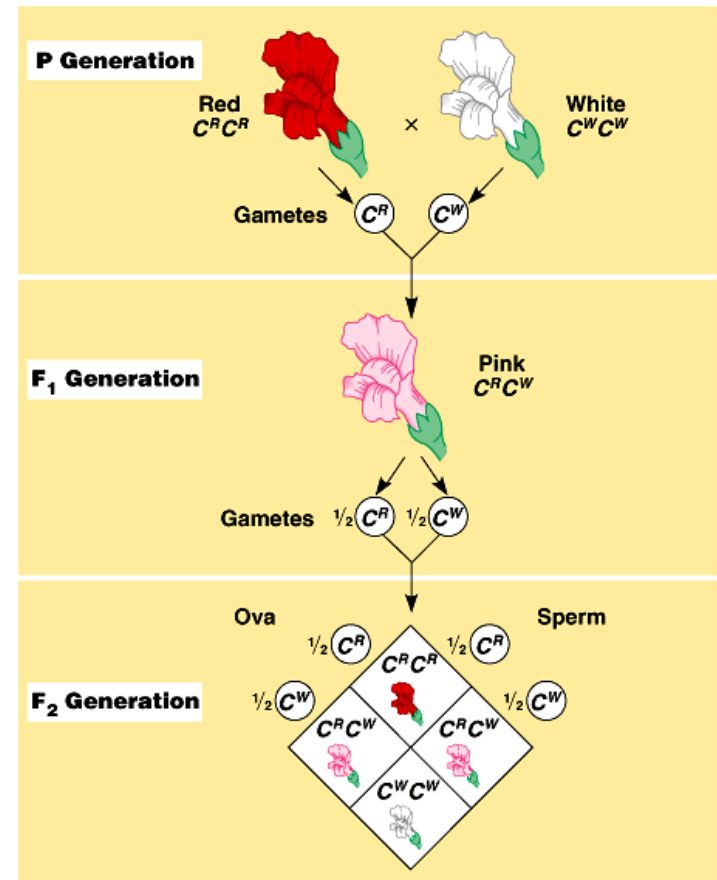


Exceptions to Mendel's Rule



Incomplete Dominance

- The phenotype of the heterozygote is intermediate between those of the two homozygotes.
- Ex) Snap Dragon Color
 - Red, Pink, White



Co-dominance



- Phenotype of both homozygotes are produced in heterozygotes individuals.
- Both alleles are expressed equally.
- Ex) Roan Cattle
White-feathered birds are both homozygotes for both B and W alleles

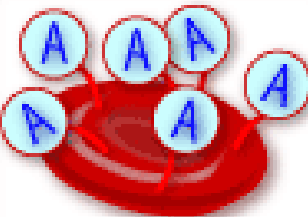
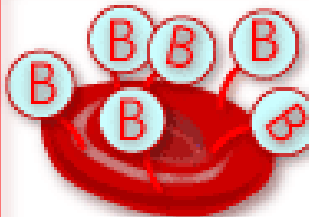
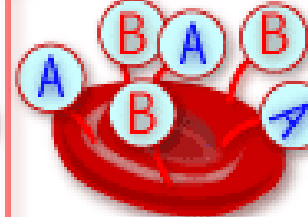
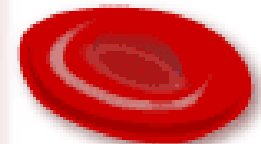
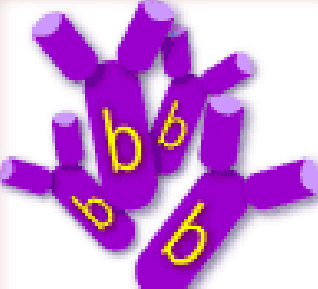

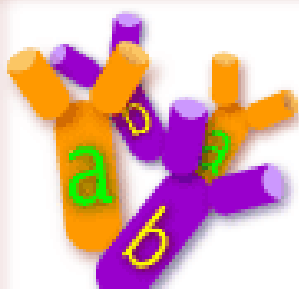


Multiple Alleles

- Ex)Blood type
- Blood type A and B are **co-dominant**, while O is **recessive**.
- Forms possible blood types of A, B, AB, and O.

Blood Also Shows 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)	 <p>A agglutinogens only</p>	 <p>B agglutinogens only</p>	 <p>A and B agglutinogens</p>	 <p>No agglutinogens</p>
Plasma Antibodies (phenotype)	 <p>b agglutinin only</p>	 <p>a agglutinin only</p>	<p>NONE.</p> <p>No agglutinin</p>	 <p>a and b agglutinin</p>



Sex-Determination

- Chromosome pairs 1-22 are **autosomes**
- Chromosome pair 23 are **sex chromosomes**
- They determine the sex of an individual
- $XX = \text{female}$ $XY = \text{male}$



Sex-Linked Inheritance

- Traits that are only found on the X chromosome
- Colorblindness and Hemophilia are examples of sex-linked traits.
- These genes are recessive and found only on the X chromosome.

Polygenic Inheritance

- Inheritance pattern of a trait that is controlled by **two or more genes**.
- Gene may be on the same chromosome or on different chromosomes.
- Ex) Skin color and Height

