

These Slides Accompany the YouTube Video Tutorial:
<https://www.youtube.com/watch?v=fOUf51wkPwI>

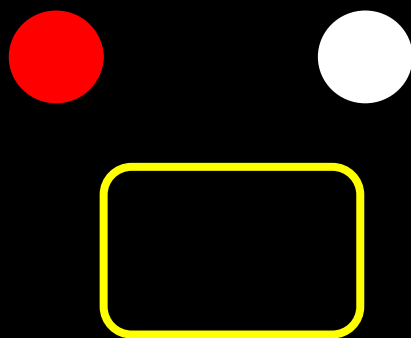
Exceptions to Mendel's Laws

- 1) *Incomplete dominance*
- 2) *Codominance*
- 3) *Multiple Allele Traits*
- 4) *Polygenic Traits*
- 5) *Pleiotropic Genes*

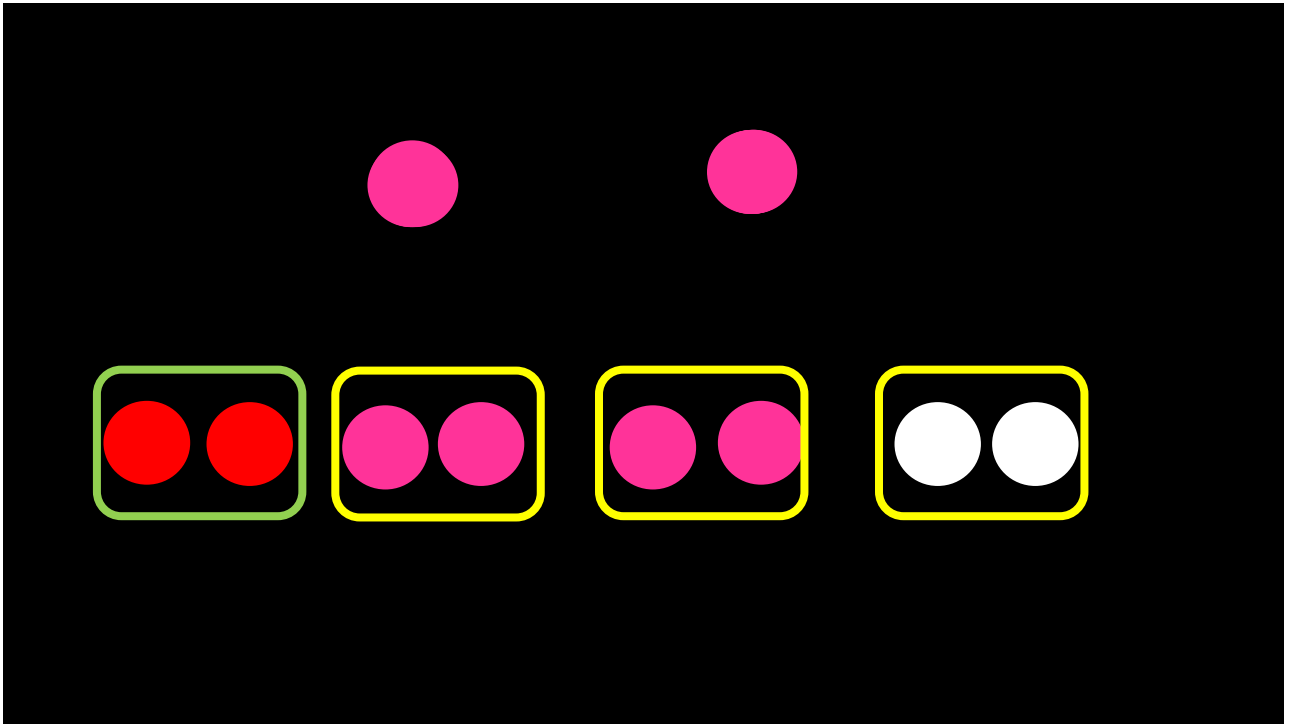
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Incomplete Dominance

Some alleles are not completely dominant and the offspring will have a “blending” of the parents traits.



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Mirabilis jalapa (Four O'clock) flower
Snapdragon flower

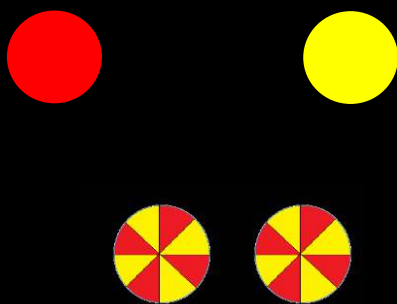


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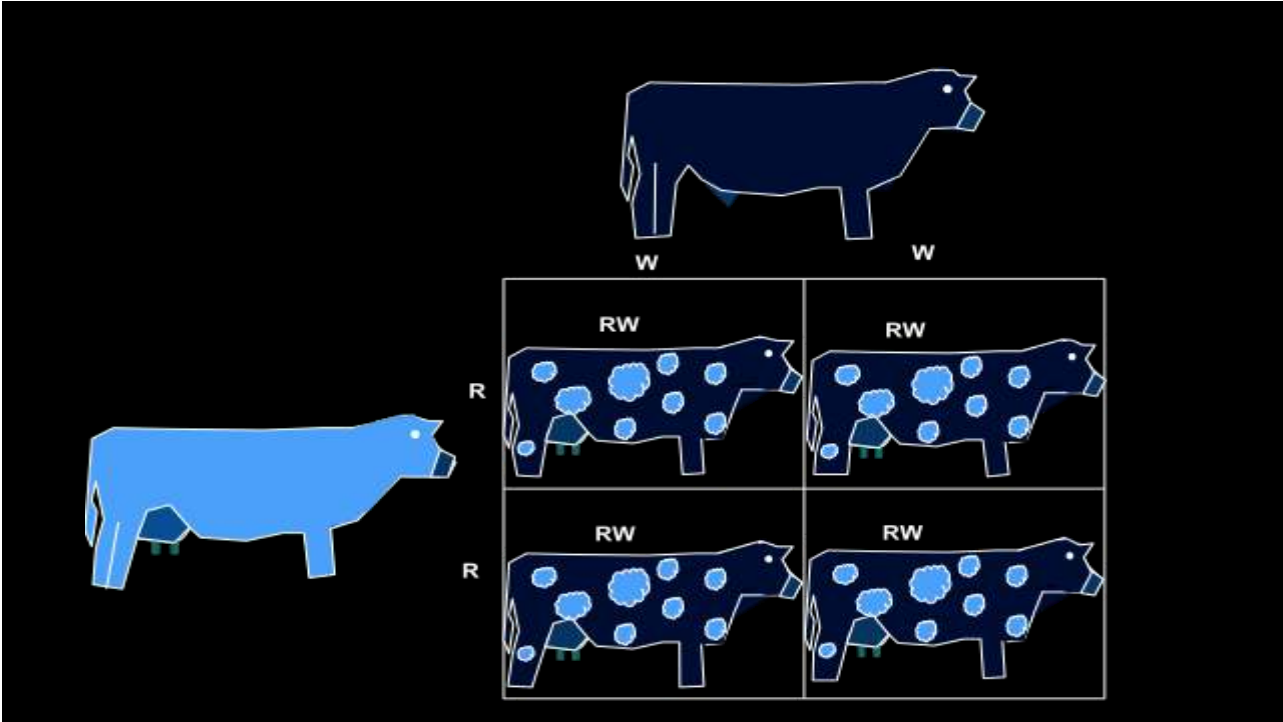
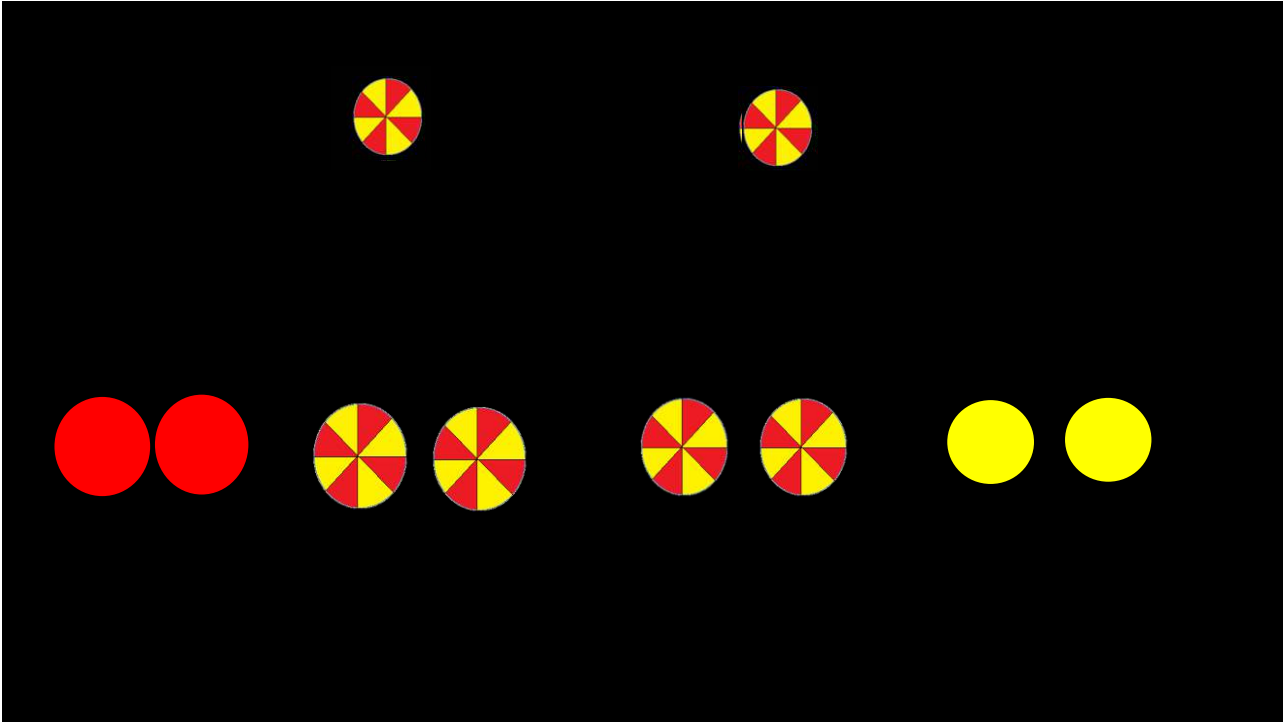
Codominance

In the heterozygous condition, **both** alleles are expressed **equally**

NO blending!



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Which Mendelian idea is depicted by a cross in which F₁ generation resembles both the parent

If you cross a red plant with a white plant and the offspring is pink, what is that called?

- A. Incomplete dominance*
- B. Polygenic inheritance*
- C. Codominance*
- D. Multiple alleles*

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Multiple Alleles

More than two alleles for a gene

Blood group-

A B O

Blood Type	Genotype	Antigen	Antibody	Can receive blood from
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A	$I^A I^A / I^A i$	A	B	A or O
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B	$I^B I^B / I^B i$	B	A	B or O
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AB	$I^A I^B$	A & B	None	All
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O	ii	None	A & B	Only from O
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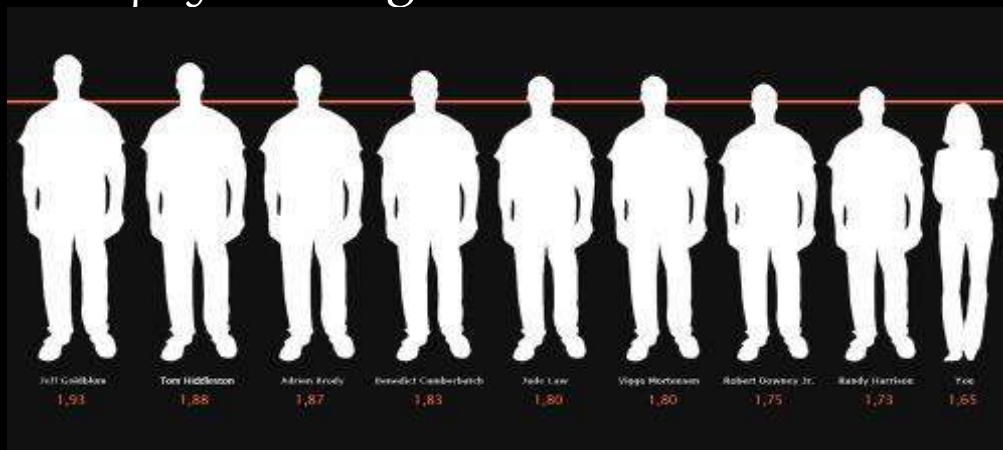
Some people have AB blood types for the ABO blood system. They have all of the characteristics of both type A and type B blood--they are not a blend of them. The inheritance pattern responsible for this is referred to as

A child has blood group O .If father is of group A and mother of blood group B, work out the genotype of the parents and find out the expected genotypes of other offspring

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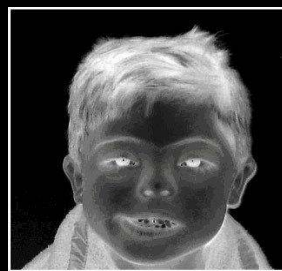
Polygenic Traits

Group of several genes



Pleiotropic Genes

- Phenylketonuria Disease-Gene on chr. 12
- Phenylalanine hydroxylase



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Effect of Environment on Phenotype

Curly hair and straight hair are coded by alleles in humans. Explain parents with curly hair can have children with curly hair but parents have straight hair have children with curly or straight. Use genetic diagram.

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Ram has two daughters. He blame his wife for bearing only daughters and no son. How will you convince Ram that his wife has no role in giving birth to daughter. Only so that she should not be blamed fot it. Further, females are rather more important component of society. What values are involves in the advice.

Woman-homogametic(22+X)

Man-Heterogametic (22+X) (22+Y)

Gynosperm Androsperm