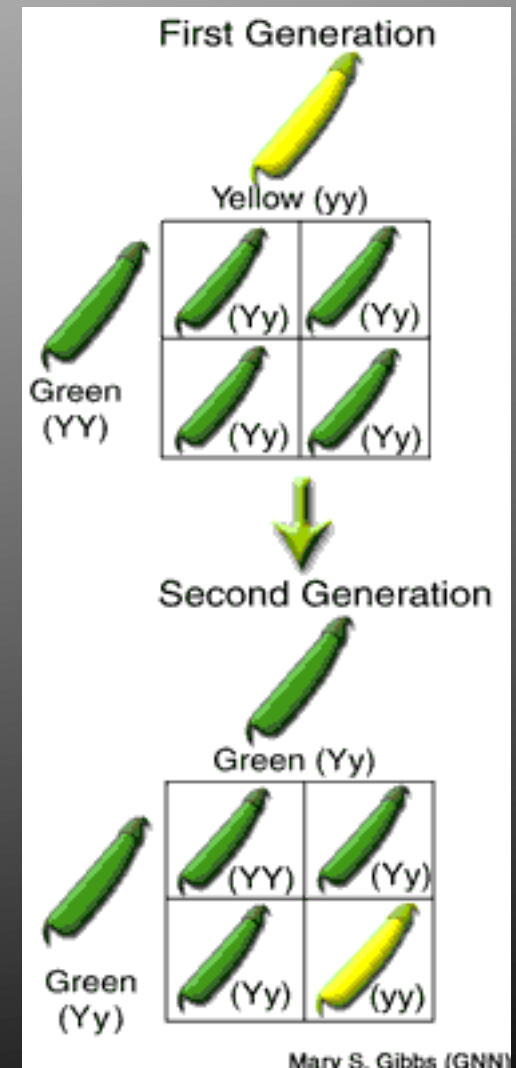


# Chromosomal Inheritance: Introduction

## Essential Questions:

- What is the *Principle of Dominance*?
- What happens during *segregation*?
- How do geneticists use probability?

- Genes and dominance
  - Mendel's Peas
    - Trait
    - Hybrids
      - Was result a blend of parent traits?
      - No!

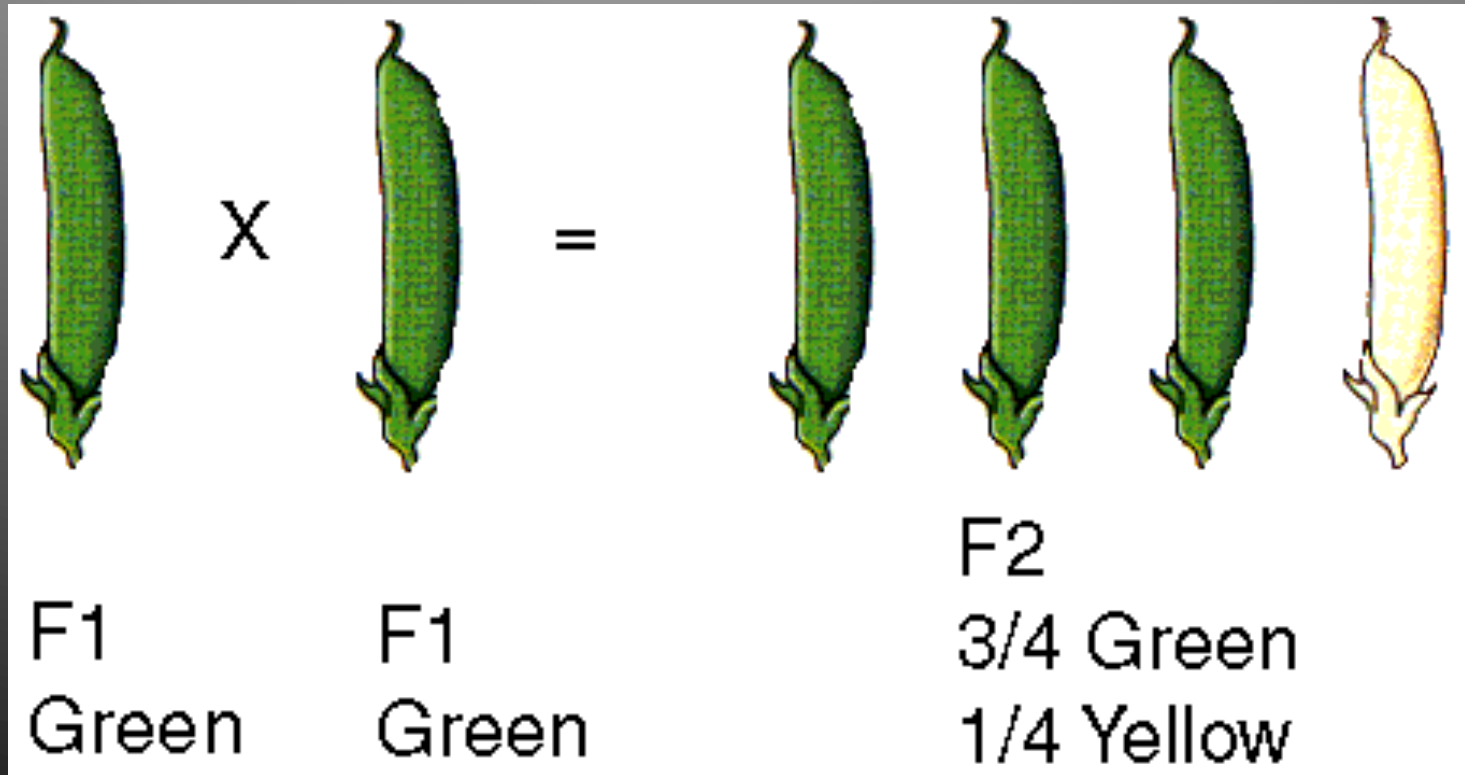


- 2 conclusions:
  - Some “factor” passes traits from 1 generation to next
    - Genes
    - alleles
  - Principle of Dominance: some alleles dominant, some recessive
    - If dominant allele present, always expressed
    - Recessive allele only expressed in absence of dom. allele

- Segregation

- Recessive traits disappeared in  $F_1$  offspring – did recessive alleles disappear?

- The  $F_1$  cross



- Explaining the  $F_1$  cross
  - Assume dominant alleles mask recessive alleles
  - Segregation = separation of alleles
    - Gametes
      - each carries only 1 copy of each gene
    - $F_1$  plants produce 2 types of gametes







- Genetics & probability
  - random event
  - Probability can be used to predict outcomes
    - Probabilities predict averages, NOT actual outcomes

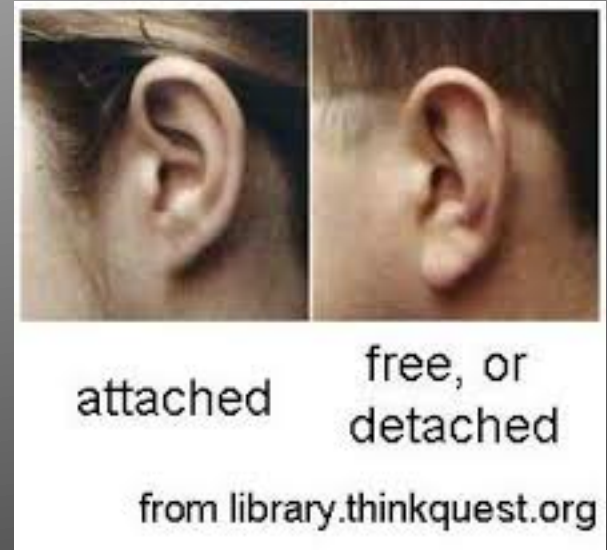


- Genotype
- Phenotype

Cross: Aa x Aa

	<b>A</b>	<b>a</b>
<b>A</b>	<b>AA</b>	<b>Aa</b>
<b>a</b>	<b>Aa</b>	<b>aa</b>

		 pollen ♂	
		<b>B</b>	<b>b</b>
 pistil ♀	<b>B</b>	 <b>BB</b>	 <b>Bb</b>
	<b>b</b>	 <b>Bb</b>	 <b>bb</b>



- “true breeding” = homozygous
- “hybrid” = heterozygous