt |

Genotypes of Offspring 25% TT, 50% Tt, 25% tt

Phenotypes of Offspring 75% Tall, 25% short

Pure and Hybrid (Genotypes) (Bb)

Hybrid means that an organism has two different genes for a trait

Pure means that an organism has two of the same genes for a trait

(BB, bb)