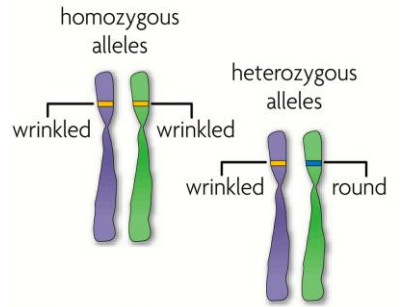


EOC Review- Genetics

- **Gene**-Section of DNA that codes for a particular protein.
- **Allele**-Alternative form of a gene.
- **Gregor Mendel**-Father of genetics

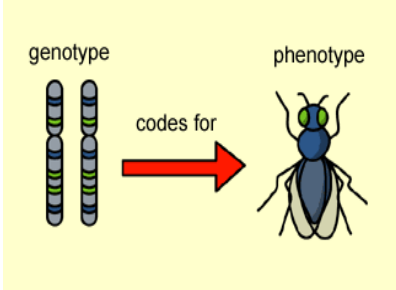
- **Homozygous vs Heterozygous.**

Homozygous alleles are identical to each other.



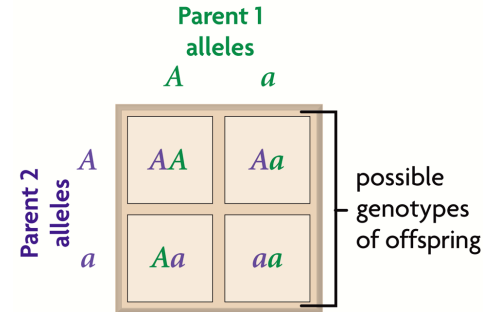
Heterozygous alleles are different from each other.

- **Genotype**-make up of a specific set of genes.
- **Phenotype**-physical expression of a trait.



- **Dominant**-expressed when at least one allele is dominant.
- **Recessive**-expressed only when two copies are present.

The **Punnett square** is a grid system for predicting possible genotypes of offspring.

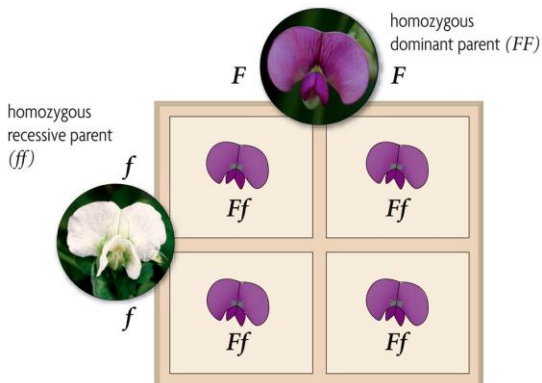


- **Punnett Square**-grid system for predicting possible genotypes from a cross.

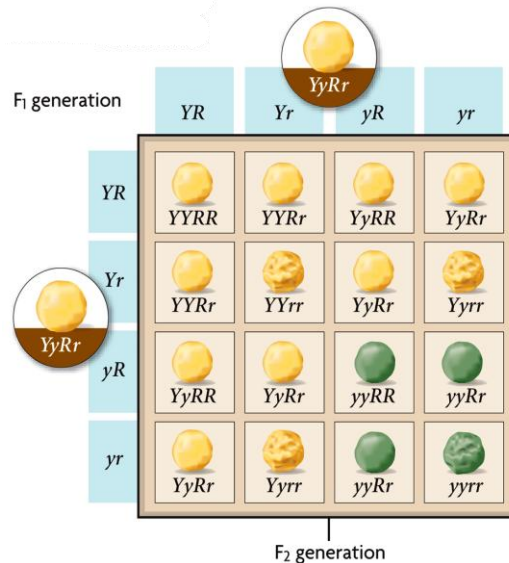
Mendelian Genetics

1. **Principle of Dominance**-When contrasting traits are crossed, the offspring will express the dominant trait.
2. **Principle of Segregation**-The pair of homologous chromosomes separate during meiosis so that only one chromosome is in each gamete.
3. **Principle of Independent Assortment**-Genes separate independently of one another in meiosis.

Monohybrid Cross-examined one specific trait

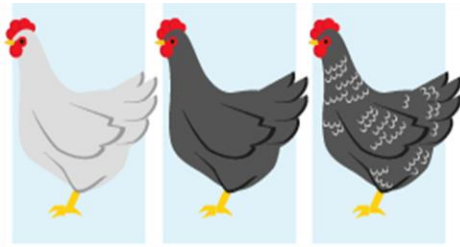
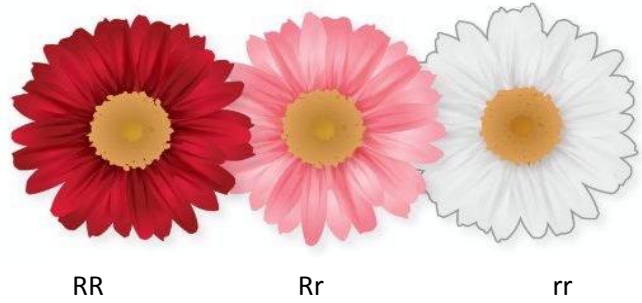


Dihybrid Cross-cross that involves two traits



Non-Mendelian Inheritance

- **Incomplete Dominance**-neither allele is completely dominant nor recessive. The phenotype of the heterozygous is a blend of the two homozygous phenotypes.



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- **Codominance**-alleles are neither dominant nor recessive. Both alleles will be completely expressed.

- **Human Blood Type**-shows both complete and codominance.

The ABO Blood System

Blood Type (genotype)	Type A (AA, AO)	Type B (BB, BO)	Type AB (AB)	Type O (OO)
Red Blood Cell Surface Proteins (phenotype)				
	Type A is dominant to Type O	Type B is dominant to Type O	Type AB is co-dominant	Type O is recessive

- **Polygenic trait**-produced by two or more genes, on the same or different chromosomes. Examples: skin, hair and eye color
- **Sex-linked genes**-gene is located on sex chromosomes
- **Sex chromosomes**- X & Y
- **XY**-male genotype
- **XX**-female genotype

