

The background of the slide is a solid orange color with a pattern of various leaf shapes in a slightly darker shade of orange, scattered across the surface.

Heredity & Inheritance

Introduction to Genetics

Notes

Gregor Mendel

- Studied patterns of inheritance
 - Pea Plants
- Bred tall plants with tall plants
 - Tall Plants
- Bred short plants with short plants
 - Short Plants
- Bred tall with short
 - ???



Hybrid

- The result of breeding two pure parents
 - Tall x Short = **Hybrid**
- Denotation
 - Parent Generation (P_1)
 - 1st Generation of Offspring (F_1)
 - 2nd Generation of Offspring (F_2)
 - Etc...



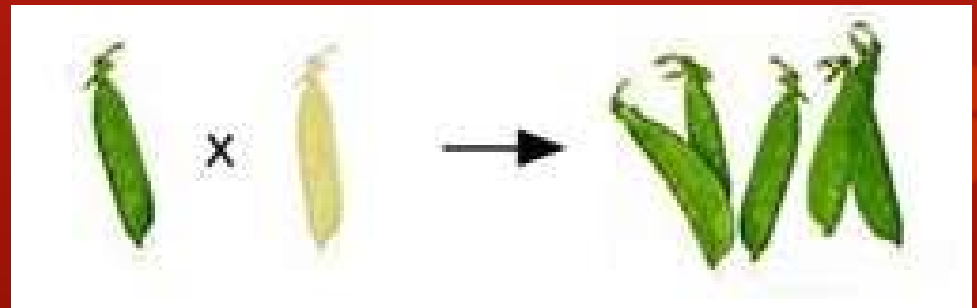
Tall x Short = ???

- If a tall plant is bred with a short plant the offspring are all...

- TALL

- Why?

- Complete Dominance



Complete Dominance

	g	g
G	Gg	Gg
G	Gg	Gg

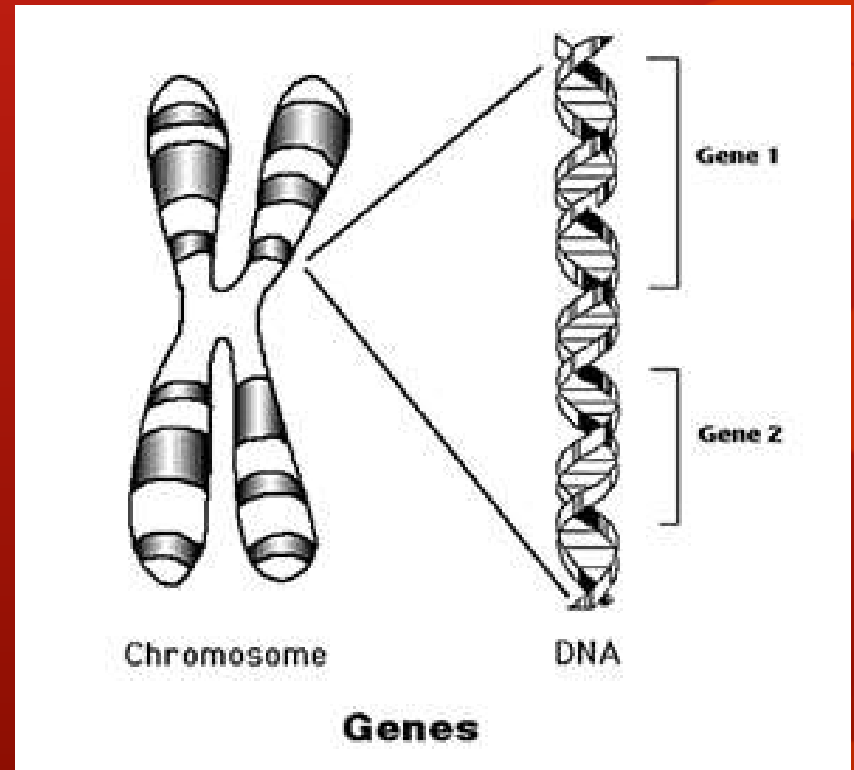
- Some traits dominate over others
 - Dominant** traits are expressed over **recessive** traits
- Dominant (capital letters) – **TT**
- Recessive (lower case letters) – **tt**

Law of Segregation

1. For each characteristic, an individual carries 2 factors
2. Each parent contributes 1 of its 2 factors
3. Offspring carrying both **dominant** or **mixed** (1 dominant and 1 recessive) will show the **dominant trait**, or both **recessive** will show the **recessive trait**

Genes

- Units of heredity
 - Located on chromosomes
- Determine the characteristics of an organism



Alleles



- Form of the gene
 - Multiple forms of each gene that can be expressed
- Examples:
 - Hair color
 - Eye color

Every organism carries two factors for each gene (two alleles)

○ Genotype

- Letters that represent each allele (trait)

○ Homozygous

- Dominant (TT)
- Recessive (tt)

○ Heterozygous (Tt)

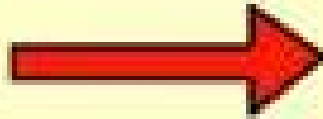
○ Phenotype

- Expression of trait (interaction of each allele)
- Outward appearance

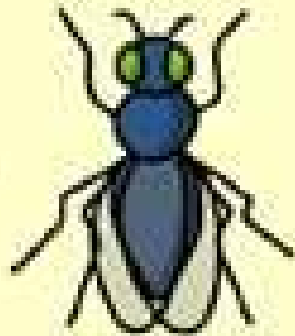
genotype



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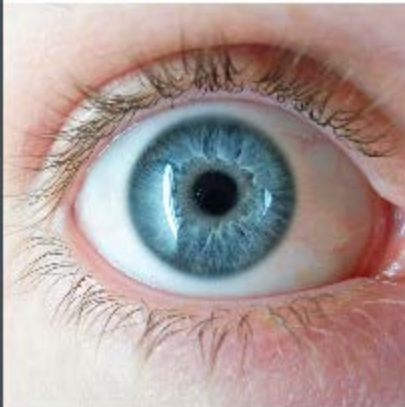


phenotype



Phenotype= Blue Eyes

Phenotype=Brown Eyes



Genotype=**bb**
Recessive=**b**

Genotype = **Bb** or **BB**
Dominant = **B**