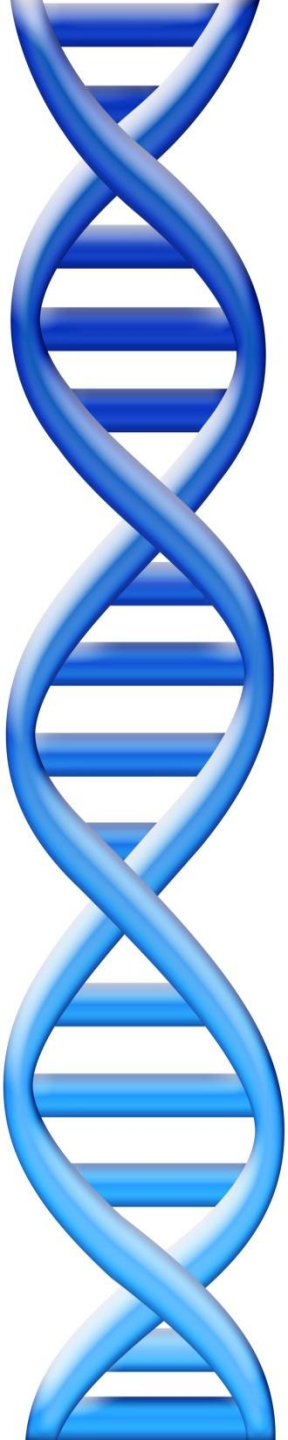


Dihybrid Crosses

Honors Biology
Facilitator- Mr. Lee
Room 320

		Guinea pig female				
		Gametes	<i>BS</i>	<i>Bs</i>	<i>bS</i>	<i>bs</i>
Guinea pig male	<i>BS</i>	<i>BBSS</i>	<i>BBSs</i>	<i>BbSS</i>	<i>BbSs</i>	
	<i>Bs</i>	<i>BBSs</i>	<i>BBss</i>	<i>BbSs</i>	<i>Bbss</i>	
	<i>bS</i>	<i>BbSS</i>	<i>BbSs</i>	<i>bbSS</i>	<i>bbSs</i>	
	<i>bs</i>	<i>BbSs</i>	<i>Bbss</i>	<i>bbSs</i>	<i>bbss</i>	

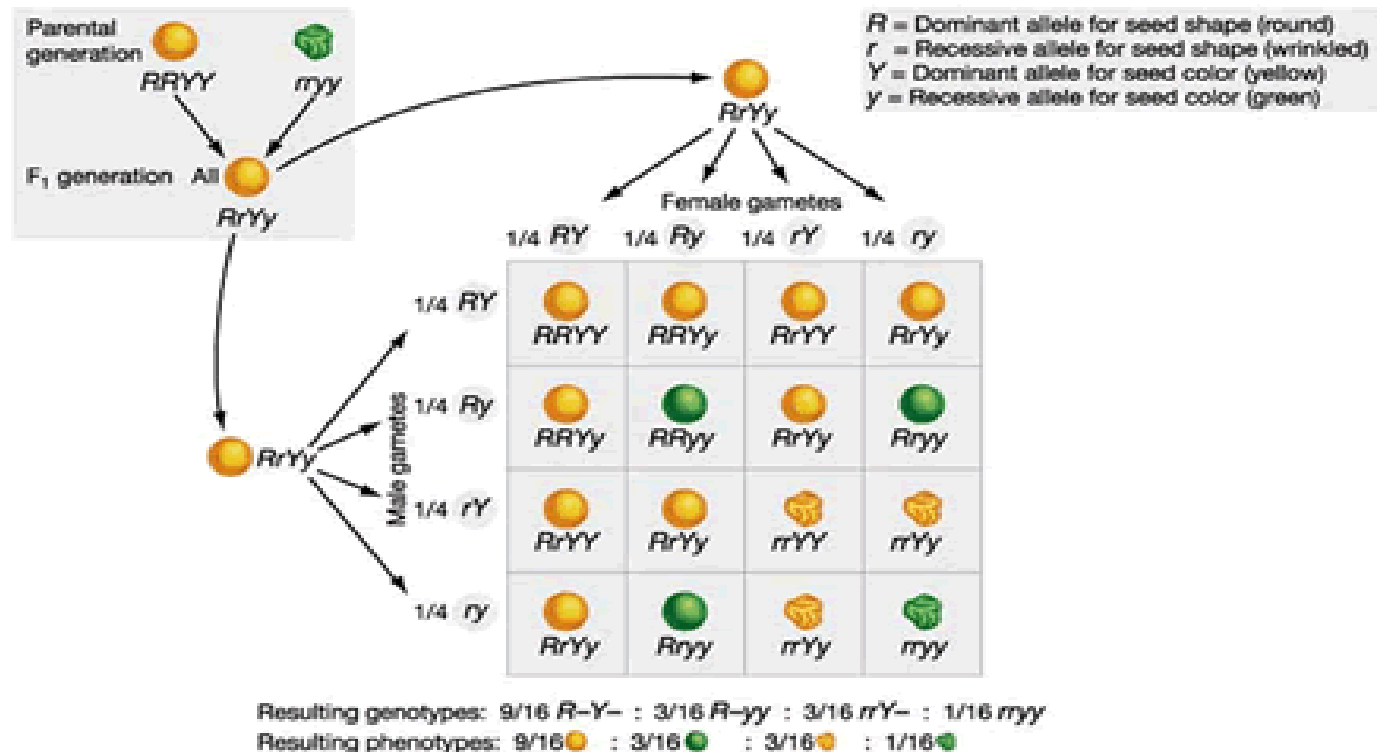


Objectives

- ▶ **Complete a dihybrid cross**

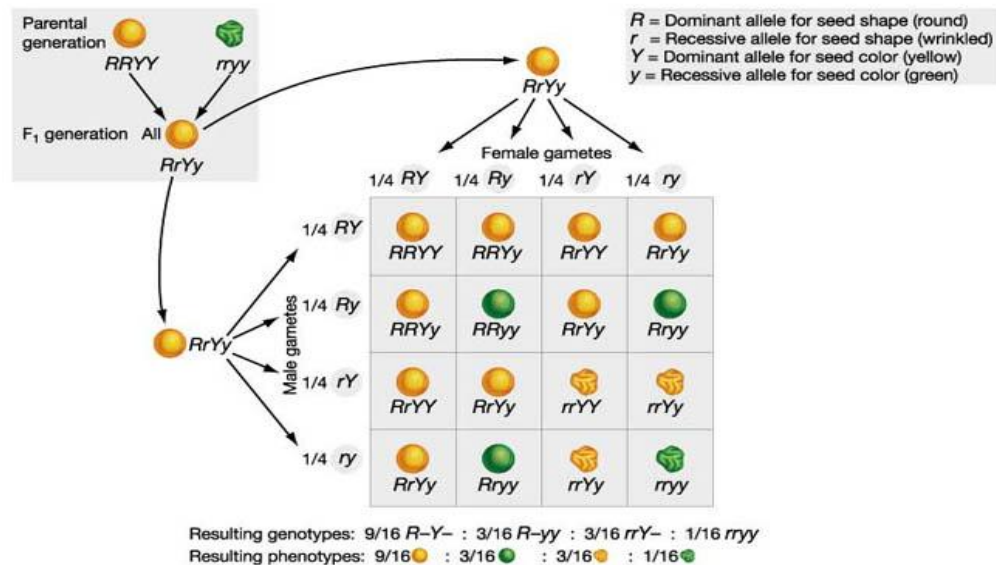
Dihybrid Crosses

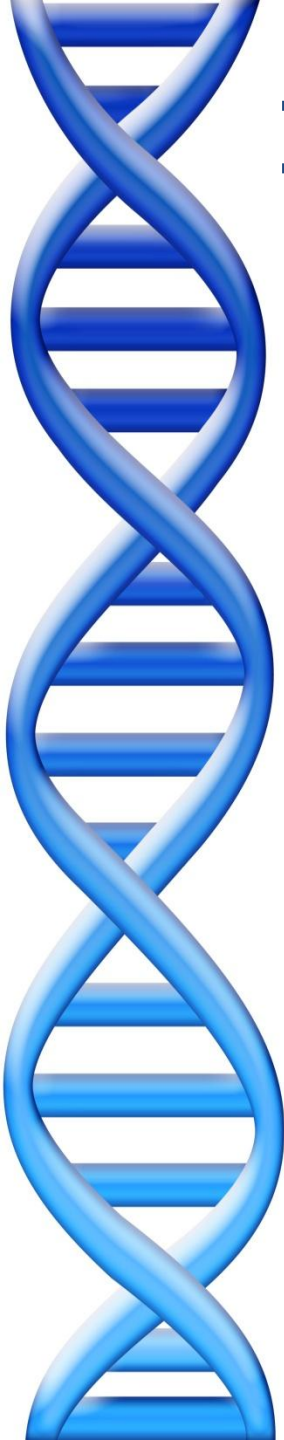
- ▶ A dihybrid cross is a cross between individuals that involve two contrasting traits



Independent Assortment

- ▶ Mendel wanted to know if the segregation (separation) of one pair of alleles affected the segregation of another pair of alleles
- ▶ Mendel did experiments using a two-factor cross (dihybrid cross)





Independent Assortment...

- ▶ He crossed true-breeding plants that produced only round yellow peas (RRYY), with plants that produced wrinkled green peas (rryy)
- ▶ **All the F₁ offspring produced round yellow peas**
- ▶ **This showed that the alleles for yellow and round peas are dominant over the alleles for green and wrinkled peas (They were all RrYy)**

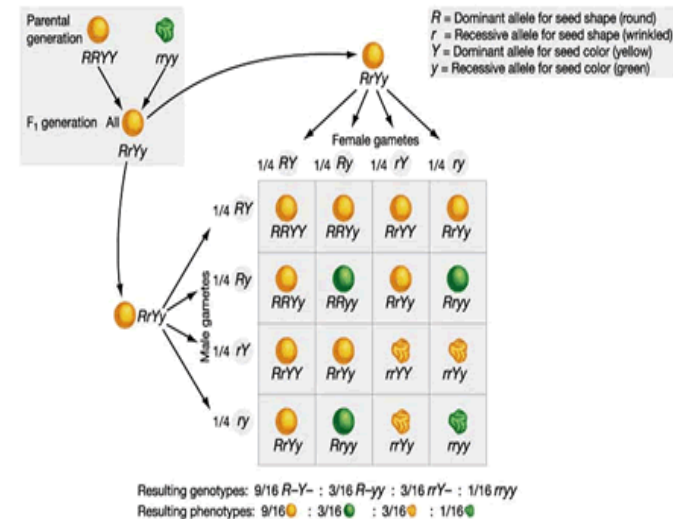
Two-Factor Cross:F₁

	ry	ry	ry	ry
RY	RrYy	RrYy	RrYy	RrYy
RY	RrYy	RrYy	RrYy	RrYy
RY	RrYy	RrYy	RrYy	RrYy
RY	RrYy	RrYy	RrYy	RrYy

Independent Assortment...

- ▶ When he crossed the F_2 generation, the results were very close to the 9:3:3:1 ratio
- ▶ Parental phenotypes
 - ▶ 9 of 16 round & yellow
 - ▶ 1 of 16 wrinkled & green
- ▶ Different combinations of phenotypes
 - ▶ 3 of 16 round & green
 - ▶ 3 of 16 wrinkled & yellow
- ▶ This is called independent assortment

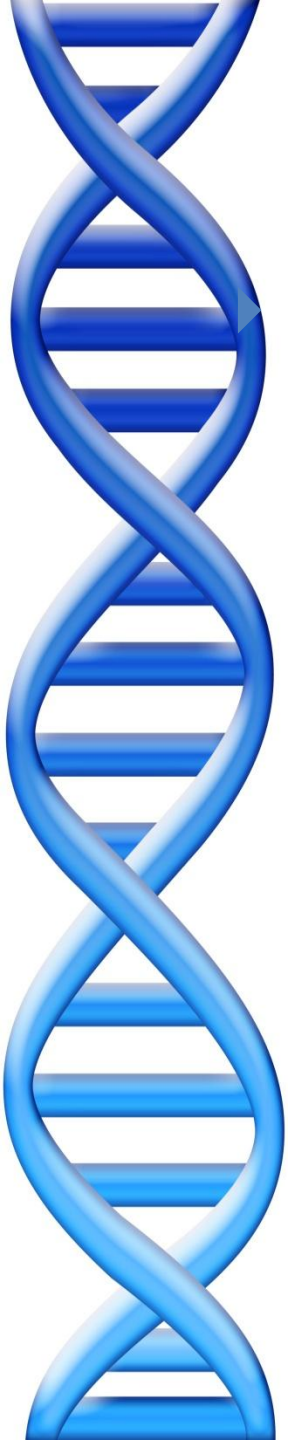
Two-factor Cross: F_2





Summary of Mendel's Principles

- ▶ **The inheritance of biological characteristics is determined by genes that are passed on by the parents**
- ▶ **Some forms of the gene may be dominant and others may be recessive**
- ▶ **In most sexually produced organisms, each adult has two copies of each gene- one from each parent. These genes are segregated from each other when gametes are formed.**
- ▶ **The alleles for different genes usually segregate independently of one another**



Review

Complete a dihybrid cross



Learn Long
Live Long

