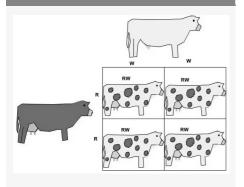## Gregor Mendel-1860s

The "Father of Genetics"	
His jobs	Austrian monk, teacher, scientist, and gardener
Used peas because	easy to grow, relatively short time period per generation (3 months), self-pollinating, and created purebreds
	scientist
True-breeding	7 simple traits without genetic variation
Used brushes to pollinate	
P^1	parental generation

Punnet Squares - Monohybrid Cross

	T	t
t	Tt	tt
t	Tt	tt

Punnet Squares - Codominance

Chromosomes and Genes

Homologous chromosomes contain genes for the same traits	
Traits are controlled by alleles	
The genotype is the alleles received at fertilization	
Phenotype is the physical appearance	

Principle of Dominance

F^1 plants resembled one parent	
F1 hybrids contained *two* factors for each trait	
1.Dominant	masks recessive
2.Recessive	"disappears" with dominant allele

Inheritance Patterns

Homozygous Dominant	two dominant alleles (BB)
Homozygous recessive	two recessive alleles (bb)
Heterozygous	one dominant and one recessive allele (Bb)

Punnet Squares - Dihybrid Cross

two pairs of contrasting traits

Polygenic Traits

When 2 or more genes control a trait	
Skin color	4-7 genes + melanin
Eye Color	blue (light melanin) + brown (a lot of melanin)
Height	

Test Crosses

Unknown genotype x known genotype	
important to breeders	
performed with homozygous recessive	

Probability

The mathematical chance of an event occuring	
3 ways to express	percent, decimal, or fraction
Law of Probability	in the case where there are several possible outcomes and the chances are equally likely, they will even out to follow the predicted probability in large sample sizes

Incomplete Dominance

Ex.) red + white = pink	
3 phenotypes	
neither alleles are *completely* dominant	
Alleles	
homozygous dominant	RR
homozygous recessive	R'R'
heterozygous	RR'

Codominance

neither allele is dominant or recessive	
Ex.) white + red = red & white	
3 phenotypes	
Alleles	
red coat	RR
white coat	RR
mixed	RW

Punnet Squares - Incomplete Dominance