

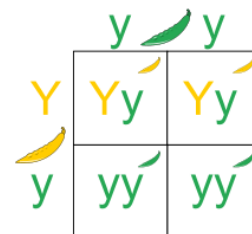
Name _____ Date: _____ Block: _____

Non-Mendelian Inheritance

Beyond Dominant and Recessive Alleles

Important Exceptions

- Despite the importance of Mendel's work, there are important exceptions to his principles
- Not all genes show simple patterns of dominant and recessive alleles!
- Inheritance is often more complicated because many genes have _____



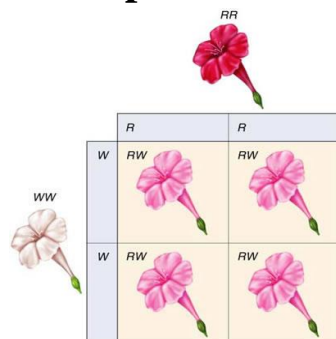
Mendel's Pea Plants

In your own words, why is his use of pea plants so significant?

- Some alleles are **NEITHER** dominant nor recessive
- Many traits are controlled by _____ alleles or multiple _____

	Seed Shape	Seed Color	Seed Coat Color	Pod Shape	Pod Color	Flower Position	Plant Height
P	Round X Wrinkled	Yellow X Green	Gray X White	Smooth X Constricted	Green X Yellow	Axial X Terminal	Tall X Short
F ₁	Round	Yellow	Gray	Smooth	Green	Axial	Tall

Incomplete Dominance



- Cases in which one allele is not completely dominant over another
- In incomplete dominance, the _____ phenotype is _____ the two *homozygous* phenotypes
- Ex. Red + White = Pink





Codominance

- Both alleles contribute to the phenotype _____
- Unlike the blending of red and white in the heterozygous Four o' Clock roses, both colors appear _____



Phenotype	WHITE	BLACK	SPECKLED
Genotype	WW	BB	BW

Multiple Alleles

Allele			
C	c^h	c^h	c
Genotype			
C^+C^+	c^hc^h	c^hc^h	cc
Phenotype			
WILD TYPE: Brown fur	CHINCHILLA: Black-tipped white fur	HIMALAYAN: White fur with black paws, nose, ears, tail	ALBINO: White fur
			

- More than _____ possible alleles exist in a population
- This does not mean that an individual can have more than two alleles. It means that there are _____ for those alleles
- Rabbit coat color- Determined by a **SINGLE GENE**, but there are four

different alleles

- Also, human hair color and blood type!

Polygenic Inheritance

- Traits controlled by two or more _____
- Polygenic traits are produced by the _____ of several genes
- Polygenic traits show a _____ of _____!
- Ex. Human skin color
- (also, human eye color and height!)

	ABC	ABc	AbC	Abc	aBC	aBc	abC	abc
ABC	AABBCC	AABBCc	AABbCC	AABbCc	AaBBCC	AaBBCc	AaBbCC	AaBbCc
ABc	AABBCc	AABbcc	AABbCc	AABbcc	AaBBCc	AaBBcc	AaBbCc	AaBbcc
AbC	AABbCC	AABbCc	AAbbCC	AAbbCc	AaBbCC	AaBbCc	AabbCC	AabbCc
Abc	AABbCc	AABbcc	AAbbCc	Aabbbc	AaBbCc	AaBbcc	AabbCc	Aabbbc
aBC	AaBBCC	AaBBCc	AaBbCC	AaBbCc	aaBBCC	aaBBCc	aaBbCC	aaBbCc
aBc	AaBBCc	AaBBcc	AaBbCc	AaBbcc	aaBBCc	aaBBcc	aaBbCc	aaBbcc
abC	AaBbCC	AaBbCc	AabbCC	AabbCc	aaBbCC	aaBbCc	aabbCC	aabbCc
abc	AaBbCc	AaBbcc	AabbCc	Aabbbc	aaBbCc	aaBbcc	aaBbCc	aabbbc

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1 : 6 : 15 : 20 : 15 : 6 : 1

